

**University of Tuzla  
Faculty of Economics**

**ICEI**

**6<sup>th</sup> Scientific Conference with International Participation  
“ECONOMY OF INTEGRATION” ICEI 2019  
“(E)MIGRATION AND COMPETITIVENESS OF  
SOUTHEASTERN EUROPEAN COUNTRIES”**

# **CONFERENCE PROCEEDINGS**

**Tuzla, December 5<sup>th</sup>-7<sup>th</sup>, 2019**





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“Economy of Integration”

# ICEI 2019

“(E)migration and Competitiveness of Southeastern  
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## CONFERENCE PROCEEDINGS

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## Predgovor

Već deceniju, na dvogodišnjoj vremenskoj osnovi, Ekonomski fakultet Univerziteta u Tuzli, Bosna i Hercegovina, organizuje konferenciju “Ekonomija integracija”, poznatiju pod akronimom “ICEI”. Riječ je o vrlo dobro etabliranoj konferenciji regionalnog karaktera, koju Fakultet organizuje u saradnji sa koorganizatorima iz Hrvatske (Ekonomski fakultet u Osijeku, Sveučilište Josip Juraj Strossmayer), Slovenije (Ekonomsko-poslovna fakulteta, Univerza v Mariboru), Srbije (Beogradska bankarska akademija – Fakultet za bankarstvo, osiguranje i finansije, Beograd), Crne Gore (Ekonomski fakultet u Podgorici) i Sjeverne Makedonije (Ekonomski fakultet Prilep, Univerzitet “Sv. Kliment Ohridski”). Uspješno povezivanje Ekonomskog fakulteta Univerziteta u Tuzli sa navedenim visokoškolskim institucijama obezbjeđuje mu niz mogućnosti za poboljšanje performansi vezanih za obrazovni proces i naučno-istraživački rad i osigurava pretpostavke za uspješnije integrisanje Univerziteta u evropski prostor visokog obrazovanja.

Dok su na prvoj ICEI konferenciji eminentni eksperti iz regiona Jugoistočne Evrope raspravljali na temu “*Kako upravljati u vrijeme krize?*”, druga konferencija bila je posvećena temi “*Izazovi i perspektive integracije zemalja Jugoistočne Evrope*”. Treća konferencija bila je fokusirana na temu “*Znanjem od recesije ka prosperitetu*”, četvrta na temu “*Izazovi ekonomije u kriznom okruženju*”, dok se na petoj raspravljalo na temu “*Uloga ekonomske misli u savremenom okruženju*”. Posljednja, šesta konferencija, koja je održana 2019. godine, predstavljala je novu priliku za diskusiju i mjesto ponovnog susreta velikog broja istraživača, praktičara i naučnika iz oblasti ekonomije i biznisa zemalja Jugoistočne Evrope i šire - Kanade, Italije, Ukrajine, Poljske, Bahreina i SAD-a.

ICEI 2019, čija je centralna tema “*(E)migracije i konkurentnost zemalja Jugoistočne Evrope*”, imala je za cilj da kroz razmjenu ideja, iskustava i kritičkog promišljanja doprinese diseminaciji znanja i poticanju rasprava kako o (e)migracijama tako i o konkurentnoj sposobnosti privreda zemalja Jugoistočne Evrope, a i šire. Naime, (e)migracije danas zauzimaju važno mjesto u raspravama o javnim politikama u Evropi. Iako je utvrđen određen pozitivni ekonomski, društveni i kulturni utjecaj migracija na zemlje odredišta, njihov utjecaj na zemlje porijekla još uvijek je nejasan. U zemljama Jugoistočne Evrope emigracije su značajno smanjile rast stanovništva i, u nekim slučajevima, čak pogoršale postojeće negativne demografske trendove. Najizraženiji negativni utjecaj emigracija odnosi se na smanjenje ljudskog kapitala, što neposredno utječe na tržište rada, državni budžet, ekonomski rast i konkurentnost zemlje porijekla, uopšteno. Priliv doznaka je možda najopipljivija veza između migracija i konkurentnosti zemlje porijekla, na način da priliv doznaka može povećati minimalnu platu i time smanjiti ponudu radne snage. To, zajedno sa značajnim odlivima kvalifikovane radne snage, može dovesti do većih pritisaka na povećanje domaćih plata i time pogoršati konkurentnost zemlje porijekla. Osim toga, emigracije mogu imati važne implikacije za fiskalne prihode i rashode, kao i za rast proizvodnje u cjelini. Polazeći od centralne teme, na ovogodišnjoj ICEI konferenciji nastojao se dati odgovor na pitanje poboljšanja konkurentnosti prevladavanjem negativnih trendova (e)migracija, u smislu:

- jačanja institucija i politika za kreiranje okruženja koje motiviše ljude da ostanu u zemlji i privlači kvalifikovanu radnu snagu iz drugih zemalja;
- poticanja upotrebe doznaka za investiranje umjesto za potrošnju;
- ublažavanja negativnih fiskalnih utjecaja;
- kreiranja povoljnog poslovnog okruženja u nacionalnom i regionalnom kontekstu;
- održavanja ekonomske stabilnosti i poticanja otvaranja novih radnih mjesta;
- povećanja kvaliteta postojeće radne snage modernizacijom obrazovanja;
- izgradnje kapaciteta za inovacije kroz jačanje saradnje između univerziteta i industrije na polju istraživanja, razvoja i inovacija itd.

Konferencija ICEI 2019 rezultirala je konkretnim prijedlozima vezanim za dodatno unapređenje komunikacije i saradnje između donosilaca odluka (vlada, ministarstava, agencija), istraživača (članova akademske zajednice, razvojnih centara, instituta i sl.) te menadžera i vlasnika kompanija, kako bi se sinergetskim djelovanjem kreirao povoljan poslovni ambijent u nacionalnom i regionalnim okvirima. Tim više jer je dodatna vrijednost Konferencije bilo organizovanje Drugog biznis foruma, sa pet sesija. Organizaciju sesije „Potencijali dijaspore za lokalni ekonomski razvoj“ podržao je UNDP BiH. Također, značajan doprinos ICEI 2019 dale su specijalna sesija „Kako danas napisati doktorsku disertaciju?“, kao i studentska „Put do uspjeha“, za koje su ogroman interes pokazali studenti sva tri ciklusa studija kako ekonomskih tako i drugih fakulteta Univerziteta u Tuzli, kao i fakulteta koorganizatora.

ICEI 2019 potvrdila je sva očekivanja (ko)organizatora, posebno u smislu velikog broja radova koji su prošli dvostruku anonimnu recenziju i koji su tematizirali širok spektrom područja (kao npr. održivost migracija, faktori koji utiču na emigracije i njihove implikacije na nedostatak vještina na tržištu rada, utjecaj demografskih promjena na dugoročnu makroekonomsku stabilnost, indikatori i implikacije demografskog starenja, strane direktne investicije, poduzetnički i inovacijski ekosistem, finansijska održivost velikih gradova, digitalna transformacija, održivi razvoj, sektorska disperzija zaposlenosti kao determinanta kreiranja posla, društvena odgovornost, uloga javno-privatnog partnerstva u razvoju tržišta osiguranja od katastrofa, sklonost mladih ka zaduživanju, rubna tržišta kapitala, održivost *currency board* aranžmana, strukturirani model zadovoljstva turista destinacijom, usklađivanje inženjerskog upravljanja imovinom i finansija, izgradnja modela upravljanja kvalitetom zdravstvenih usluga u javnim ustanovama primarne zdravstvene zaštite itd.), kao i primijetnog povećanja broja citiranosti radova koji su publikovani u zbornicima ICEI, a pogotovo usljed indeksacije zbornika ICEI 2015 i ICEI 2017 u bazi “Conference Proceedings Citation Index” (CPCI). Programski i recenzentski odbor svojim sastavom i dignitetom članova (njih ukupno 136) koji dolaze sa ekonomskih fakulteta iz zemalja (ko)organizatora konferencije i razvijenih zemalja svijeta, garantuje kvalitet radova koji su prošli serioznu selekciju i dvostruku anonimnu recenziju. U okviru ICEI 2019 konferencije prezentirani su rezultati teorijskih i empirijskih istraživanja sublimiranih u okviru 50 radova, od strane ukupno 149 (ko)autora, iz čak 11 zemalja svijeta.

Na kraju, ali ne na posljednjem mjestu po važnosti, značajan doprinos u realizaciji Konferencije imalo je i organizovanje, po prvi put, plenarne sesije, u okviru koje se raspravljalo o uzrocima migracija, posljedicama migracija (pozitivnim i negativnim), odnosno iskorištavanju migracija za poboljšanje konkurentnosti, kao i održivosti migracija i ulozi ekonomske nauke. Aktivno učešće u ovoj sesiji imali su: prof. dr Slavica Singer, profesor emeritus, UNESCO Katedra za poduzetničko obrazovanje, Ekonomski fakultet Sveučilišta Josip Jurja Strossmayer u Osijeku, prof. dr Hasan Hanić, profesor emeritus, Beogradska bankarska akademija, Univerzitet Union u Beogradu, prof. dr Anto Domazet, profesor emeritus, Ekonomski fakultet Univerziteta u Sarajevu, i dr. sci. Nermin Oruč, direktor Centra za razvojne evaluacije i društvena istraživanja u BiH i koordinator Mreže za migracije Zapadnog Balkana.

**Urednice**

## Foreword

For a decade, the Faculty of Economics, Tuzla University, Bosnia and Herzegovina, has biannually organized the conference titled “The Economy of Integration”, known by its acronym “ICEI”. The Faculty has organized this rather established conference of regional character with the co-organizers from Croatia (the Faculty of Economics in Osijek, Josip Juraj Strossmayer University of Osijek), Slovenia (the Faculty of Economics and Business, University of Maribor), Serbia (the Belgrade Banking Academy – Faculty for Banking, Insurance, and Finance, Belgrade), Montenegro (The Faculty of Economics in Podgorica), and Northern Macedonia (The Faculty of Economics in Prilep, St. Kliment Ohridski University, Bitola). A successful cooperation between the Faculty of Economics, Tuzla University and these higher education institutions provides the University with the opportunities to improve its performances related to education process and science and research, thus providing the opportunities for more successful integration of the University into the European scope of higher education.

While the first ICEI conference hosted eminent experts from Southeast Europe, who discussed the topic “*How to Manage in Times of Crisis?*”, the second conference was dedicated to the topic of “*Challenges and Perspectives of the Integration of the Southeast European Countries*”. The third conference title was “*With Knowledge from Recession to Prosperity*”, the fourth concentrated on “*Challenges of Economy in Environment Under Crisis*”, while the fifth conference focused on “*The Role of Economic Thought in Modern Environment*”. The last, sixth conference held in 2019 created a new opportunity for discussion and was a meeting place for many researchers, practitioners and scientists in the fields of economics and business, coming from Southeast European countries and beyond, Canada, Italy, Ukraine, Poland, Bahrain, and the USA.

The ICEI 2019, with the central topic “*(E)migration and Competitiveness of Southeastern European Countries*”, was aimed to exchange ideas, experiences and critical thinking so as to contribute to knowledge dissemination and to initiate discussion on (e)migration and competitive abilities of the economies of Southeastern European countries and beyond. (E)migration is now important in discussions on public policies in Europe. Although migration was described as having a positive economic, social and cultural effect on destination countries, its effect on origin countries is still unclear. In some Southeastern European countries, emigration significantly reduced population growth and, in some cases, even worsened the existing negative demographic trends. The most evident negative effects of emigration are related to the reduction of human capital, which indirectly affects labor market, state budget, economic growth and the competitiveness of origin countries in general. The influx of remittances is perhaps the most tangible link between migration and the competitiveness of the origin country in such a way that such influx may increase minimum salary and consequently reduce labor force offer. Along with a significant drain of qualified labor force, this can lead to stronger pressure on the increase of domestic salaries and worsen the competitiveness of the origin country. In addition, emigration can have significant implications on fiscal revenue and expenditure as well as production growth in total. Starting from this central topic, this year’s ICEI conference attempted to respond to the issue of increasing competitiveness by overcoming negative trends of (e)migration as follows:

- Strengthening institutions and policies so as to create the environment which motivates people to stay in their country and which attracts labor force;
- Encouraging the usage of remittances for investment rather than for consumption;
- Alleviating negative fiscal effects;
- Creating positive business environment in the national and regional context;
- Maintaining economic stability and encouraging the creation of new jobs;
- Increasing the quality of the existing labor force by modernizing education;

- Building capacities for innovation by strengthening cooperation between universities and industry in the segment of research, development and innovation, etc.

The ICEI 2019 conference resulted in specific suggestions related to further improvement of communication and cooperation of decision makers (governments, ministries, agencies), researchers (academia, development centers, institutes, etc.), and company managers and owners so as to use synergy to create positive business environment in national and regional contexts. This is even more important as the added value of the conference was the organization of the Second business forum with five sessions. The organization of the session titled “Potentials of Diaspora in the Local Economic Development” was supported by the UNDP BiH. Another significant contribution of the ICEI 2019 were two events: the special session “How to Write a PhD Thesis Today?” as well as the student session “Road to Success”. These sessions were rather interesting for the students of all three cycles of studies at the Faculty of Economics as well as other faculties of Tuzla University but also faculties-coorganizers.

The ICEI 2019 met all the expectations of the (co)organizers, especially in terms of a large number of papers subjected to double anonymous reviews that included a large spectrum of topics such as migration sustainability, factors affecting (e)migration and their implications on the lack of skills on labor market, effect of demographic changes on long-term macroeconomic stability, indicators and implications of demographic ageing, foreign direct investment, entrepreneurial and innovative ecosystem, financial sustainability of large cities, digital transformation, sustainable development, sectoral dispersion of employment as a determinant in job creation, social responsibility, role of public-private partnership in the development of disaster insurance market, youth tendency to debt, frontier capital markets, sustainability of the currency board system, structured model of tourist satisfaction with destination, synchronization of engineering property management and finances, creation of the health service quality management in public institutions of primary healthcare, etc. In addition, the increase in the number of citations was registered, in terms of the articles published in ICEI proceedings, particularly due to the fact that the ICEI 2015 and ICEI 2017 proceedings were indexed in “Conference Proceedings Citation Index” (CPCI). The program and review board, with its 136 distinguished members from the faculties of economics in the countries of the (co)organizers as well as developed countries in the world, guarantees the quality of the papers that underwent rigorous selection and double-blind review. At the ICEI 2019 conference, the results of theoretical and empirical research were presented in 50 papers by 149 (co)authors from as many as 11 countries.

Finally, last but not least important, in the realization of the Conference was the organization of the first plenary session. This session provided the framework for the discussion on the causes of migration, their consequences (positive and negative), the usage of migration for increasing competitiveness as well as on migration sustainability and the role of economics. The active participants of this session were Slavica Singer, PhD professor emeritus, UNESCO Department of Entrepreneurial Education, the Faculty of Economics in Osijek, Josip Juraj Strossmayer University of Osijek, Hasan Hanić, PhD, professor emeritus, the Belgrade Banking Academy, Union University in Belgrade, Anto Domazet, PhD, professor emeritus, the Faculty of Economics, Sarajevo University, and Nermin Oruč, PhD, the director of the Center for Development Evaluation and Social Science Research in Bosnia and Herzegovina and the coordinator of the Western Balkan Migration Network.

**Editors**

**FINANCE AND FINANCIAL POLICY /  
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## EVALUATION OF INDIVIDUAL INVESTORS' ATTITUDES TOWARD INVESTING ON THE FRONTIER CAPITAL MARKET

### EVALUACIJA STAVOVA INDIVIDUALNIH INVESTITORA PREMA INVESTIRANJU NA RUBNOM TRŽIŠTU KAPITALA

#### Abstract

*The research evaluated the attitudes of potential individual investors regarding investing on the frontier capital market. The term “frontier capital markets” appeared in the literature with the advent of capital markets that did not fit into the category of emerging capital markets. These markets are primarily characterized by poor liquidity (i.e. underdevelopment of the secondary market), low value of market capitalization, short history of trading, asynchronous trading, problems with determining the right market indices, etc. Starting with these characteristics and taking into account the striking bank-centricity of financial systems of the countries whose capital markets are categorized as frontier, it is evident that investing of individual investors into capital market instruments on such markets has so far not played a significant role, especially when compared to developed markets. The aim of this research was to establish the way in which potential individual investors perceive the very capital market, the level of their knowledge and financial potential, goals and motives to invest, factors affecting their decision to invest, obstacles to more significant investment into capital market instruments as well as the recommendations given by individual investors regarding the measures and activities for the improvement of frontier capital markets. In order to examine individual investors' attitudes towards investment on the frontier capital market, a survey was used. The sample included the owners and managers of private companies, as the potential individual investors, in Bosnia and Herzegovina, the country representative of frontier capital markets.*

**Keywords:** frontier capital markets, investing, individual investors, Bosnia and Herzegovina (BiH)

**JEL:** G10, G11, G20

#### Sažetak

*U okviru provedenog istraživanja evaluirani su stavovi potencijalnih individualnih investitora vezano za investiranje na rubnom tržištu kapitala. Izraz “rubna tržišta kapitala” u literaturi se javlja s pojavom tržišta kapitala koja prema svojim karakteristikama nije bilo moguće svrstati u kategoriju tržišta kapitala u nastajanju. Ova tržišta karakteriše, prije svega, slaba likvidnost (tj. nerazvijenost sekundarnog tržišta), mala tržišna kapitalizacija, kratka historija trgovanja, asinhrono trgovanje, otežana identifikacija pravih tržišnih indeksa i sl. Polazeći od ovih karakteristika te uvažavajući izrazitu bankocentričnost finansijskih sistema zemalja čija su tržišta svrstana u rubna, jasno je da investiranje individualnih investitora u instrumente tržišta kapitala na tim tržištima nije do sada imalo značajniju ulogu, posebno u usporedbi sa razvijenim tržištima. Cilj predmetnog istraživanja je utvrditi način na koji potencijalni individualni investitori percipiraju samo tržište kapitala, njihov nivo znanja i finansijski potencijal, ciljeve i motive investiranja, faktore koji utiču na njihovu odluku da investiraju, prepreke za značajnije investiranje u instrumente tržišta kapitala, kao i preporuke individualnih investitora o mjerama i aktivnostima za unapređenje rubnih tržišta*

*kapitala. U istraživanju stavova individualnih investitora vezano za investiranje na tržištu kapitala korištena je metoda anketnog ispitivanja. Uzorak su činili vlasnici i menadžeri privrednih društava, kao potencijalni individualni investitori, u Bosni i Hercegovini, koja je uzeta kao reprezentant za rubna tržišta kapitala.*

**Ključne riječi:** rubna tržišta kapitala, investiranje, individualni investitori, Bosna i Hercegovina

**JEL:** G10, G11, G20

## 1. Introduction

Capital markets are important and, in some countries, even crucial segments of the entire financial system. Capital markets support the basic function of the financial system – the transfer of financial resources between deficit and surplus subjects on the market. On the one hand, it is clear that more developed capital markets have more important roles in the transfer of financial resources as the function of the financial system and are an important source of funding. On the other hand, they offer more investment opportunities for the subjects with surplus financial resources (institutional and individual investors).

Capital markets were traditionally divided into developed capital markets and emerging capital markets. The term “frontier capital markets” appeared in the literature with the advent of markets that did not fit into the category of emerging capital markets. These markets are primarily characterized by poor liquidity (*i.e.* underdevelopment of the secondary market), low value of market capitalization, short history of trading, asynchronous trading, problems with determining the right market indices, *etc.* (Bećirović & Kozarević, 2018, p. 83). Starting with these characteristics and taking into account the striking bank-centricity of financial systems of the countries whose capital markets are categorized as frontier, it is evident that investing of individual investors into capital market instruments on such markets has so far not played a significant role, especially when compared to developed markets.

The capital market in Bosnia and Herzegovina (BiH) as well as the capital markets in the surrounding countries (Serbia, Montenegro, and Macedonia), are characterized as frontier capital markets. The aim of this research was to establish the way in which potential individual investors perceive the very capital market, goals and motives to invest, factors affecting their decision to invest, obstacles to more significant investment into capital market instruments as well as the recommendations given by individual investors regarding the measures and activities for the improvement of frontier capital markets. Based on the assessment of their attitudes, specific conclusions might be made regarding the attitudes and obstacles to investment and potential measures for improving frontier capital markets, which would lead to a more significant role of individual investors on such markets.

## 2. Theoretical framework and review of previous research

Investment process on capital market is complex and at the onset investors are required to clearly define investment goals. Efficient management of investment process requires the following: sound knowledge of financial instruments present on capital market along with the way of their evaluation and the assessment of their real price in order to compare it to the recent market price; understanding of market determinants affecting investment process; knowledge of the appropriate investment strategies and ways of forming and managing securities portfolio in accordance to the selected strategy; knowledge of the methods used for the assessment of return on investment, *etc.* (Brzaković, 2005, p. 30).

Every investment involves risk. Investment risk is defined as the possibility for the real return on investment on capital market to differ from expected. Risk and return are closely linked. Investors

with risk aversion may expect lower but safer return of their investment portfolio while investors prone to taking risks expect higher return on investment into securities.

The decision to invest is subject to limitations caused by the very characteristics of capital market and the tax status of certain securities or the moment of tax payment. Individual investors are also limited by the framework related to the decisions to invest into some types of financial instruments. When it comes to the limitations imposed by capital market, market liquidity and the liquidity of individual financial instruments are particularly important. Liquidity of assets to which investment is made needs to be observed as its ability to be converted into cash within a very short period of time or its ability to be sold and bought within a reasonable timeframe. Liquid markets are characterized by more frequent trade including the number of securities traded and by trade volume, when compared to illiquid markets.

If frontier capital markets are analyzed, the key challenge to investment lies in low liquidity of such markets, which is the most significant obstacle to global flows of capital (Senay, 2017, p. 6). Illiquidity of such capital markets undermines the key role of this market as an intermediary between the subjects with deficit and the subjects with surplus financial resources. In addition, frontier capital markets are inefficient and non-transparent.

According to the efficiency market hypothesis (EMH), capital market is efficient if its prices completely reflect all available information (Fama, 1970, p. 383). This actually means that the prices of securities of efficient market are the result of supply and demand, with the assumption of rational participants that instantly take into consideration all the relevant information.

The lack of transparency and information availability is one of the main obstacles for investors to make significant investment on frontier capital markets. Increased transparency of capital market contributes to the increase of public trust in the market, increase of the credibility of the market and financial instruments traded, encourage investors to invest into financial instruments on the market and reduce the frequency of illegal actions (Manea, 2014, p. 117). The companies listed on stock markets rarely give additional non-financial information related to long term effects of capital investment, investment risks, sources of company's value such as: intellectual capital, innovations, research and development, customer relations, *etc.* (Džidić & Marijanović, 2017, pp. 145-146). This means that there is a prominent presence of information asymmetry that is the difference in information available to companies and investors on the market. What additionally complicates investment of frontier capital markets is the fact that the prices of stocks or other securities do not react to the announcements of information on company's profit as expected (Altras Penda, 2017, p. 57).

Apart from these limitations stemming from the very characteristics of frontier capital markets, investors on capital market are also under the influence of psychological factors when they make investment decisions. There is a significant number of studies within behavioral economy that confirm the statement that investment decisions of individual investors are not always rational and directed towards benefit maximization but are the result of other, mainly psychological factors.

In practice, individual investors frequently behave completely quite the contrary to expectations. They show the tendency to sell stocks with high earnings in the past and to keep the losers and many of them are unnecessarily under the strong influence of the media and past experiences when they make investment decisions (Barber & Odean, 2013, pp. 1533-1570). On developed capital markets, individual investors are prone to more frequent trading, which is the behavior which can be explained by excessive self-confidence. Investors that are too confident overestimate the value of their private information, which leads them to use rather active investment strategies (Barber & Odean, 2000, pp. 773-806). Barber and Odean (2001, pp. 261-292) in their research established that

gender in relation to self-confidence affects making decisions on investment on stock market. Men are more confident than women and in accordance with the theoretical expectations they traded more than women. These differences were most prominent between single men and single women. Individual investors prefer investment into stocks based on geographical position, meaning that they invest more into local stocks (Ivković & Weisbenner, 2005, pp. 267-306). Besides, investors show the preference to invest into securities of the companies that are closer in terms of culture and language. The intensity of this effect is inversely proportional to the level of investors' sophistication (Grinblatt & Keloharju, 2001, pp. 1053-1073). Individual investors on frontier capital markets are not completely rational, bearing in mind that "neutral information" was identified among them as the factor with the strongest effect on investment decisions (Angelovska, 2014, p. 137). Less rational decision-making styles are more characteristic of individual investors on frontier capital market than professional investors (Mušura Gabor & Knezović, 2016, p. 10).

### 3. Results of the empirical research and discussion

A survey was used to examine the attitudes of individual investors regarding investment on frontier capital markets. An original questionnaire was used as the instrument in the empirical research. The research included the owners and managers of the companies in BiH, the country representative of frontier capital markets. The survey was conducted online (by means of e-mail) and/or by direct contact. Out of 100 individual investors that participated in the survey, 89 of them completely filled in the questionnaire.

Descriptive statistical analysis was used for data analysis. The independent samples *t*-test was used in order to compare the mean values of the features that are related to two different groups of respondents. Testing the significance of the differences in the replies to the questions for the respondents to the set independent variable was made by the application of a one-way analysis variance (ANOVA). When the presumed homogeneity of the variance is distorted, Welch's *t*-test was used. The *chi*-square test of independence was used as a non-parametric statistical method. As our own measurement scales were used, Cronbach's alpha was used for the analysis of internal reliability of measurement scales. Table 1 gives the overview of the categories and indicators used in the analysis of individual investors' attitudes towards investing on BiH capital market.

Table 1. *Categories and indicators in the analysis of individual investors' attitudes towards investing in the BiH capital markets*

Category	Indicators
Financial potential assessment	Questionnaire attitudes of respondents
Assessment of knowledge regarding the capital market functioning	Questionnaire attitudes of respondents
<i>Perception of capital market</i>	
Legal-regulatory framework of the capital market	Questionnaire attitudes of respondents
Capital market functioning	Questionnaire attitudes of respondents
Liquidity and information efficiency of the market	Questionnaire attitudes of respondents
<i>Investment process, goals, motives, and factors of investment decision making</i>	
Investing in other forms of assets different from capital market	Questionnaire attitudes of respondents
Investment motives and goals	Questionnaire attitudes of respondents
Factors of investment decision making	Questionnaire attitudes of respondents
Intention regarding future investing	Questionnaire attitudes of respondents
<i>Obstacles to investment and capital market improvement activities</i>	
Obstacles to investment on capital market	Questionnaire attitudes of respondents
Capital market improvement activities	Questionnaire attitudes of respondents

Source: Authors' research

### 3.1. Analysis of capital market perceptions

The total value of Cronbach's alpha for the measurement scale used in this segment of the research is 0.746, which points to the internal consistency of the measurement instrument.

Table 2. *Perception of the capital market legal and regulatory framework*

Statement	Mean	Std. deviation
Securities commissions on entity-level work well	2.90	0.62
Investors have good judicial protection	2.60	0.76
The rights of private shareholders are well protected	2.71	0.71
Legal framework of the capital market is good	2.72	0.72

Source: Authors' research

As evident from Table 2, the respondents showed a low level of agreement with the statement related to the legal regulations of capital market in BiH (1 - strongly disagree, 2 - disagree, 3 - neither agree nor disagree, 4 - agree, 5 - strongly agree). The highest mean of their responses was registered for the statement that securities commissions on entity levels work well and its value was 2.9. On the other hand, the lowest mean of their responses was registered for the statement that investors on capital market have good judicial protection and its value was 2.6.

The mean values of agreement with the statements related to the functioning of capital market in BiH are given in Table 3. It is clear that the respondents have negative perception of capital market functioning. Especially negative perception was registered for government measures for attracting investors, with the mean value of 2.2. The mean value for the agreement with the statement that stock markets in BiH function well was 2.69.

Table 3. *Perception of capital market functioning*

Statement	Mean	Std. deviation
BiH stock exchanges work well	2.69	0.86
Government measures to attract investors are good	2.20	0.81
There are no significant obstacles to access to capital market	2.66	0.75

Source: Authors' research

The mean values for the respondents' attitudes regarding liquidity and informational efficiency of capital market in BiH, given in Table 4, point to the negative assessment of liquidity and informational efficiency of capital market.

Table 4. *Perception of the capital market liquidity and informational efficiency*

Statement	Mean	Std. deviation
I think that capital market is liquid	2.48	0.78
The supply of securities is diverse	2.57	0.81
The financial statements of issuers are credible	2.83	0.80
The price of securities reflects all available information	2.65	0.67
The information about issuers are available to citizens	2.47	0.82

Source: Authors' research

### 3.2. Analysis of investment process, goals, motives and investment decision-making factors

The measurement of internal consistency of the scale used for the analysis of acceptability of various types of securities was made by the calculation of Cronbach's alpha coefficient. Its value for this measurement instrument was 0.863, which indicates good internal consistency.

Table 5. *Investment preferences of individual investors*

Securities	Mean	Std. deviation
Shares of state-owned companies	3.04	0.95
Shares of private companies	3.03	0.88
Government bonds	3.07	0.88
Municipal bonds	2.75	0.81
Commercial bills	3.02	0.83
Corporate bonds	3.01	0.79

Source: Authors' research

The mean values of acceptability of securities for investment according to their type, given in Table 5, show that individual investors give the highest preference for investment to state-owned securities.

The mean values for investment preferences of the respondents in regards to investment on capital market are given in Table 6. They show that the biggest preference in regards to capital market is given to real estate investment, with the mean value of 3.83. The respondents had the smallest preference for investment of financial potential into term deposit savings in banks as well as for life insurance investment.

Table 6. *Preferences for other forms of investment (differ from capital markets)*

Type of assets	Mean	Std. deviation
Term deposit savings in banks	2.96	1.14
Real estates	3.83	0.75
Noble (precious) metals	3.34	0.87
Life insurance	3.04	1.09

Source: Authors' research

Cronbach's alpha as the coefficient of reliability of the measurement scale for the assessment of importance of various factors of investment decision making was 0.713. This points to the acceptability of the measurement instrument used. The importance of individual factors during investment decision-making is given in Table 7. The most important factor during the process of making decision on investment into some form of assets was the overall business experience (the mean value 3.69). The lowest mean value was given to intuition as the factor in investment decision-making and its value was 3.25.

Table 7. *Importance of the investment decision-making factors*

Factors	Mean	Std. deviation
Overall business experience	3.69	0.73
Experience regarding investing in certain type of assets	3.57	0.86
Knowledge of investments	3.61	0.86
Usage of available information	3.65	0.82
Analysis of financial and statistical reports	3.48	1.00
Intuition	3.25	0.98

Source: Authors' research

Cronbach's alpha of the measurement scale used in the analysis of motives driving investors during their investment of financial resources was 0.7, which shows acceptable internal consistency of the measurement instrument used.

Table 8. *Investment motives*

Motives	Mean	Std. deviation
Affirmation	2.28	1.14
Feeling of importance	2.18	1.04
Challenge	3.06	1.11
Following trends	2.53	1.02
Profit	3.98	0.79
Financial safety	4.08	0.72

Source: Authors' research

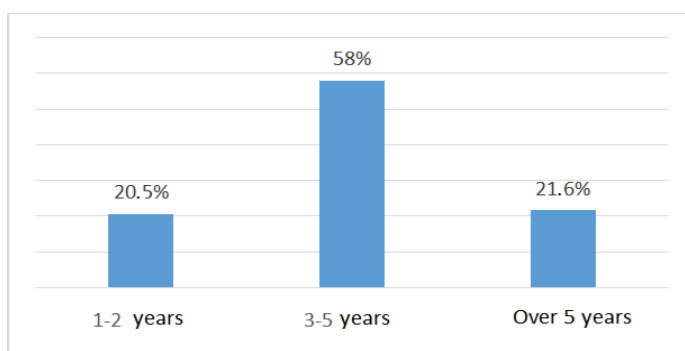
As it can be seen from Table 8, financial safety was marked as the most important motive that affects the decision on investment of financial resources (the mean value 4.08). In addition, as it can be seen in Table 9, the respondents marked regular and stable revenues and accumulation of revenues for the old age as the most important goals they want to achieve by their investment. Both these goals have a high mean value of 4.05. On the other hand, profit in the short run, as the investment goal, has the mean value of 2.91.

Table 9. *Investment goals*

Goals	Mean	Std. deviation
Regular and stable revenues	4.05	0.80
Providing revenues for the old age	4.05	0.84
Profit in the short-run	2.91	1.03

Source: Authors' research

As presented in Graph 1, the largest percentage of the respondents (58%) expects return on investment within the period of three to five years. The lowest percentage of the respondents (20.5%) expects return of invested financial resources within one to two years.

Figure 1. *Relative frequencies of the expected period of investment return*

Source: Authors' research

### 3.3. Analysis of individual investors' attitudes towards risk and willingness to invest

The value of Cronbach's alpha for the measurement scale used in the analysis of the respondents' attitudes towards risk was 0.864, which indicates good internal consistency. As showed in Graph 2, the highest percentage of potential individual investors (36%) is indifferent towards risk. Some 34.9% of the respondents showed their tendency towards risk while 29.1% of them are risk averse.

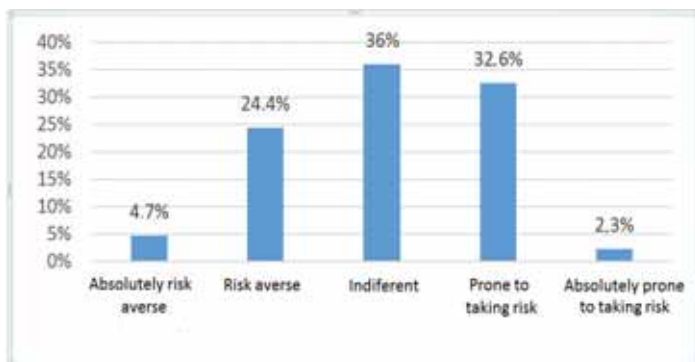


Figure 2. Relative frequencies of the attitudes towards risk

Source: Authors' research

The mean values of the respondents' agreement with the statements related to their intentions to invest on capital market are given in Table 10. The statement related to the priority given to securities compared to other forms of investment had the mean value of 2.48. The intention to invest in the future was given a slightly higher mean value of 2.98.

Table 10. Willingness of individual investors to invest on capital market

Statement	Mean	Std. deviation
I intend to invest on capital market in the future	2.98	1.04
I rather invest in securities than other forms of investment	2.48	1.06

Source: Authors' research

### 3.5. Analysis of obstacles to invest on capital market and activities for its improvement

The acceptability of the measurement scale used in this segment of the research was conducted by the calculation of Cronbach's alpha. Its value was 0.670, which points to the relative acceptability of this measurement instrument.

Graph 3 shows relative frequencies of obstacles to more significant investment activity of individual investors on capital market in BiH. Almost a half of the respondents (49.4%) marked distrust and the risk nature of such form of investment as the most important obstacle to investment on capital market.

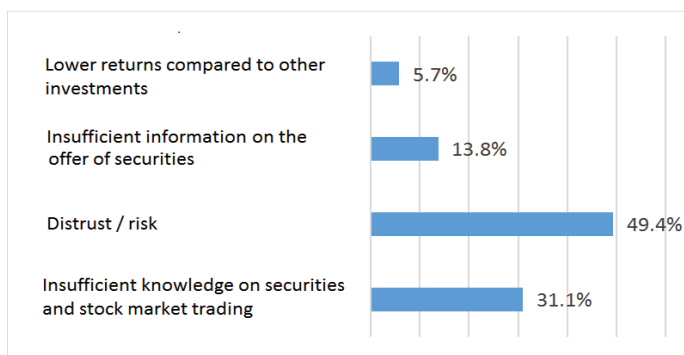


Figure 3. *Relative frequencies of the obstacles to invest on the capital market*

Source: Authors' research

As presented in Table 11, the respondents showed a high level of agreement towards the education of citizens regarding investment on capital market as the activity for its improvement in BiH (the mean value was 4.02). The respondents rated incentives from environment (in terms of encouragement) as the activity for the improvement of capital market with the lowest grade (the mean value 2.65).

Table 11. *Activities for capital market improvement*

Statement	Mean	Std. deviation
Incentives from environment	2.65	0.93
Intensive (aggressive) promotion of investments on capital market	3.85	0.74
Education of citizens regarding investment on capital market	4.02	0.76

Source: Authors' research

### 3.6. Analysis of the relationship among independent groups

In this segment of the empirical research a bivariational analysis was conducted of the identified variables with the usage of *t*-test, ANOVA, *chi*-square test, and correlation analysis. A *t*-test of independent samples was used to compare the attitudes of individual investors regarding investment on capital market in regards to the socio-demographic features of the respondents. The effect size was measured by *eta* squared whose values are interpreted as “small effect” ( $\eta^2=0.01$ ), “moderate effect” ( $\eta^2=0.06$ ) and “large effect” ( $\eta^2=0.14$ ) (Pallant, 2011, p. 243).

Based on the obtained *p* value, with the level of significance ( $p<0.05$ ), it can be concluded that there are statistically significant differences among the respondents' attitudes as follows:

- The only difference in terms of the attitudes of female and male respondents was registered for the statements that the rights of private shareholders are well protected ( $p=0.015$ ). The value of *eta* squared was 0.066, which means that this is a medium effect.
- There are differences between company owners and managers in terms of their attitudes regarding the statement that capital market is liquid ( $p=0.01$ ) and that the prices of securities reflect all available information ( $p=0.01$ ). This is a moderate effect as the value of *eta* squared for both statements was 0.063. In regards to investment motives, a statistically significant difference was registered between the observed groups related to financial safety as investment motive ( $p=0.02$ ). *Eta* squared value was 0.054, which suggests small to moderate effect. Also, company owners and

managers show statistically significant differences in terms of their intention to invest on capital market in the future ( $p=0.02$ ), whereby the effect size of the respondents was small to moderate ( $\eta^2=0.056$ ).

- According to the criteria of household size (three members and less and more than three members), there are differences among the respondents in their attitudes towards the statements that the rights of private shareholders are well protected ( $p=0.01$ ) and that the prices of securities reflect all available information ( $p=0.03$ ). *Eta squared* of the first statement was 0.064 which suggests moderate effect, while its value for the second statement is 0.053, which means that the effect is small to moderate.

Applying a one-way analysis variance (ANOVA), differences were examined in the respondents' attitudes regarding investment on capital market in relation to socio-demographic features that contain three or more categories. Comparison of the obtained value  $p$  in regards to the selected level of statistical significance ( $p<0.05$ ) allowed for the identification of the following differences among different categories of the respondents:

- Regarding the respondents' age, there are statistically significant differences in their attitudes related to the statement that investment into precious materials is more acceptable than investment on capital market ( $p=0.01$ ). *Eta squared* value was 0.12, which suggests a moderate effect of differences. The results of Tukey's HSD test show the existence of a statistically significant difference between the respondents under the age of 30 and all other groups, whereby the mean value of this group is lower when compared to all other groups of the respondents.
- Regarding the education level, it has been established that there is a statistically significant difference among the respondents in their attitudes towards the importance of overall business experience as the factor of investment decision-making ( $p=0.04$  and  $\eta^2=0.069$ ). The assumption of variance homogeneity was disturbed for the last statement and the result Welch's test did not confirm the significance of differences ( $p=0.06$ ). The results of Welch's test point to the difference among the respondents in terms of their agreement with the statement that more intensive promotion of capital market would have positive effects on market improvement. There is a difference between the respondents with high school education and other groups of the respondents in terms of their perception of overall business experience as a factor in investment decision-making. A statistically significant difference was registered between these groups of the respondents, whereby the respondents with better education find this factor more important. When compared to other (two) groups of the respondents, those with MA or PhD levels of education largely agree with the statement that more intensive promotion of capital market would have a positive effect on its development.
- Based on the ANOVA test conducted, the assumption on variance homogeneity tested by Levene's test, and the results of Welch's test of the respondents' attitudes for which the assumption of variance homogeneity was not satisfied and the ANOVA test showed statistically significant differences among groups, it has been established that the respondents, regarding their marital status, differ in their attitudes. The differences were identified for the following statements: the investment motive is profit (ANOVA  $p=0.02$  and  $\eta^2=0.085$ ) and challenge (ANOVA  $p=0.04$  and  $\eta^2=0.07$ ); investment into precious metals is better than investment into securities (ANOVA  $p=0.03$  and  $\eta^2=0.084$ ); the offer of securities on capital market is diverse (Welch's test  $p=0.02$ ); the investment goals is profit in the short run (ANOVA  $p=0.02$  and  $\eta^2=0.081$ ); and in the acceptability of municipal bonds for investment (Welch's test  $p=0.009$ ). Tukey's HSD test shows that the differences were present between the categories married and single, and it is interesting that the single respondents had more positive attitudes to short-run profit as the investment goal and profit and challenge as investment motives.
- It has also been established that the respondents, in terms of their annual income, showed statistically significant differences in their attitudes regarding the functioning of capital market. The difference was registered in relation to the statement that the information on issuers are available to all citizens (ANOVA  $p=0.001$  and  $\eta^2=0.145$ ). Tukey's HSD test shows a statistically significant difference for this statement between the respondents with the annual income up to BAM 20,000 and those with the highest category of income (over BAM 50,000), whereby the respondents with higher income had a significantly lower level of agreement. The statistically significant differences were also registered in risk-related attitudes, such as those for the statements "I am more afraid of

the loss than I am looking forward to the gain” (ANOVA  $p=0.01$  and  $\eta^2=0.114$ ) and “a bird in the hand is worth two in the bush” (ANOVA  $p=0.01$  and  $\eta^2=0.100$ ). Tukey’s HSD test shows statistically significant differences in the attitudes of the respondents with the annual income up to BAM 20,000 and the annual income between BAM 20,000 and 50,000, in relation to the respondents with the highest category of income (over BAM 50,000), whereby the respondents with higher income had a significantly lower level of agreement with these statements. The respondents also showed statistically significant differences in their attitudes towards the importance of analysis of financial and statistical reports as the factor in investment decision-making (ANOVA  $p=0.02$  and  $\eta^2=0.086$ ) and the importance of challenge as a motive for investment (ANOVA  $p=0.04$  and  $\eta^2=0.072$ ). Regarding the analysis of financial and statistical reports, Tukey’s HSD test showed a statistically significant difference between the respondents with the lowest and highest annual income, whereby the respondents with higher annual income see this factor of investment decision-making as more important. Regarding challenge as a motive for investment, Tukey’s HSD test points to the significant differences in attitudes between the respondents with medium and the highest annual income, whereby this motive is more significant for the respondents with the highest level of annual income. A statistically significant difference was registered among the respondents regarding the importance of investment goals such as the provision of revenues “for the old age” (Welch  $p=0.006$ ) and profit in the short run (ANOVA  $p=0.01$  and  $\eta^2=0.101$ ). Tukey’s HSD test showed that when it comes to these goals, there were significant differences between the respondents with the highest and lowest income, whereby those with the highest income found financial safety more important while those with the lowest income emphasized the importance of profit in the short run. Also, a statistically significant difference was registered for the importance of intensive promotion of capital market as the way of its improvement (Welch  $p=0.03$ ). The respondents with the highest income increasingly supported this measure when compared to those with the lowest income.

The *chi-square* test of independence (with the significance level of  $p<0.05$ ) did not show a significant link between the socio-demographic features of the respondents and their attitudes towards risk. Also, no statistically significant relation was registered between the socio-demographic features of the respondents and their willingness to allocate a part of their personal budget into the fund intended for investment on capital market as well as between the socio-demographic features of the respondents and identification of most important obstacles to the development of capital market.

The *chi-square* test of independence showed a significant link between the attitude to risk and the respondents’ willingness to allocate a part of their personal budget into the fund intended for investment on capital market  $\chi^2 (df=2)=10.085$ ,  $p=0.006$ . Cramer’s *V* was 0.342, which points to the moderate effect size between these variables.

#### 4. Concluding remarks

The results of this research can be seen as the contribution to the analysis and understanding of frontier capital market. In order to develop these markets, one needs to take into consideration the way in which individual investors, those present on the market or the potential ones, perceive the very market, goals and motives to invest as well as the obstacles to more significant presence of individual investors on frontier capital markets.

The analysis of the attitudes of individual investors on BiH capital market indicates that these investors have a negative perception of the functioning of this market, the functioning of stock exchange as well as of the legal framework of the market. A significant number of the respondents who did not express their attitudes regarding these issues points to the fact that they are insufficiently informed on capital market or that their level of knowledge is not appropriate. At the same time, securities as the option to invest financial potential are less acceptable than investment into real estates or other forms of assets, such as precious metals. Individual investors see overall

business experience as well as the knowledge and information as the most important factors when they make decisions to invest, whereby the opportunity to invest and financial stability are motives for investment. Different psychological motives such as challenges and following trends are less important. Distrust has been identified as the most important obstacle to investment of individual investors on capital market. It is probably the result of insufficient knowledge as well as information on securities and the way capital market functions, which the respondents recognized as the second important obstacle.

Educating citizens on investment on capital market has been identified as the most important activity that would improve capital market. Apart from education, individual investors believe that more intensive promotion of trade in securities would also have a positive effect on the development of capital market. Although the overall socio-demographic features of the respondents did not have a significant effect on individual investors' attitudes, the largest number of statistically significant differences referred to the attitudes of the respondents with different levels of annual income. Individual investors with the highest level of income are more prone to risk. They believe that more intensive promotion of trade in securities would have a positive effect on the development of capital market and see investment on capital market as a challenge.

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## **DETERMINANTS OF ESTABLISHING THE FINANCIAL RISK MANAGEMENT FUNCTION OF ENTERPRISES IN BOSNIA AND HERZEGOVINA**

### **DETERMINANTE USPOSTAVLJANJA FUNKCIJE UPRAVLJANJA FINANSIJSKIM RIZICIMA U PREDUZEĆIMA U BOSNI I HERCEGOVINI**

**Abstract**

*The role, position and importance of the enterprise financial risk management (FRM) function significantly changed after the collapse of the Bretton-Wood Agreement which increased the volatility of market risk factors such as exchange rates, interest rates, energy prices and/or prices of key inputs/outputs. An active approach to enterprise risk management has led to better understanding of the positive effects of risk management on sustainable business operations, while, on the other hand, it has evolved financial instruments and reduced the cost of risk hedging instruments. Over time, the FRM function has become a constituent part of the integral business dealings of enterprises. The purpose of paper is to investigate the determinants of FRM in large enterprises in Bosnia and Herzegovina (BiH) and the main objective of paper is to identify factors that explain the incidence of establishing a FRM function with a focus on the theoretical basics and motives for FRM, and understanding the specifics of BH markets. The scientific contribution of the paper is reflected in the fact that this paper is a pioneering research in BiH that tested both positive theories on the economic rationale of FRM function and research hypotheses on the relationship between the determinants and the establishment of the enterprise FRM function. The main source of survey data is primary data collected through a structured questionnaire and secondary data collected from the financial statements of enterprises in BiH for 2017. The target population in this survey is large enterprises. The selection of the enterprise was conducted by random sampling method. Three multivariate logistic regression models were evaluated. The results of the research showed that there are no systematic, statistically significant differences between the "hedgers" and "non-hedgers" enterprises and there are no robust statistically significant determinants that explain the incidence of establishing a FRM function in large enterprises in BiH.*

**Keywords:** (non)hedgers, determinants of FRM, logistic regression, large BiH enterprises

**JEL:** G3, G32, C4, C83

**Sažetak**

*Uloga, mjesto i značaj funkcije upravljanja finansijskim rizicima (UFR) preduzeća značajno se promijenila raspadom bretton-woodskog sporazuma koji je uzrokovao volatilnost tržišnih faktora rizika kao što su devizni kursevi, kamatne stope, cijene energenata i/ili cijene ključnih inputa/outputa. Aktivniji pristup upravljanju rizicima preduzeća doveo je do boljeg razumijevanja pozitivnih efekata upravljanja rizicima na*

*održivost poslovanja preduzeća, dok je s druge strane doveo do evolucije finansijskih instrumenata i smanjenja troškova korištenja instrumenata zaštite od rizika. Vremenom, funkcija UFR postala je sastavni dio integralnog poslovanja preduzeća i jedna od strateških funkcija upravljanja preduzećem. Svrha ovog rada je istražiti determinante UFR u velikim preduzećima u Bosni i Hercegovini (BiH), a glavni cilj rada je identificirati faktore/determinante koje objašnjavaju incidenciju (vjerovatnoću) uspostavljanja sistema/funkcije UFR u velikim preduzećima u BiH, sa fokusom na teorijske osnove i motive UFR, te razumijevanje specifičnosti bh. tržišta. Naučni doprinos rada se ogleda u činjenici da ovaj rad predstavlja pionirsko istraživanje u BiH u kojem su testirane pozitivne teorije o ekonomskoj opravdanosti funkcije UFR i testirane istraživačke hipoteze o povezanosti determinanti preduzeća i uspostavljanja funkcije UFR preduzeća. Osnovni izvor podataka u istraživanju predstavljaju primarni podaci prikupljeni putem strukturiranog anketnog upitnika i sekundarni podaci prikupljeni iz finansijskih izvještaja velikih preduzeća u BiH za 2017. godinu. Ciljano populaciju u ovom istraživanju čine velika preduzeća. Izbor preduzeća je sproveden metodom slučajnog uzorka. Ocijenjena su tri modela multivarijantne logističke regresije. Rezultati istraživanja su pokazali da ne postoje sistemske, statistički signifikantne, razlike između preduzeća „upravljajuća“ i preduzeća „neupravljajuća“ finansijskim rizicima te da ne postoje robustne statistički značajne determinante preduzeća kojima se može ocijeniti njihova povezanost sa vjerovatnoćom uspostavljanja funkcije UFR u velikim preduzećima u BiH.*

**Ključne riječi:** (ne)upravljajući, determinante UFR, logistička regresija, velika bh. preduzeća

**JEL:** G3, G32, C4, C83

## 1. Introduction

Real and financial markets have been and remained a changing category, which has, over the course of history, continuously created an opportunity for profit but also a threat to loss, both on the macroeconomic and microeconomic level. The only constant that connected all participants in the financial markets was the uncertainty or the unpredictability of the movement of market risk factors. Each time a particular crisis or breakdown occurred on financial markets, participants were surprised by the dynamics and intensity of changes in market risk factors that created huge financial losses around the world. Traditionally, the risk management function has been related to the adequate management of the pure risks while risk managers generally managed within the enterprise finance function and were responsible for specific risks. Over time, this "silos approach" has evolved for both financial institutions and enterprises and it has begun to establish an "integrated risk management approach" that covers all risks: from pure risks, through opportunity/threats risks to speculative risks. Therefore, in modern financial theory, effective risk management implies a "condition sine qua non" in business dealings not only financial institutions but also enterprises. By exploring and analyzing, both the theoretical arguments justifying the establishment of the FRM enterprise function/system and the empirical research proving their impact on the enterprise cash flows and value, the rationales for establishing the enterprise risk management function can be divided into two basic groups (Bartram, 2002; Judge, 2006; Aretz, Bartram & Dufey, 2007; Miloš Sprčić, Tekavčić & Šević, 2008):

**A) A shareholder value maximization** - represents a group of theoretical considerations according to which enterprise risk management is a lever for creating enterprise value, and enterprise value is a concave objective function due to the imperfections of capital markets. In the first view, **enterprise risk management can, by reducing volatility in cash flows/reported earnings, reduce the cost of financial difficulties and/or cost of bankruptcy** (Mayers & Smith, 1982; Smith & Stulz, 1985; Shapiro & Titman, 1986; Rawals & Smithson, 1990; DeMarzo & Duffie, 1995; Dolde, 1995; Santomero, 1995; Haushalter, 2000; Graham & Rogers, 2002, etc.). According to the assumptions of Modigliani-Miller (1958), there are no costs of financial difficulties in perfect capital markets and changing/managing the probabilities of their realization has no effect on the value of the enterprise. However, the volatility of an enterprise's cash flows may put the enterprise in a situation where it is not able, in a timely manner, to fully meet contractually agreed fixed obligations such as interest on

enterprise debts or fixed wages of workers (Bartram, Brown & Fehle, 2009). In the second view, *enterprise risk management may, by reducing the volatility of cash flows/reported earnings, increase the likelihood that an enterprise will have sufficient internal resources to make profitable investments without the need for expensive external financing* (Shapiro & Titman, 1986; Mayers & Smith, 1982; Smith & Stulz, 1985; Rawals & Smithson, 1990; Lessard, 1991; DeMarzo & Duffie, 1995; Froot, Scharfstein & Stein, 1993). According to modern finance theory, an enterprise should accept all projects that have a positive net present value, and internally generated cash flows are considered a competitive weapon that effectively reduces the cost of capital of the enterprise and facilitates the investment process. In the third view, *enterprise risk management may, by reducing volatility in cash flows/reported earnings, increase the expected value of tax benefits because the likelihood of their use increases with the increase in the level of taxable profit of the enterprise* (Mayers & Smith, 1982; Smith & Stulz, 1985; Rawals & Smithson, 1990; Santomero, 1995; Bartram, 2002; Graham & Rogers, 2002). According to the assumptions of Modigliani-Miller (1958), there are no tax costs in perfect capital markets and changing/managing the probabilities of realizing the reported profit of an enterprise has no effect on the value of the enterprise. However, the volatility of an enterprise's reported earnings may put the business in a position to pay a greater or lesser amount of income tax depending on its tax policy. In the fourth view, *enterprise risk management can be adequately replaced by the use of hedging policy substitutes in order to create enterprise value* (Nance, Smith & Smithson, 1993; Berkman & Bradbury, 1996).

**B) A managers' utility maximization** - is a group of theoretical considerations according to which enterprise managers have limited ability to diversify their wealth resulting from their position in the enterprise and contracted managerial compensation (remuneration) and therefore seek to maximize their own wealth at the expense of enterprise owners. According to the first view, *enterprise risk management can increase probability of achievement minimum amount of reported profit that risk averse managers need to achieve in order to qualify them for enterprise compensation and motivate them not to act in the interests of the shareholders by spending available funds to protect against unsystematic enterprise risks* (Mayers & Smith, 1982; Smith & Stulz, 1985; Tufano, 1996). According to modern portfolio theory, an enterprise investment need to generate sufficient return on their investments in proportion to the size of the undertaken systematic (market) risk, since it is assumed that the specific risks of the enterprise are reduced by effective diversification and therefore, shareholders are prepared to recognize the costs and pay compensation to managers for the undertaking systematic risks only. By using risk management (applying a hedging policy), enterprise managers can reduce the volatility of reported earnings of an enterprise and thus increase the likelihood of achieving an equilibrium amount of profit on the basis of which management compensation payments are made. According to the second view, *by reducing the volatility of the share market prices, the enterprise risk management may increase (reduce) the motive of the managers of the company that owns the shares (options on shares) to actively manage the risks or use the enterprise hedging policy* (Smith & Stulz, 1985; Campbell & Kracaw, 1990). Specifically, owning shares brings linear payoffs to managers as a function of share prices, while owning options on shares brings convex payouts to managers. Thus, the expected value of the personal benefits of an enterprise manager may be a convex function of the expected profit of the enterprise in cases where the enterprise managers exercise their own options on share. Furthermore, according to modern finance theory, the market value of equity is an increasing function of the volatility of the enterprise's assets, and the shareholder position is equivalent to a position of a buyer of a call option on the enterprise's assets (Bartram, Brown & Fehle, 2009).

Enterprises use many financial risk hedging instruments/techniques or methods. In this context, the main objectives of this paper are to identify the characteristics/determinants of enterprises that contribute to the establishment of a FRM system/function in the non-financial sector in BiH.

## 2. Literature review

In the following, the focus is on analyzing the determinants that have impact on establishing a FRM system/function in large enterprises in BiH. The assumed determinants related to the implementation of the FRM system/function include specific enterprise characteristics such as financial characteristics, organizational characteristics and ownership characteristics. In line with the empirical studies analyzed, the most commonly used variables of interest are presented below and the assumed relationship is described:

- a) **Enterprise size** (Nance, Smith & Smithson, 1993; Tufano, 1996; Fok, Carroll & Chiou, 1997; Géczy, Minton & Schrand, 1997; Allayannis & Ofek, 2001; Graham & Rogers, 2002; Brown, Crabb & Haushalter, 2003; Liebenberg & Hoyt, 2003; Pramborg, 2005; Bodnar *et al.*, 2012; Miloš Sprčić, Kožul & Pecina, 2015; Önder & Ergin, 2012). The natural logarithm of total assets is used as a proxy variable for enterprise size. It is expected that there is a positive relationship between the size of the enterprise and the likelihood of establishing a FRM system.
- b) **Cost of financial difficulties** (Nance, Smith & Smithson, 1993; Tufano, 1996; Berkman & Bradbury, 1996; Fok, Carroll & Chiou, 1997; Géczy, Minton & Schrand, 1997; Allayannis & Ofek, 2001; Graham & Rogers, 2002; Miloš Sprčić, Kožul & Pecina, 2015; Liebenberg & Hoyt, 2003; Önder & Ergin, 2012). As proxy variables for the cost of financial difficulties were used:
  - i. *The debt ratio (FL1)* is calculated as the ratio of the book value of total debt to total equity;
  - ii. *The interest coverage ratio (FL2)* is calculated as the ratio of earnings before interest and taxes divided by the interest expense.
 It is expected that there is a positive relationship between the degree of leverage used and the likelihood of establishing a FRM system.
- c) **Agency costs** (Froot, Scharfstein & Stein, 1993; Nance, Smith & Smithson, 1993; Géczy, Minton & Schrand, 1997; Mian, 1996; Tufano, 1996; Haushalter, 2000; Liebenberg & Hoyt, 2003; Miloš Sprčić, Kožul & Pecina, 2015). As a proxy variable for agency costs, the involvement of institutional investors in the ownership structure of the enterprise was used. To control institutional ownership, a dummy variable TAG equal to "1" was used if enterprises had institutional investors with a share of equity greater than 20%, and "0" otherwise. It is expected that there is a positive relationship between the participation of institutional investors in the ownership structure of the enterprise and the likelihood of establishing a FRM system.
- d) **Enterprise growth options** (DeMarzo & Duffie, 1995; Froot, Scharfstein & Stein, 1993; Dolde, 1995; Géczy, Minton & Schrand, 1997; Gay & Nam, 1998; Allayannis & Ofek, 2001; Haushalter, 2000; Pramborg, 2005; Miloš Sprčić, Kožul & Pecina, 2015). As proxy variables for enterprise growth opportunities (options) were used:
  - i. *the capital expenditure ratio (EGO1)* is calculated as the ratio of fixed asset purchases to total sales;
  - ii. *the capital expenditure ratio (EGO2)* is calculated as the ratio of fixed asset purchases to total assets;
  - iii. *production services cost ratio (EGO3)* is calculated as the ratio of production service costs to total sales.
 It is expected that there is a positive relationship between enterprise growth opportunities and the likelihood of establishing a FRM system.
- e) **Asymmetric information** (Smith & Stulz, 1985; Tufano, 1996; Gay & Nam, 1998; Géczy, Minton & Schrand, 1997; Haushalter, 2000; Graham & Rogers, 2002; Bodnar *et al.*, 2012; Miloš Sprčić, Kožul & Pecina, 2015; Liebenberg & Hoyt, 2003). The enterprise organizing form was used as a proxy variable for asymmetric information. An ASIM dummy variable is used to control asymmetric information, which equals "1" if the enterprises are organized as joint stock companies (JSC) and "0" if the enterprises are organized as limited liability companies (LTD). Generally, JSC are considered to be more inclined to set up a FRM system than LTD. Namely, taking into account the agency problem and the substitution problem, the

shareholders are directly interested in monitoring the work of enterprise managers (agents) in JSC and they limiting the enterprise's exposure to the risks that the enterprise can and is allowed to take (risk profile). It is expected that there is a positive relationship between the form of organization of an enterprise as a JSC and the likelihood of establishing a FRM system.

- f) **FRM substitutes** (Nance, Smith & Smithson, 1993; Tufano, 1996; Berkman & Bradbury, 1996; Fok, Carroll & Chiou, 1997; Géczy, Minton & Schrand, 1997; Haushalter, 2000; Graham & Rogers, 2002; Pramborg, 2005). The dummy variable DIV is used to control the use of the hedging policy substitute, which equals "1" if the enterprise paid a dividend in the current year, and "0" otherwise. It is expected that there is a positive relationship between dividend payments and the likelihood of establishing a FRM system.
- g) **Market orientation** (Nance, Smith & Smithson, 1993; Berkman & Bradbury, 1996; Fok, Carroll & Chiou, 1997; Géczy, Minton & Schrand, 1997; Allayannis & Ofek, 2001; Graham & Rogers, 2002; Bodnar *et al.*, 2012; Miloš Sprčić, Kožul & Pecina, 2015). The dummy variable MO, which is equal to "1" if the enterprise is equally oriented to the domestic and foreign markets and "0" otherwise, is used to control the orientation of the enterprise to the markets (geographical diversification). It is expected that there is a positive relationship between the orientation of the enterprise dominantly on foreign markets and the likelihood of establishment FRM system.

In addition to the aforementioned enterprise determinants, in order to examine the influence of enterprise characteristics on the likelihood of establishing a FRM system in large enterprises in BiH, control variables were considered:

- **Group of activities (SD)** - A dummy variable is used to control an enterprise group, which is equal to "1" if the enterprise belongs to the manufacturing activity group and "0" if the enterprise belongs to the service activity group.
- **Revenue (TR)** - Total revenue is used as a proxy variable for the size of the enterprise revenue. It is expected that there is a positive relationship between the size of the enterprise revenue and the likelihood of establishing a FRM system.
- **Ownership structure (OS)** - A dummy variable equal to "1" is used to control the ownership structure if the enterprises are majority privately owned and "0" otherwise. Generally, majority privately owned enterprises are considered more inclined to set up a FRM system than publicly owned enterprises. Most privately owned enterprises are expected to be more likely to establish FRM systems.

### 3. Research methodology

#### 3.1. Data

A primary data for all target enterprises in the survey was collected through a structured survey questionnaire<sup>1</sup> completed by authorized personnel in the risk management, finance or internal audit departments. On the other hand, we have collected secondary data from the financial statements of the enterprises submitted by the entities to the entity agencies for the collection of financial data of legal entities.

The target population in the survey is represented by large enterprises that operated continuously in the territory of BiH in the period of 2013-2017. The population framework of the enterprise was drawn up on the basis of the Statistical Business Register Data of BiH as of June 30, 2017. According to this register, there are a total of 335 large enterprises measured by the number of employees "KD BiH 2010 - Class 7 (250 and more employees)". 129 enterprises were excluded from the population framework whose main activity according to the classification of economic activities of the Agency for Statistics of BiH - KD BiH 2010 was: K, M, N, O, P, Q, and R. Furthermore, large enterprises from the Brčko District were not included in the population

framework because these enterprises are not obliged to submit financial reports to entity agencies for collecting financial data of business entities. Following the exclusion of enterprises from these activities and enterprises from the Brčko District, 206 large enterprises remained within the population framework. With a confidence level of 95% and a margin of error of 5%, 135 enterprises were selected in a random sample<sup>2</sup> from different branches of activity, different form of organization and ownership structure, and market orientation. The survey was conducted online using a structural questionnaire in 135 enterprises. Of the enterprise surveyed, 85 returned a completed survey, yielding a response rate of 62.96%.<sup>3</sup>

In 6 survey questionnaires, more than 2/3 of the answers were not filled in and we excluded them from the analysis. In accordance with practice in Liebenberg and Hoyt (2003) and Miloš Sprčić *et al.* (2016), two enterprises from the sample were excluded in the preliminary data analysis, since in the analyzed period they had an average loss above the capital amount of approximately 3 million BAM (total capital equal to zero) and that most of the financial positions required to calculate the variables of interest were zero and it was impossible to calculate them. In the first case, it is an enterprise that has had a takeover (purchase from the bankruptcy process) in the observed period, and in the second case, it is an enterprise that is majority state-owned and has a monopoly status. Furthermore, a third enterprise that is majority state-owned enterprise organized as a holding enterprise had high extreme values (outliers on almost all analyzed numerical variables of interest had an absolute value greater than 10 standard deviations) was also excluded from the sample. Similarly, four more enterprises either suffered losses in excess of the amount of capital (total capital equal to zero) in some years, or were founded at the beginning of the analyzed period, so they were recapitalized in millions of BAM and they were excluded from the sample. In order to detect individual outliers in the data, a box plot and standardized values of numerical variables ( $z$  values) were used. The data that deviated more than 1.5xIQR are considered as mild outliers<sup>4</sup>, while the data that deviated more than 3xIQR are considered as severe outliers. The data collected contained 0.3% of data that deviated more than 3xIQR, while there was approximately 1% of data that had deviations greater than 1.5xIQR. For variables of interest in which were identified univariate outliers according to (Lievenbrück & Schmid, 2014; Florio & Leoni, 2017) we performed winsorizing with 1% (or 5%).<sup>5</sup> Classification of enterprises by main activity of the Agency for Statistics of BiH - KD BiH 2010 (EU NACE Rev. 2) is quite detailed (21 main activities) and therefore all the enterprises were grouped into two groups of activities: manufacturing group and service activities group.

### 3.2. Methods

In line with the methodology applied in previous research (Nance, Smith & Smithson, 1993; Tufano, 1996; Géczy, Minton & Schrand, 1997; Allayannis & Ofek, 2001; Graham & Rogers, 2002; Brown, Crabb & Haushalter, 2003; Liebenberg & Hoyt, 2003; Pramborg, 2005; Bodnar *et al.*, 2012; Miloš Sprčić, Kožul & Pecina, 2015; Önder & Ergin, 2012) a multivariate logistic regression was conducted to evaluate the effects of determinants on the establishment of an enterprise FRM system/function. The binomial logistic regression model is commonly used when the dependent variable is a dichotomy (limited, discrete and not continuous) and the independents are nominal, ordinal, interval or ratio-level. The binary dependent variable FRM has a value of "1" if the enterprise manages financial risks and "0" if the enterprise does not manage financial risks. Furthermore, the relationship between the decision to manage financial risks (dependent variable) and its potential determinants (independent variables)<sup>6</sup> it can, in general, be expressed as follows:

$$FRM = f(ES, FL, TAG, EGO, ASIM, MO, S, TB, OS)$$

where is:

- FRM - a binary dependent variable;
- ES - size of the enterprise;

- FL - costs of financial difficulties or costs of bankruptcy of an enterprise;
- TAG - agency costs;
- EGO - enterprise growth options/opportunities;
- ASIM - asymmetric information;
- MO - market orientation;
- S - substitutes for risk management;
- TB - tax benefits;
- OS - the owner share of the key person for managing enterprise risks.

In order to test the previously elaborated positive theories on the economic rationality of the risk management function/system and to test the previously established research hypotheses on the relationship between enterprise characteristics/determinants and the establishment of the enterprise risk management function/system, we estimated the following three logistic regression models:

- 1) *Model 1*: all enterprises (ALL)
- 2) *Model 2*: enterprises organized as joint stock companies (JSC)
- 3) *Model 3*: enterprises organized as limited liability companies (LTD).

#### 4. Results and discussion

The results of the logistic regression are shown in the Table 1. Based on the *p-value* and the percentage of correct classification of all three models (77.78%, 88.00%, 73.33%, respectively), the null hypothesis that all coefficients are simultaneously equal to zero is rejected, that is, it is concluded that there is at least one statistically significant coefficient in logistic regression models.<sup>7</sup>

Table 1. *Logit regression models*

Sample	ALL		JSC		LTD	
Model	Model 1		Model 2		Model 3	
Explanatory variables	Coefficient	P> z	Coefficient	P> z	Coefficient	P> z
Total Revenue (TR)	-1,705796**	0,016	1,191978	0,744	-2,775297***	0,004
Enterprise Size (lnTA)	0,646764*	0,074	0,367877	0,851	1,033260**	0,026
Financial leverage (FL2)	-0,000089	0,317	-0,005338	0,484	-0,000040	0,330
Enterprise growth options (EGO1)	8,210889	0,143	79,438140	0,196	4,477039	0,576
Market Orientation (MO)	2,090094**	0,015	7,758731*	0,065	1,203832	0,303
Asymmetric Information (ASIM)	-1,252871*	0,080	0 (omitted)		0 (omitted)	
Tax Benefits (TB)	1,655637*	0,095	-1,703013	0,492	0 (omitted)	
Group of activities (GA)	0,063645	0,925	10,349510	0,277	-0,264757	0,750
Const.	-9,102251	0,104	-25,081180	0,502	-13,077430**	0,049
Prob>chi <sup>2</sup>	0,0104		0,0148		0,0214	
Pseudo R <sup>2</sup>	0,2215		0,5883		0,2662	
Correctly classified	77,78%		88,00%		73,33%	

\*\*\*, \*\*, \* significance at the 1%, 5% and 10% levels, respectively.

Source: Authors' research

In **Model 1** (all enterprises), with a significance level of 5%, statistically significant variables are: total revenue and market orientation, and with a significance level of 10%, statistically significant variables are also: company size, asymmetric information and tax benefits. At the same time, as the size of the enterprise increases the likelihood of establishing a FRM function increases, while the probability of establishing a FRM function decreases with an increase in total revenue. Furthermore, enterprises are more likely to manage financial risks if they are equally oriented to both markets and use tax benefits. On the other hand, enterprises are less likely to manage financial risks if they are organized as JSC. Other variables (determinants) are not statistically significant. The linktest results indicate that the model selected is well specified [ $\chi^2(2)=20.40$ , *p-value*=0.000]. Similarly, the Hosmer-Lemeshow test results indicate that the selected model fits the data well (HL=6.62, *p-value*=0.5782).

In **Model 2** (JSC), with a significance level of 10%, only the variable market orientation is statistically significant. Thereby, enterprises oriented equally in both markets are more likely to establish FRM functions than enterprises oriented predominantly to the domestic or foreign markets. Other variables (determinants) are not statistically significant. The linktest results indicate that the model selected is well specified [ $\chi^2(2)=17.86$ ;  $p\text{-value}=0.0001$ ]. Similarly, the Hosmer-Lemeshow test results indicate that the selected model fits the data well ( $HL=3.13$ ,  $p\text{-value}=0.9262$ ).

In **Model 3** (LTD), with a significance level of 1%, the variable total revenue is statistically significant, while the variable enterprise size is statistically significant at the level of 5%. In addition, with the increase in total revenue, the probability of establishing a FRM function decreases, and with the increase in the size of the enterprise the probability of establishing a FRM function decreases. Other variables (determinants) are not statistically significant. The linktest results indicate that the model selected is well specified [ $\chi^2(2)=15.88$ ,  $p\text{-value}=0.0004$ ]. Similarly, the Hosmer-Lemeshow test results indicate that the selected model fits the data well ( $HL=4.53$ ,  $p\text{-value}=0.8069$ ).

The results of the estimated logit models showed that there is a positive and statistically significant relationship between the **size of the enterprise** and the likelihood of establishment FRM system / function, which is in accordance with the research results (Nance, Smith & Smithson, 1993; Dolde, 1995; Mian, 1996; Géczy, Minton & Schrand, 1997; Colquitt, Hoyt & Lee, 1999; Judge, 2006; Carter, Rogers & Simkins, 2006; Bartram, Brown & Fehle, 2009; Pagach & Warr, 2010; Bertinetti, Cavezzali & Gardenal, 2013; Lievenbrück & Schmid, 2014). On the other hand, the results of Liebenberg and Hoyt, (2003) showed that there is a negative (statistically nonsignificant) relationship between the likelihood of establishing an enterprise risk management system and the size of an enterprise. However, the results of Tufano's (1996) study showed that there is no statistically significant relationship between the size of the enterprise and the likelihood of establishing a FRM system/function.

According to the results of the estimated logit models, there is no statistically significant relationship between the **cost of financial difficulties** (measured by the ratio of earnings before interest to taxes and interest expenses) and the likelihood of establishing a FRM system/function. Also, the research results (Nance, Smith & Smithson, 1993; Tufano, 1996; Davies, Eckberg & Marshall, 2006; Bertinetti *et al.*, 2013; Lievenbrück & Schmid, 2014) were not statistically significant at any standard level of significance. It is important to note that the research results [Campbell & Kracaw, 1990; Dolde, 1995; Mian, 1996; Géczy, Minton & Schrand, 1997; Haushalter, 2000; Liebenberg & Hoyt, 2003; Judge, 2006; Bartram, Brown & Fehle, 2009; Pagach & Warr, 2010; Pérez-González & Yun, 2013] showed that there is a positive relationship, but the results of the research [Carter, Rogers & Simkins, 2006; Baxter *et al.*, 2013] showed that there is a negative relationship between the **cost of financial difficulties** (measured by the degree of financial leverage) and the likelihood of establishing a FRM system/function. Other variables used as proxy variables for financial difficulties (book value ratio of total debt and total equity; book value ratio of total debt and total assets) were not statistically significant at any standard significance level, and significantly violated the specifications of the analyzed logit models and they were excluded in the final models.

The findings of the study indicate that there was not statistically significant relationship between the **enterprise's growth options** (measured by the ratio of fixed asset purchases to total sales; the ratio of fixed asset purchases to total assets; the ratio of costs of production services to total sales) and the likelihood of establishing a FRM system/function at any standard significance level. There were similar results in the studies (Liebenberg & Hoyt, 2003; Davies, Eckberg & Marshall, 2006; Pagach & Warr, 2010; Miloš Sprčić & Šević, 2012). The researches (Nance, Smith & Smithson, 1993;

Carter, Rogers & Simkins, 2006) have confirmed the hypotheses of a positive relationship between the enterprise growth opportunities (options) and the likelihood of establishing a FRM system/function, while opposite results were found by some other authors (Mian, 1996; Tufano, 1996; Géczy, Minton & Schrand, 1997; Judge, 2006; Bartram, Brown & Fehle, 2009).

Furthermore, the results of the study showed that the variables used as proxy variables for the **corporate risk management substitutes** (measured by the dummy variable of dividend payments) were not statistically significant at any standard significance level, and they significantly violated the specifications of the analyzed logit models. Therefore, they were excluded in the final models. In contrast to this research, the results by (Bertinetti, Cavezzali & Gardenal, 2013) showed that there is a positive relationship, whereas the results by (Nance, Smith & Smithson, 1993; Tufano, 1996; Géczy, Minton & Schrand, 1997; Judge, 2006; Carter, Rogers & Simkins, 2006; Davies, Eckberg & Marshall, 2006; Bartram, Brown & Fehle, 2009) showed that there is a negative relationship between the substitute for risk management and the likelihood of establishing a FRM system/function.

The results of the study showed that there is no statistically significant relationship between the owner share of the key person for managing enterprise risks and the likelihood of establishing an enterprise FRM system/function, which is consistent with the results of research by (Géczy, Minton & Schrand, 1997; Haushalter, 2000; Liebenberg & Hoyt, 2003). On the other side, the results of the research by (Tufano, 1996; Gay & Nam, 1998; Davies, Eckberg & Marshall, 2006; Carter, Rogers & Simkins, 2006) have shown that there is a positive relationship between the ownership of enterprise risk managers and enterprise FRM function/system. The results of research by Bartram, Brown and Fehle (2009) showed that the relationship between enterprise FRM function/system and the ownership of enterprise risk managers can be both positive and negative depending on the determinants of the enterprise used as proxy variables.

The results of this research are very similar to the results of the research conducted by Miloš Sprčić and Šević (2012) in which they were explored the relationship between the decision to hedge an enterprise against risks and the costs of financial difficulties, agency costs, imperfections in the capital market, taxes, utility business manager and hedge substitute on the sample of Croatian and Slovenian enterprises. The findings based on the empirical relationship between the decisions to hedge an enterprise on the example of Croatian companies did not provide any support for any of the tested hypotheses, except the hypothesis relating to expensive external financing (measured by the ratio of capital investment to total assets). Also, the findings in the same survey concerning Slovenian companies did not provide any support for any of the hypotheses tested. Similarly, the results of testing positive theories on the economic rationality of the appointment of an enterprise risk manager (CRO) and the research hypotheses on the relationship between enterprise determinants and the establishment of risk management systems, conducted by Liebenberg and Hoyt (2003), showed that no statistically significant explanatory variables exist.

## 5. Conclusions

Based on the presented conceptual framework in which the theoretical and empirical aspects of establishing enterprise FRM function/system are elaborated, in the real world, besides imperfections in the financial markets, there are also different and sometimes even opposite interests between owners, managers, creditors, employees and other stakeholders. According to positive hedging theories, relaxing the assumptions underlying the existence of perfect capital markets leads to circumstances in which risk management creates value for the enterprise as a whole by reducing the costs associated with agency problem, costly external financing, financial difficulties, the problem of underinvestment and substitution and the cost of tax liabilities.

Taking into account the presented theoretical assumptions for the establishing a FRM function / system and analyzed the empirical research, it can be concluded that there are a number of proxy variables that explain the rationales for managing enterprise risk. Thus, enterprise hedging policy increase the value of the enterprise by reducing transaction costs such as the cost of financial difficulties and the cost of bankruptcy, then reducing the corporate tax burden, balancing enterprise financing and investment policies, and reducing or eliminating costs related to agency problem, asymmetric information problem and asset substitution problem.

The results of the conducted logistic regression on the data from 2017, which tested positive theories on the economic rationality of the enterprise FRM function/system and tested the established research hypotheses on the relationship between the characteristics/determinants of the enterprise and the establishment of the enterprise FRM function/system, were partially confirmed. In Model 1 (ALL), with a significance level of 5%, statistically significant variables are: total revenue and market orientation, and with a significance level of 10%, statistically significant variables are also: company size, asymmetric information and tax benefits. In Model 2 (JSC), with a significance level of 10%, only the variable market orientation is statistically significant. In Model 3 (LTD), with a significance level of 1%, the variable total revenue is statistically significant, while the variable enterprise size is statistically significant at the level of 5%.

Based on the above, it can be concluded that this research did not show that systematic differences between the enterprises classified as “managing” and enterprises classified as “non-managing” financial risks exists and that there are no robust statistically significant determinants/characteristics of the enterprises to evaluate their relationship with likelihood of establishing FRM system/function in the analyzed enterprises in BiH. Similar research findings on the relationship between enterprise characteristics/determinants and the establishment of an enterprise risk management function / system are found in other studies in the region (Miloš Sprčić & Šević, 2012).

The specificity of this research is the fact that this is the first survey in BiH to test positive theories on the economic rationality of an enterprise FRM function/system and tested research hypotheses on the impact of enterprise characteristics/determinants on the establishment of an enterprise FRM function/system. The contribution of the research is reflected in the fact that, while BiH is still a developing country and has poorly developed financial markets in both entities, we tested positive theories of risk management and obtained results similar to the results of empirical studies conducted in the other countries of the world. At the same time, the results of this research contribute to a better understanding of active enterprise risk management. It is important to emphasize that over the last 20 years, BH enterprises have been intensively learning and adopting new business models and techniques, including an active approach to corporate financial management. Therefore, the results obtained from this research may be considered significant and useful for future research. Particular contribution of this paper is reflected in understanding of risk management policy as one of the basic policies of strategic corporate governance such as financing, investment and dividend policies.

Finally, for further research cases, we recommend an investigation of the effects of establishing enterprise FRM function/system on the financial performance of the enterprise such as profitability, liquidity and indebtedness.

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<sup>1</sup> Structured questionnaire used for this paper is a part of structured questionnaire of doctoral dissertation by Adem Abdić, co-author of this paper, under the title "Upravljanje finansijskim rizicima preduzeća: konceptualni okvir i empirijska analiza na primjeru preduzeća iz Bosne i Hercegovine" [*"Financial Risk Management: Conceptual Framework and Empirical Analysis on the Case of Bosnia and Herzegovina Enterprises"*].

<sup>2</sup> A random number generator was used to select a company in the random sample.

<sup>3</sup> It is important to note that, in general, the response rate to survey questionnaires sent electronically is lower. See more in: (Graham & Harvey, 2001; Trahan & Gitman, 1995; Miloš Sprčić, 2007; Nance, Smith & Smithson, 1993; Judge, 2006).

<sup>4</sup>  $IQR = Q_3 - Q_1$  - interquartile deviation

<sup>5</sup> According to Adams *et al.* (2019) the most commonly used techniques and methods of treating outliers in finance are winsorizing, trimming, and dropping.

<sup>6</sup> Multiple proxy variables can be used to measure listed enterprise characteristics/determinants.

<sup>7</sup> By integrating specific control variables into the above models such as: risk management substitutes (measured in cash and cash equivalents), dividend payout (dummy variable), and key shareholder risk management (percentage share), the results obtained remain unchanged in terms of statistical significance and magnitude of the estimated coefficients of the variables of interest.

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**ENTERPRISE FINANCIAL RISK MANAGEMENT IN BOSNIA AND HERZEGOVINA****UPRAVLJANJE FINANSIJSKIM RIZICIMA PREDUZEĆA U BOSNI I HERCEGOVINI****Abstract**

*Adequate financial risk management (FRM) represents leading competitive advantage that determines market survival and business success in an uncertain global environment. Maximizing the welfare of owners, primarily through increasing value, is determined by profitability but also by the degree of exposure to enterprise risks. Over time, FRM has become constituent part of integral business dealings of enterprises and one of strategic functions of enterprise management. The purpose of paper is to explore practice of FRM and main objectives are to identify and analyze key financial risks to which BH enterprises are exposed, to explore how BH enterprises identify, measure and manage financial risks and what FRM strategies they use. The basic source of data in research was data collected by means of structured questionnaire. The target population in research consists of large enterprises that have continuously operated in the territory of Bosnia and Herzegovina (BiH), over the period 2013-2017. The selection of enterprises was made applying random sampling method. Appropriate descriptive and inferential statistics methods were used in the data analysis. The scientific contribution of paper is reflected in the fact that research is pioneering research in BiH that covered key types of financial risks large enterprises are exposed to and practices of using internal and/or external techniques/instruments for FRM enterprises in BiH. Results of research show existence of statistically significant association between FRM and size of enterprise; ownership structure; market orientation. On the other hand, results of the research show that there is no statistically significant association between FRM and group of activities; form of organization; possession of subsidiary enterprises abroad. On average, the analyzed enterprises are most exposed to liquidity risk, followed by price risk, interest rate risk and foreign exchange risk. Results indicate that 1/5 of respondents named "Internal Instruments" as very important FRM methods, while less than 1/10 respondents named "External Instruments".*

**Keywords:** FRM practices, types of financial risks, methods/instruments of FRM, large BiH enterprises, survey questionnaire

**JEL:** G3, G32, C4, C83

**Sažetak**

*Adekvatno upravljanje finansijskim rizicima (UFR) predstavlja vodeću konkurentsku prednost koja determiniše opstanak preduzeća na tržištu i njegov uspjeh u neizvjesnom globalnom okruženju. Maksimiziranje blagostanja vlasnika, prije svega kroz povećanje (tržišne) vrijednosti, determinisano je*

profitabilnošću, ali i stepenom izloženosti rizicima poslovanja preduzeća. Vremenom, UFR postalo je sastavni dio integralnog poslovanja preduzeća i jedna od strateških funkcija upravljanja preduzećem. Svrha ovog rada je istražiti praksu UFR u velikim preduzećima u BiH, a osnovni ciljevi su identificirati i analizirati ključne finansijske rizike, kojima su izložena preduzeća u BiH, istražiti na koji način bosanskohercegovačka preduzeća identificiraju, mjere i upravljaju osnovnim finansijskim rizicima te koje strategije upravljanja finansijskim rizicima primjenjuju. Osnovni izvor podataka u ovom istraživanju predstavljaju primarni podaci prikupljeni putem strukturiranog anketnog upitnika. Ciljana populacija u ovom istraživanju se sastoji od velikih preduzeća koja su u kontinuitetu poslovala na teritoriji Bosne i Hercegovine (BiH), u periodu 2013-2017. godine. Izbor preduzeća je sproveden metodom slučajnog uzorka. Prilikom analize podataka korištene su odgovarajuće metode deskriptivne i inferencijalne statistike. Naučni doprinos rada se ogleda u činjenici da ovaj rad predstavlja pionirsko istraživanje na području BiH koje je obuhvatilo ključne finansijske rizike kojima su izložena velika preduzeća i prakse korištenja internih i/ili eksternih tehnika/instrumenata za upravljanje i zaštitu preduzeća od finansijskih rizika u BiH. Rezultati istraživanja pokazuju da postoji statistički značajna povezanost između UFR i veličine preduzeća; vlasničke strukture i tržišne orijentacije. S druge strane, rezultati istraživanja pokazuju da ne postoji statistički značajna povezanost između UFR i skupine djelatnosti; oblika organizovanja te posjedovanja subsidijarnih preduzeća u inostranstvu. Analizirana preduzeća su u prosjeku najviše izložena riziku likvidnosti, a zatim slijede cjenovni rizik, rizik zaduživanja i devizni rizik. Kao vrlo važne metode upravljanja finansijskim rizicima 1/5 ispitanika je navela „Interne instrumente“, dok je manje od 1/10 ispitanika navelo „Eksterne instrumente“.

**Ključne riječi:** prakse UFR, vrste finansijskih rizika, metode instrumenti UFR, velika bh. preduzeća, anketni upitnik

**JEL:** G3, G32, C4, C83

## 1. Introduction

A stronger interest in FRM, primarily by the financial institutions, emerged in the early 1970s with the collapse of the Bretton-Woods Agreement, the fall of the “gold standard” and the oil crises during the 1980s, which led to the emergence of variable exchange rates, highly variable interest rates, increased and changing inflation rates and large spikes in oil and other energy/commodity prices in the world market. The pronounced fluctuations of these market risk factors have led to an increase in financial risks all market participants are exposed to. Furthermore, the development of information technologies and information systems has made it easier, more efficient and less costly to view the dimensions of financial risks in the financial markets. The increased risks of business dealing in the financial markets have created a demand for new instruments, strategies and techniques that can be used to hedge and reduce and/or eliminate business and financial risk exposures. On the other hand, the unstoppable processes of liberalization, globalization and deregulation of financial markets were accompanied by increasing competition between financial institutions, which enabled the introduction of a wide range of new financial instruments for identification, measurement, analysis and managing the financial risks. The only constant that connected all of these events and processes was uncertainty or unpredictability of the movement of market risk factors. In 2008, the global economic crisis again brought the focus of interest to financial institutions, enterprises, individuals and economic policy makers (OECD, 2010, p. 13).

The theoretical concept of enterprise FRM emerged in the late 1970s, based on both economic and financial literature derived on Fisher's separation theorem and Modigliani-Miller theorem of capital structure irrelevance. The economists who have advocated for the justification of enterprise FRM (Anderson & Danthine, 1981; Smith & Stulz, 1985; Rawals & Smithson, 1990; Froot, Scharfstein & Stein, 1993; Nance, Smith & Smithson, 1993) based their views on the existence of imperfections in the financial markets such as the existence of various types of taxes, the lack of synchronization of investment and financial decisions of enterprise, the financial difficulties of business dealings, the existence of transaction costs, bankruptcy and agency costs, the relation between external and internal sources of capital. However, it is necessary to emphasize that in the

real world, apart from the mentioned imperfections in the financial markets, there are also different and sometimes even conflicting interests between owners, managers, creditors, employees and other stakeholders. Also, it is important to note that with the evolution of market risk factors, the perspective of risk taxonomy has also changed. Accordingly, Culp (2001) states that there are three different risk perspectives: business and financial risks, event risks and diversifying risks.

On the basis of the above, it can be concluded that the enterprise exposure to financial risks is one of the key sources of business dealing risk for both financial institutions and the enterprises as a whole. Therefore, depending on the type and length of financial risk exposure and the characteristics of the other counterparty, an enterprise may use financial and business strategies to adequately manage and hedge against financial risks (adapted from: Allayannis, Ihrig & Weston, 2001; Kim, Mathur & Nam, 2006). *Financial strategies* are reflected in the use of financial instruments (primarily derivatives), and *business strategies* are reflected in matching balance sheet positions and/or cash flows, adjusting the prices of key inputs and outputs, changing the place of production or service, or changing suppliers and the like. According to Miloš Sprčić (2013), there are five basic approaches/strategies of enterprise risk management: risk avoidance, natural hedging, transfer risk, passive acceptance of the risk and strategic risk management (selective hedging).

## 2. Literature review

Most empirical studies, to date, have focused on FRM and on the use of risk management strategies through financial derivatives i.e. financial strategies (among others Rawals & Smithson, 1990; Bodnar, Hayt & Marston, 1998; Fatemi & Glaum, 2000; Kim, Mathur & Nam, 2006; Dumičić, Čizmešija, Pavković & Andabaka, 2006; Alkeback, Hagelin & Pramborg, 2006; Sučić, Miloš Sprčić & Zoričić, 2011; Délèze & Korkeamäki, 2018). In the listed empirical studies, practices of risk management strategies have been explored through structured questionnaires. The survey questionnaires covered a wide range of questions such as: general characteristics of the enterprise, basic characteristics of the risk managers, specific questions related to hedging strategies, methods and/or instruments. Relatively little is known about other risk management strategies such as *operating strategies*, *key types of financial risk* in developing countries, *the relative importance* which enterprises attach to the different types of risk they face or about *methods and instruments* which enterprises used. Thus, this paper investigates both financial and operational risk management strategies of large enterprises in BiH. However, studies mentioned above are less suitable for comparison since they rely on questionnaires that are based on a different set of questions and scope of research. For this reason, we benchmark our finding against studies carried out in neighbouring country Croatia, such as papers by Dumičić *et al.* (2006) and Sučić, Miloš Sprčić, and Zoričić (2011).

Sučić, Miloš Sprčić, and Zoričić (2011) explored FRM practices in large Croatian non-financial companies, as well as the scope of exposure to different types of financial risks. The survey was conducted online using a structural questionnaire in 178 companies. Of the companies surveyed, 43 returned a completed survey, yielding a response rate of 24.2%. The survey has revealed that Croatian companies are most exposed to the commodity (inputs and/or outputs) price risk, followed by exchange rate risk and liquidity risk (almost equal to price risk), while the interest rate risk is the last according to the criterion of magnitude of impact. As many as 93% of the analysed companies manage at least one financial risk, but only 46.5% of them manage all financial risks. Individually considering, the highest number of analysed Croatian companies manage liquidity risk (85%). Regarding the practice of financial risk management, the survey results have clearly indicated that analysed companies primarily stick to simple risk management instruments such as matching assets and liabilities i.e. natural hedging. As for using derivatives, the most important instruments are forwards and swaps by far, while their use in price risk management is almost negligible.

Nevertheless, 42.5% of the analysed companies do not use derivatives in managing financial risks. In the paper it is concluded that the exposure to financial risks among analysed companies is high.

Dumičić *et al.* (2006) explored the use of financial risk hedging instruments in Croatian large and medium-sized enterprises, as well as recognised existence of possible differences among characteristics of the enterprises that use and that do not use them. Survey research was carried out by telephone thus interviewing financial or accounting managers from a stratified random sample of 101 Croatian enterprises. According to the survey, financial risk hedging instruments were used by 2/5 of enterprises from the sample, and the same proportion of them stated that they were eager to have additional education about these instruments. Only 1/5 of enterprises covered by the survey have got a kind of developed hedging policies. The surveyed enterprises worry the most about liquidity risks and currency risks, and interest rate risk is not the subject of such great concerns. The results indicated that interviewees from 41 enterprises that use financial risk hedging methods mentioned that the most used hedging instruments against liquidity risk were: cash flow analysis of investment activities (70% out of 41), and analysis of assets, liabilities and sources of capital (also 70% out of 41). The most used hedging instruments among survey enterprises against currency risk were: currency futures (34% out of 41), selling prices policy (29% out of 41) and currency forward (27% out of 41). The most used hedging instruments among survey enterprises against interest rate risk were: matching maturity and duration assets and liabilities (17% out of 41), interest rate futures (12% out of 41) and interest rate management at the money market (10% out of 41). The most important reasons for not using the hedging instruments were insufficient knowledge about them and prevailed perception that they are not efficient and too expensive.

Kozarević, Kokorović Jukan, and Čivić (2014) analysed the level of the development of financial derivatives markets in emerging market economies, focusing on the use of financial derivatives in the risk management purposes of non-financial enterprises in BiH. To achieve the research goals, the authors collected the data on the derivatives market structure and types of derivative instrument traded, focusing on the commercial banks, because of the authors' prior knowledge of the derivatives market. Additionally, in order to assess the current state and development perspectives of derivatives usage by the non-financial firms, authors conducted a research on the random sample of non-financial firms, using the data from the Foreign Trade Chamber of BiH as well as the information from lists of derivatives users-clients provided by some banks of BiH. The research shows that derivatives market in the country exists as an OTC market, where commercial banks play dominant role and offer different types of derivative instruments. Three types of derivatives are being offered: currency forwards, currency swaps and interest rate forwards. The main reason for the poor offer is low demand, lack of non-financial firms' knowledge about the benefits of derivatives and low number of business operations on the global markets by non-financial firms.

### 3. Empirical research methodology

The target population in the survey consisted of large enterprises which continuously operated in the territory of BiH in the period of 2013-2017. The population framework of the enterprise was defined on the basis of the Statistical Business Register Data of BiH as of June 30, 2017. According to this register, there are a total of 335 large enterprises measured by the number of employees [KD BiH 2010 - Class 7 (250 and more employees)]. 129 enterprises were excluded from the population framework whose main activity according to the mentioned classification of economic activities was: K, M, N, O, P, Q, and R.<sup>1</sup> Furthermore, large enterprises from Brčko District were not included in the population framework since these enterprises are not obliged to submit financial reports to entity agencies for collecting financial data of business entities. Following the exclusion of enterprises from these activities and enterprises from Brčko District, 206 large enterprises remained within the population framework. Chief Risk Officers, Chief Financial Officers, and/or Internal Auditor-Controller enterprises were a target population in research. With a confidence level

of 95% and a margin of error of 5%, 135 enterprises were selected in a random sample. A structured questionnaire<sup>2</sup> was based on previous empirical researches (Bodnar, Hayt & Marston, 1998; Dumičić *et al.*, 2006; Sučić, Miloš Sprčić & Zoričić, 2011) in order to investigate the extent of exposure of large BH enterprises to financial risks; investigate the degree of development of the enterprise FRM system/function and analyze the reasons for not managing the enterprise risk; examine which strategies, policies, methods, instruments and techniques for managing individual financial risks are used. This study classified enterprises as "financial risk managers" those that declared in the questionnaire that they manage at least one financial risk,<sup>3</sup> whereas others were classified as "non-financial risk managers".

#### 4. Results and discussion

Out of the large enterprises surveyed in BiH, 2/3 is from the manufacturing group while 1/3 is from service activities group. Furthermore, 35.42% of enterprises in the manufacturing group and 37.50% of enterprises in the service activities group declared themselves in the questionnaire as "financial risk managers" that manage at least one financial risk. A  $\chi^2$ -test of independence was performed to examine the relation between FRM and group of activities. The relation between these variables was no statistically significant ( $\chi^2=0.0301$ ,  $p\text{-value}=0.862$ ). The total annual revenue of the enterprise in 2017 ranged from a minimum of 303,242 BAM to a maximum of 1.07 billion BAM. The average value of total annual revenue in 2017 was 123 million BAM with a standard deviation of 173 million BAM. The  $\chi^2$ -test results indicate that the relation between FRM and the size of enterprise (measured by class of total revenue) was significant ( $\chi^2=11.1646$ ,  $p\text{-value}=0.004$ ).<sup>4</sup> According to the ownership structure, 80.56% of the enterprises in the analyzed sample are majority privately owned, while 19.44% are majority publicly owned. The most enterprises do not have institutional investors with an equity ownership (68.06%), followed by enterprises that have institutional investors with an equity ownership less than 10% (13.89%) and enterprises that have institutional investors with an equity ownership larger than 20% (9.72%), while 8.33% of enterprises have institutional investors with an equity ownership within range 10% - 20%. The  $\chi^2$ -test results indicate that the relation between FRM and the ownership structure was statistically significant ( $\chi^2=27.4516$ ,  $p\text{-value}=0.000$ ). According to the ownership, almost 2/3 of the enterprises are organized as a LTD (65.28%), while just over 1/3 of the enterprises are organized as a JSC (34.72%). The  $\chi^2$ -test results indicate that the relation between FRM and form of organization was no statistically significant ( $\chi^2=1.3704$ ,  $p\text{-value}=0.242$ ). According to the market orientation, 55.56% of enterprises are oriented predominantly to the domestic market, followed by orientation predominantly to the foreign market (29.17%), while 15.28% of enterprises are equally oriented in both markets. The  $\chi^2$ -test results indicate that the relation between FRM and market orientation was statistically significant ( $\chi^2=17.4526$ ,  $p\text{-value}=0.000$ ). In view of the above, it is not surprising that almost 40% of the analyzed enterprises had their own subsidiaries abroad. However, the  $\chi^2$ -test results indicate that the relation between FRM and possession of subsidiary enterprises abroad was no statistically significant ( $\chi^2=2.5768$ ,  $p\text{-value}=0.108$ ).

**The impact of individual financial risks** (exposure to individual risk factors) was evaluated by assigning a grade of 1 to 5 to each of the analyzed risks. A grade of 1 means that a some risk does not affect the business of the enterprise, while a grade of 5 means that a some risk has an extremely strong impact on the business of the enterprise. Grades of the impact of individual financial risks<sup>5</sup> on an enterprise business dealing (exposure to financial risks) are given in Table 1.

Table 1. *The relation between individual financial risk and exposure to financial risks*

Type of financial risk	Exposure to financial risks				
	1 - No impact	2 - A little impact	3 - A moderate impact	4 - A strong impact	5 - A very strong impact
Exchange rate risk	29.17%	36.11%	19.41%	6.94%	8.33%
Liquidity risk	13.89%	18.06%	16.67%	27.78%	23.61%
Price risk (commodity and/or equity)	12.50%	16.67%	23.61%	31.94%	15.28%
Interest rate risk (debt risk)	19.44%	26.39%	29.17%	19.44%	5.56%
Other financial risks	27.59%	25.86%	44.83%	0%	1.72%

Source: Authors' research

On the one hand, it is evident that in the categories of "A very strong" and "A strong" impact on the enterprise dealing, the highest number of respondents identified liquidity risk (51.39%), followed by price risk (47.22%) and interest risk (25.00%), while a relatively small number of respondents stated "A strong" and "A very strong" impact of FX risk (15.27%). On the other side, a relatively large number of respondents stated that financial risks have "No" or "A little" impact on the business dealing: foreign exchange risk (65.28%), other risks (53.45%), interest risk (45.83%), liquidity risk (31.95%) and price risk (29.17%). Considering that 51.39% of the respondents rated the liquidity risk as a risk with "A strong" and "A very strong" impact on the business dealings of the enterprise, it could be concluded that the mentioned risk has the greatest impact on the business dealings of BiH companies. According to the weighted average grades, the analyzed enterprises are most exposed to liquidity risk (3.29), followed by price risk (3.21), interest risk (2.65) and FX risk (2.29). On the basis of the above, it can be concluded that analyzed enterprises have moderate exposure to all financial risks (weighted average score less than 3). Furthermore, survey results indicate that as many as 65.28% of the respondents (enterprises) measure exposure to some of the financial risk: liquidity risk (59.62%), price risk (52.78%), interest risk (41.67%), FX risk (33.33%) and other financial risks (26.39%). Still, a surprisingly small number of respondents, 12.5%, measure all of the mentioned risks. It is also surprising that a very large number of enterprises that measure at least one of their financial risks pay very little attention to measuring the liquidity risk they have identified as the most exposed risk. For the measurement of foreign exchange risk the most of the respondents named "The use of financial statement analysis" as very important method (30.00%)<sup>6</sup>, while the most commonly used method of measurement was the "Table of expected cash flows denominated in foreign currencies" (63.33%). For the measurement of liquidity risk the most of the respondents named "The cash flow forecasting" as very important method (66.67%)<sup>7</sup>, and the most commonly used method of measurement was the same method (93.02%). For the measurement of interest risk the most of the respondents named "The simulation analysis" as very important method (12.50%)<sup>8</sup>, while the most commonly used method of measurement was the "The use of financial statement analysis" (81.82%). For the measurement of price risk the most of the respondents named "Tabular presentation of expected CF related to market prices of securities and/or commodities" as a very important method (33.33%)<sup>9</sup>, and the most commonly used method of measurement was the same method (83.78%). The survey results indicate that 58.33% of the analysed enterprises manage liquidity risk, 30.56% manage FX risk, 48.61% manage price risk and 45.83% manage interest risk manage. A relatively large number of enterprises manage Other financial risks (28.17%). Considering the relationship between the type of financial risk and the organizational approach to manage particular risks among the enterprises that are classified as "financial risk managers" the following results were obtained as shown in Table 2.

Table 2. *The relation between the type of financial risk and enterprise approach to risk management*

Approach to risk management	Type of financial risk				
	FX risk	Liquidity risk	Price risk	IR Risk	Other
FRM activities are primarily centralised	50.00%	69.05%	57.14%	69.70%	52.94%
FRM activities are primarily decentralised	18.18%	7.14%	8.57%	12.12%	11.46%
FRM decisions are primarily decentralised with centralized coordination	18.18%	19.05%	34.29%	15.15%	35.29%
Exposure to FR not managed with derivatives	13.64%	4.76%	0.00%	3.03%	0.00%

Source: Authors' research

Furthermore, the survey results indicate that almost 2/3 of the analyzed enterprises that have declared that they manage some of financial risks have written policies and procedures in place to manage the risks involved. The strategy of financial risk management is an integral part of the overall strategy enterprise management in as many as 86.36% of enterprises. Within the organizational structure of enterprises, the risk management function is positioned at the strategic level in 62.22% of enterprises, while the risk management function is positioned at the operational level in 37.78% of enterprises. Also, the results showed that 20.93% of respondents named "Internal Instruments" as very important FRM methods/instruments, while only 7.32% respondents named "External Instruments". In accordance with the degree of importance of individual financial risk management instruments/methods, 88.37% of the respondents use "Internal Instruments", while only 24.34% of the respondents use "External Instruments" for risk management. The relationship between the type of risk management instrument and the degree of importance of individual management instruments/methods is given in the following table:

Table 3. *The relation between hedging instruments/methods and the level of importance FRM instruments*

Type of FRM instruments	Usage of instrument	Level of importance			
		Less important	Important	Very important	Non response
<b>Internal instruments of FRM</b> (matching maturity, interest and/or exchange structure of assets and liabilities, natural hedging, ...)	88.37%	11.63%	58.14%	20.93%	6.30%
<b>External instruments of FRM</b> (using different kind of financial derivatives such as forwards, futures, swaps, options, credit derivatives, ...)	24.34%	53.66%	24.39%	7.32%	14.63%

Source: Authors' research

The grades of the importance of the goals establishing the FRM system/function<sup>10</sup> in BiH large enterprises are given in the following table:

Table 4. *The relation of the goals establishing the FRM system/function and the level of their importance*

The goal of financial risk management system/function	Relative importance (impact)				
	1- No impact	2 - A little impact	3 - A moderate impact	4 - A strong impact	5 - The strongest impact
Increasing expected cash flow	5.71%	2.86%	14.29%	42.86%	34.29%
Reducing the cost of financial difficulties and bankruptcy cost	8.82%	10.29%	16.18%	42.65%	22.06%
Enhancing the reported earnings	4.29%	7.14%	22.86%	44.29%	21.43%
Increasing the market value of the enterprise	7.25%	15.94%	17.39%	39.13%	20.29%
Reducing the cost of financing	4.41%	5.88%	10.29%	63.24%	16.18%

Source: Authors' research

According to the weighted average grades, the analyzed enterprises have identified "Increasing expected cash flows of enterprises" as the most important goal of establishing FRM system/function (3.97), followed by the goals "Reducing financing costs of enterprises" (3.81) and "Forecasting the increase in reporting earnings" (3.71). Considering that 34.29% of the respondents graded "Increasing expected cash flow" as the goal with the strongest impact establishing the FRM system/function and 42.86% of the respondents graded "Increasing expected cash flow" as the goal with a strong impact, it can be concluded that this is the most important goal for its establishment in BiH companies. The results of the survey indicate that 80.95% of enterprises classified as "managers" use at least one of the foreign exchange risk management instruments. For the management of FX risk the most of the respondents named "Matching inflows and outflows" as important and very important instrument (70.00%), and the most commonly used management instrument was the same instrument (80.95%).

Table 5. *The relation between instruments of hedging FX risk and the level of their importance*

Type of instruments	Usage of instrument	Level of importance			
		Less important	Important	Very important	Non response
Matching currency structure of assets and liabilities	42.86%	33.33%	26.19%	7.14%	33.33%
Borrowing and lending in different currencies	36.59%	31.71%	41.46%	7.32%	19.51%
Leading and lagging	71.43%	17.50%	27.50%	35.50%	22.50%
Matching inflows and outflows	80.95%	7.50%	15.00%	55.00%	22.50%
Currency diversification	29.27%	36.59%	46.34%	12.20%	4.88%
Policy of selling / buying prices	68.29%	21.95%	36.59%	31.71%	9.76%
Lending and borrowing in foreign currency	31.71%	34.15%	43.90%	9.76%	12.20%
Currency forward contracts	17.07%	14.63%	2.44%	29.27%	53.66%
Currency future contracts	14.63%	60.98%	2.44%	2.44%	34.15%
Currency swap contract	14.63%	14.63%	4.88%	26.83%	53.66%
OTC currency option contract	17.07%	7.32%	4.88%	29.27%	58.54%
Other	20.00%	60.00%	3.33%	3.33%	33.33%

Source: Authors' research

The results of the survey indicate that 84.91% of enterprises classified as "managers" use at least one of the liquidity risk management instruments. For *the management of liquidity risk* the most of the respondents named "Cash flow forecasting or construction of liquidity management plans" as important and very important instrument (80.77%), and the most commonly used management instrument was the same instrument (84.91%).

Table 6. *The relation between the type of instruments for hedging FX risk and the level of their importance*

Type of instruments	Usage of instrument	Level of importance			
		Less important	Important	Very important	Non response
Cash flow forecasting or construction of liquidity plans	84.91%	1.92%	28.85%	51.92%	17.31%
Diversification of financing methods and instruments	41.18%	22.00%	58.00%	14.00%	6.00%
Holding a large amount of liquid assets	56.60%	17.65%	54.90%	21.57%	5.88%
Sale of company liquid assets	32.65%	61.22%	4.08%	2.04%	32.65%
Matching maturity structure of assets and liabilities	79.25%	5.88%	39.22%	39.22%	15.69%

Source: Authors' research

The results of the survey indicate that 78.72% of enterprises classified as "managers" use at least one of the price risk management instruments. For *the management of price risk* the most of the respondents named "Leading and lagging" as important and very important instrument (73.33%), and the most commonly used management instrument was the same instrument (78.72%).

Table 7. *The relation between the type of instruments for hedging price risk and the level of their importance*

Type of instruments	Usage of instrument	Level of importance			
		Less important	Important	Very important	Non response
Convertible bonds, warrants and preferred stocks	10.87%	60.87%	6.52%	2.17%	30.43%
Diversification and flexibility of business	48.94%	27.66%	31.91%	14.89%	25.53%
Policy of selling / buying price of commodities	76.60%	6.38%	36.17%	36.17%	21.28%
Leading and lagging	78.72%	13.33%	42.22%	31.11%	13.33%
Commodity forward contracts	10.87%	13.04%	2.17%	23.91%	60.87%
Commodity future contracts	10.87%	15.22%	0.00%	23.91%	60.87%
Commodity swap contract	10.87%	13.04%	2.17%	23.91%	60.87%
OTC commodity option contract	15.22%	17.39%	2.17%	26.09%	54.35%
Cross-hedging of commodities	17.39%	58.70%	15.22%	0.00%	26.09%
Equity / Stock exchange forward contracts	2.33%	4.65%	0.00%	27.91%	67.44%
Equity / Stock exchange future contracts	2.17%	2.17%	0.00%	26.09%	71.74%
Equity / Stock exchange swap contract	2.17%	2.17%	0.00%	26.09%	71.74%
Equity / Stock exchange option contract	2.17%	4.35%	0.00%	26.09%	69.57%

Source: Authors' research

The results of the survey indicate that 81.63% of enterprises classified as "managers" use at least one of the interest risk management instruments. For *the management of interest risk* the most of the respondents named "Lending and borrowing by different interest rates" as important and very important instrument (81.25%), and the most commonly used management instrument was "Matching inflows and outflows" (81.63%).

Table 8. *The relation between the type of instruments for hedging IRR risk and the level of their importance*

Type of instruments	Usage of instrument	Level of importance			
		Less important	Important	Very important	Non response
Matching inflows and outflows (matching maturity and/or interest structure of assets and liabilities)	81.63%	10.64%	25.53%	48.94%	14.89%
Lending and borrowing by different interest rates	55.10%	14.58%	54.17%	27.08%	4.17%
Maintenance defined ratio between own borrowed funds with fixed and variable interest rate	44.68%	17.39%	56.52%	19.57%	6.52%
Credit lines and/or overdrafts vs. borrowing in banks	60.42%	14.89%	48.94%	29.79%	6.38%
Depositing excesses of cash amounts vs. buying financial instrument with fixed income	31.91%	53.19%	17.02%	4.26%	25.53%
Interest diversification	32.61%	45.65%	23.91%	4.35%	26.09%
Emission of new debt	12.50%	27.08%	66.67%	4.17%	2.08%
Investing and financing in foreign currency	8.51%	69.57%	4.35%	2.17%	23.91%
Structured sources of financing (convertible bonds, warrants and preferred stocks)	6.25%	22.92%	72.92%	2.08%	2.08%
Forward rate agreements	6.25%	60.42%	8.33%	4.17%	27.08%
Interest rate futures	6.25%	68.75%	6.5%	0.00%	25.00%
Interest rate swaps	6.25%	56.25%	14.58%	4.17%	25.00%
Interest rate options	6.25%	63.83%	12.77%	0.00%	23.40%
Caps, floors and collars	4.17%	72.92%	0.00%	0.00%	27.08%

Source: Authors' research

Furthermore, the importance of different reasons/factors in decision not to manage financial risks in BH enterprises was explored. On a scale of 1 to 3, the respondents graded the importance of not managing financial risks in their business.<sup>11</sup>

Table 9. *The relation between reasons in decision not to manage financial risks and the level of their importance*

Importance of different reasons/factors in decision not to manage financial risks	Level of importance		
	1- little importance	2 – moderate importance	3 – great importance
Costs of financial risk management function exceed the benefits	15.79%	36.84%	47.37%
Difficulties in measurement and valuation exposure to financial risk	20.00%	30.00%	50.00%
Strategy of enterprise is not managing financial risk at all	26.32%	47.32%	26.32%
Insufficient supply of hedging instruments offered by financial institutions	26.32%	47.32%	26.32%
Insufficient human resource for FRM	30.00%	15.00%	55.00%

Source: Authors' research

According to the weighted average grade of the importance of decision not to manage financial risks, the most important reason is "Costs of financial risk management function exceed the benefits" (2.32), while the least important reason is "The illiquidity secondary market of derivatives" (1.53). Almost 1/3 of the analyzed enterprises stated that their FRM system is in the planning phase of introducing a system for FRM (31.94%), 1/5 of the analyzed enterprises have a fully implemented system for FRM (19.44%), 1/6 of the analyzed enterprises have a FRM system which is in the implementation phase of the FRM system establishment (16.67%), while 18.06% of enterprises do not plan to establish FRM systems. 13.89% of enterprises did not state the development phase of the FRM system. According to responsibility for FRM, in the enterprises in which the FRM system is established, FRM takes place in several organizational functions / departments / sectors (46.15%), FRM takes place in a separate organizational function / department

/ sector (23.08%), FRM is entrusted to one person (15.38%) and FRM takes place within the internal control of the enterprise (11.54%). According to the financial *risk management strategies*, in the enterprises in which the FRM system is established, "Strategy for reducing the likelihood of realization of risk and/or reducing the amount of losses" is dominant (57.69%), followed by "Risk acceptance strategy" (19.23%) and "Risk avoidance strategy" (15.38%). "Risk transfer strategy (Hedging transactions, Insurance and Diversification)" and "Passive acceptance of risk strategy" are the least used strategies, 7.69% and 0%, respectively.

According to the *integral approach to hedging transactions*, the largest number of enterprises use partial hedging method (40.00%), followed by the fully hedging method from all financial risk exposures (28.00%) and the method where the enterprise does not hedge against financial risks at all (28.00%), while the method where the enterprise uses the fixed protection rule against all financial risks is not used by any company.

Internal and/or external education of employees on financial risk management often or continuously takes place in only 19.71% of enterprises which have declared that they manage financial risks. 38.03% of enterprises sometimes carry out internal and/or external education of employees on financial risk management, and as many as 42.25% of enterprises never carry out internal nor external education of the employees. The results of the research undoubtedly indicate that the key people in charge of FRM believe that there is an enormous need for additional education in the field of financial risk management: internal (52.78%) and external (59.73%), followed by a moderate need for additional internal and external education: internal (30.56%) and external (25.00%), while an extremely small number of respondents stated that there is no need for additional education: internal (5.56%) and external (4.17%). According to the results of the survey, it can be concluded that years of work experience are an important factor in entrusting FRM function in BH enterprises since more than 80% of key persons in charge of FRM have more than 10 years of work experience, while only 4.17% have less than 5 years of work experience.

Table 10. *The risk aversion of key persons in charge of enterprise FRM and type of financial risk*

Type of financial risk	No aversion	A little aversion	A moderate aversion	A strong aversion	A very strong aversion
Exchange rate risk	<b>32.61%</b>	<b>8.70%</b>	41.30%	6.52%	10.87%
Liquidity risk	20.93%	4.65%	27.91%	<b>30.23%</b>	<b>16.28%</b>
Price risk	<b>23.91%</b>	<b>6.52%</b>	34.78%	23.91%	10.87%
Interest rate risk – refinancing risk	<b>24.44%</b>	<b>6.67%</b>	31.11%	20.00%	17.78%
Other financial risks	31.25%	18.75%	28.13%	9.38%	12.50%

Source: Authors' research

The results from the previous table indicate that key persons in charge of enterprise FRM have "A strong" and "A very strong" aversion to liquidity risk (46.51%), while on the other hand, they have "No aversion" or have "A small aversion" to certain financial risks [e.g. foreign exchange risk (41.31%), interest rate risk (31.11%), price risk (30.43%) but also liquidity risk (25.58%)].

## 5. Conclusion and recommendations

This study examined the practice of enterprise financial risk management in 72 large enterprises that have continuously operated in the territory of BiH in the period of 2013-2017. In this paper, the structured questionnaire is used to explore the practice of FRM and as well as to recognize some characteristics of the enterprises that hedge and that do not hedge financial risks.

The survey results indicate that almost 2/3 of the analyzed enterprises that have declared that they manage some of financial risks have written policies and procedures in place to manage the risks involved. The strategy of financial risk management is an integral part of the overall enterprise

management strategy in as many as 86.36% of enterprises. Also, the results showed that 20.93% of the respondents named "Internal Instruments" as very important FRM methods, while only 7.32% respondents named "External Instruments". Considering that 51.39% of the respondents rated the liquidity risk as a risk with a strong and extremely strong influence on the business dealings of the enterprise, it could be concluded that the mentioned risk has the greatest impact on the business dealings of BH companies. According to the weighted average grades, the analyzed enterprises are most exposed to liquidity risk (3.77), followed by price risk (3.66), refinancing risk (3.45) and foreign exchange risk (3.25). According to the weighted average grades, the analyzed enterprises are most exposed to liquidity risk (3.29), followed by price risk (3.21), interest risk (2.65) and FX risk (2.29). On the basis of the above, it can be concluded that analyzed enterprises have moderate exposure to all financial risks (weighted average score less than 3). The results indicate that "Matching inflows and outflows" (70.00%) is the most important instrument for the managing **interest rate risk**, as well as, that the same instrument (80.95%) is the most used hedging instrument. The results indicate that "Cash flow forecasting or construction of liquidity management plans" (80.77%) is the most important instrument for the managing **liquidity risk**, as well as, that the same instrument (84.91%) is the most used hedging instrument. The results indicate that "Leading and lagging" (73.33%) is the most important instrument for the managing **price risk**, as well as, that the same instrument (78.72%) is the most used hedging instrument. The results indicate that "Lending and borrowing by different interest rates" (81.25%) is the most important instrument for the managing **interest rate risk (refinancing risk)**, as well as, that "Matching inflows and outflows" (81.63%) is the most used hedging instrument. The most important reason for not managing financial risk was "Costs of financial risk management function exceed the benefits" and the most important goal for managing financial risk was "Increasing expected cash flow".

Results of the research showed the existence of statistically significant association between FRM and the size of enterprise; ownership structure; market orientation. On the other hand, results of research showed that there is no statistically significant association between FRM and group of activities; form of organization; possession of subsidiary enterprises abroad. On average, the analyzed enterprises are most exposed to liquidity risk, followed by price risk, interest rate risk and foreign exchange risk. Obviously, a large number of enterprises are classified as "financial risk managers". However, development level of FRM function/system and its efficiency is questionable. The reasons can be found in the insufficient supply of hedging instruments, low education level and skills of CRO or similar function, but also in the dominant use of the internal hedging instruments such as natural hedging. Finally, for further research cases we recommend an investigation of FRM determinants in large enterprises in BiH and explanation of the incidence of establishing a FRM function.

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<sup>1</sup> Taking into account the size of the population, the method of sample selection and the heterogeneity of the NACE classification, all enterprises in the paper are divided into two groups: production group and service group. A similar classification of enterprises is found in Dumičić *et al.* (2006).

<sup>2</sup> Structured questionnaire used for this paper is a part of structured questionnaire of doctoral dissertation by Adem Abdić, co-author of this paper, under the title "Upravljanje finansijskim rizicima preduzeća: konceptualni okvir i empirijska analiza na primjeru preduzeća iz Bosne i Hercegovine" [*"Financial Risk Management: Conceptual Framework and Empirical Analysis on the Case of Bosnia and Herzegovina Enterprises"*].

<sup>3</sup> It is important to note that the group of "financial risk managers" included not only enterprises that use financial derivatives as hedge strategies/methods, but also enterprises that used and other hedging strategies/methods, such as operational hedging, natural hedging, diversification and/or substitutes of hedging. The division of enterprises into "managers" and "non-managers" of financial risks based solely on the use of financial derivatives neglects the fact that enterprises can use, but also use, other methods/techniques for hedging and FRM (Judge, 2006, p. 420).

<sup>4</sup> Class 4 (less than BAM 20 million); Class 5 (BAM 20 to 100 million); Class 6 (more than BAM 100 million).

<sup>5</sup> Here, it is important to emphasize that the answers represent the beliefs/attitudes of the respondents who filled in the survey questionnaires and we have no way of confirming that the beliefs/attitudes correspond to the actual practice in the business dealing of the analyzed enterprises. Furthermore, the grades reflect the perceptions of the respondents (financial managers, risk managers or internal auditors/controllers) and do not necessarily represent the actual impact of individual financial risks on the business dealing of the enterprise. A grade of 1 means that a particular risk does not affect the business of the enterprise, where as a grade of 5 means that a particular risk has a very high impact on the business of the enterprise.

<sup>6</sup> Due to space limitations in the paper, only the most important method of measurement is presented. The other analysed methods were: List of foreign currency risk exposures, Table of expected CF denominated in foreign currencies, Sensitivity analysis, Value at risk and Other methods.

<sup>7</sup> Due to space limitations in the paper, only the most important method of measurement is presented. The other analysed methods were: Financial analysis of liquidity indicators, Gap analysis of cash flows, Analysis of liquidity (marketability) of financial assets, Assessment of funding capacity, Value at risk and Other methods.

<sup>8</sup> Due to space limitations in the paper, only the most important method of measurement is presented. The other analysed methods were: Gap analysis, Duration analysis, Sensitivity analysis, The use of Financial statement analysis, Value-at-risk (VaR) and Other methods.

<sup>9</sup> Due to space limitations in the paper, only the most important method of measurement is presented. The other analysed methods were: Price risk exposure list, Sensitivity analysis, Value-at-risk and Other methods.

<sup>10</sup> The grades are a reflection of the respondents' perceptions. A grade of 1 means that a certain FRM goal has no importance (impact) to the business, while a grade of 5 means that a certain FRM goal has the highest importance to the business. Due to limited space, only the top 5 of 14 analyzed objectives are shown: Reducing the payment of expected tax liabilities; Better planning for future capital needs and reducing external capital needs; Reduction of operating cash flow volatility; Improving the structure of managerial contracts and improving the performance evaluation of top management of the enterprise; Encouraging, protecting and improving the quality of investment and/or business decision making; Aligning the interests of managers and business owners; Reconciling the interests of business owners and creditors and Reduction stock price volatility.

<sup>11</sup> A grade of 1 means that a certain reason is not important for making a decision about not managing financial risks, while a grade of 3 means that a certain reason is very important for making that decision about not managing financial risks. Due to limited space, only the results for the first five most important reasons for not managing risks are presented.

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## ANALYSIS OF SELECTED COUNTRIES' TRADE EFFICIENCY BASED ON THE DEA MODELS

### ANALIZA EFIKASNOSTI TRGOVINE ODABRANIH ZEMALJA NA BAZI DEA MODELÂ

#### Abstract

*Recently, the efficiency of trade companies has been investigated from various aspects. One of them is the measurement of efficiency of trade companies per individual countries by means of Data Envelopment Analysis (DEA). This aspect of research into the efficiency of trade companies is used in this paper. In other words, this paper explores the efficiency of trade companies in the selected countries of the European Union (EU), with a particular reference to Serbia as the EU candidate country, using the DEA approach. The efficiency of trade companies in the selected countries and Serbia differs depending on the applied input- or output-oriented DEA model. As a whole, the efficiency of trade companies in Serbia is satisfactory when compared to the observed countries. This is largely the result of the improved general conditions of business and economy in Serbia lately as well as of the presence of foreign retail sale chains active in the Serbian retail sale market (Delhaise Serbia in particular).*

**Keywords:** DEA models, size of trade companies, technology, competition, efficiency, selective countries

**JEL:** F65, L81, M40

#### Sažetak

*U poslednje vreme, kao što je poznato, sa različitih aspekata se istražuje efikasnost trgovinskih preduzeća. Jedan od njih je analiza efikasnosti trgovinskih preduzeća po pojedinim zemljama primenom analize obavijenih podataka (Data Envelopment Analysis - DEA). Ovaj aspekt istraživanja efikasnosti trgovinskih preduzeća je primenjen i u ovom radu. Drugim rečima, u ovom radu se istražuje efikasnost trgovinskih preduzeća posmatranih zemalja Evropske unije (EU), s posebnim osvrtom na Srbiju kao kandidata za članstvo, na bazi DEA pristupa. Efikasnost trgovinskih preduzeća posmatranih zemalja i Srbije je različita u zavisnosti od primenjenog DEA modela sa ulaznom i izlaznom orijentacijom. Efikasnost trgovinskih preduzeća u Srbiji je, u celini uzevši, zadovoljavajuća u odnosu na posmatrane zemlje. Tome su u velikoj meri doprineli poboljšani opšti uslovi privređivanja u Srbiji u poslednje vreme i strani maloprodajni lanci koji posluju na maloprodajnom tržištu u Srbiji (posebno Delhaise Serbia).*

**Ključne riječi:** DEA modeli, veličina trgovinskih preduzeća, tehnologija, konkurencija, efikasnost, odabrane zemlje

**JEL klasifikacija:** F65, L81, M40

## Introduction

The analysis of trade companies' efficiency has constantly been an ongoing topic. By applying various accounting and mathematical and statistical models, it has been investigated from various points of view. Having this in mind, the subject of this research is the analysis of trade efficiency of the selected countries with a particular reference to Serbia, based on the Data Envelopment Analysis (DEA) models. The aim and purpose of this research is to look at the efficiency of trade in Serbia compared to the observed countries in order to improve the future trade by taking appropriate actions, which can be seen as the scientific and professional contribution of this paper.

There is very extensive literature on the evaluation of efficiency and productivity of trade companies in the world, based on the DEA approach (Malmquist, 1953; Andersen, 1993; Donthu, 1998; Tone, 2001, 2002; Tone & Tsutsui, 2009, 2010; Asmil, 2004; Fare, 1994, 1995; Moreno, 2010, 2011; Vaz, Camanho & Guimarães, 2010; Wang & Lan, 2011; Vaz & Camanho, 2012; Lau, 2013; Gandhi, 2014; Al-Refai, 2015; Anand, 2015; Majumdar, 2017; Bambe, 2017; Qiu & Meng, 2017; Sarmiento, Renneboog & Verga-Matos, 2017; Ko, 2017; Hsu, 2018; Haidar, 2018; Álvarez-Rodríguez, 2019; Barros & Alves, 2004; Barros, 2006; Camanho, Portela & Vaz, 2009; Caves, Christensen & Diewert, 1982; Jorge & Suárez, 2009; Lee, 2013; Melo & Sampaio, 2018). However, this is not the case when it comes to the literature on Serbia (Lukić, 2015). To our knowledge, there is not a single research paper on the analysis of efficiency and productivity of trade companies in Serbia by means of the DEA. This paper attempts to fill this gap thus making contribution to the scientific and professional fields.

The main research issue in this paper is the analysis of factors affecting the efficiency of trade companies, primarily in Serbia, applying the appropriate methodology, which is to serve as the basis for improving the future trade by taking appropriate actions. This improvement can be made by the change of input or output values or both, input and output values. The possibilities on the input side are certainly wider.

In terms of methodology, this research is based on the parallel comparative application of the DEA models with the input and output orientation. The Free Disposable Hull (FDH) model has also been used. To a certain extent, comparative analysis, ratio analysis, and statistical analysis have been used.

For the purpose of researching the abovementioned issue, applying respective methodology empirical data were collected from Eurostat and the Serbian Business Registers Agency. The data were comparable as it were made by the same methodology and therefore do not create any methodological limitations.

## 1. DEA models

In the theoretical analysis of the DEA models, we shall briefly present CCR and BCC models with input and output orientation as these models were applied in the examination of trade efficiency for the selected countries and Serbia.

### 1.1. CCR model

The CCR model, named by its developers Charnes, Cooper and Rhodes, is based on fixed or constant returns-to-scale. This actually means that the proportional increase of all the inputs results in the same proportional increase of all the outputs. The dual of CCR efficiency is formulated as:

$$\text{Min } \theta$$

with the limitation

$$\begin{aligned} \sum_{j=1}^n \lambda_j x_{ij} &\leq \theta x_{io} & i = 1 \dots m \\ \sum_{j=1}^n \lambda_j y_{kj} &\geq y_{ko} & k = 1 \dots s \\ \lambda &\geq 0 & j = 1 \dots n \end{aligned} \quad (1)$$

where  $\theta$  is technical efficiency of decision making units DMUs 0,  $\lambda$  is a dual variable used for the identification of comparable inefficient units. If  $\theta^*$  equals 1, the observed DMU is technically efficient.

### 1.2. BCC model

The concept of the CCR model was modified by the introduction of the BCC model. The model is named after its developers *Banker, Charnes and Cooper* who replaced constant returns-to-scale (CRS) by variable returns-to-scale (VRS). The DMU operates under VRS if the input increase does not result in proportional changes of the output. The BCC model is formulated as:

$$\text{Min } \theta$$

with the limitation

$$\begin{aligned} \sum_{j=1}^n \lambda_j x_{ij} &\leq \theta x_{io} & i = 1 \dots m \\ \sum_{j=1}^n \lambda_j y_{kj} &\geq y_{ko} & k = 1 \dots s \\ \sum_{j=1}^n \lambda_j &= 1 & j = 1 \dots n \\ \lambda_j &\geq 0 \end{aligned} \quad (2)$$

In the BCC model, technical efficiency (TE) acquired by the CCR model is decomposed into two components – 1) pure technical efficiency (PTE) that ignores the scale size by comparing DMU with the units on a similar scale and measures how DMU uses inputs under exogenous conditions; and 2) scale efficiency (SE) that shows how scale size affects efficiency, formulated as:

$$\text{SE} = \text{TE} / \text{PTE}.$$

## 2. FDH model

The theoretical characteristics of the FDH model shall be briefly presented as this model was also applied in the analysis of trade efficiency in the selected countries and Serbia. The non-parametric FDH model formulated by Deprins, Simar and Tulkens (2006) does not include the conditions of local convexity. This means that only the real existing observations (nonlinear combination of observations) are used while comparing efficiency (Deprins, Simar & Tulkens, 2006; Panayides, 2009). The model includes only the assumption of free access to resources and consequently less limitations than other models.

Formally, the measurement of efficiency by using the FDH models is derived from:

$$\psi^* = \max_{\lambda} \min_{r=1,2,\dots,s} \left\{ \frac{\sum_{j=1}^n \lambda_j Y_{rj}}{Y_{r0}} \right\},$$

so that

$$\sum_{j=1}^n \lambda_j = 1,$$

$$\lambda_j \in (0,1) \quad (3)$$

## 3. Defining input/output data

While defining trade efficiency of the selected countries (Germany, France, Croatia, Italy, Slovenia, United Kingdom, plus Serbia), we used the CCR model. The input variables used were: purchase value of goods, personnel cost, and gross investment into equipment and machines, while the output variables used were turnover and gross operating surplus (Table 1).

Table 1. *Input/output data, 2016 (in million EUR)*

DMU	(I) Purchase value of goods	(I) Personnel cost	(I) Gross investment into equipment and machines	(O) Turnover	(O) Gross operating surplus
Germany	1,484,551	181,280	16,433	1,959,147	123,038
France	1,025,395	134,447	18,199*	1,419,794	44,105
Croatia	23,752	2,551	229	31,332	1,868
Italy	727,642	69,499	9,395	981,215	63,808
Slovenia	23,310	2,264	292	31,073	1,619
United Kingdom	1,054,488	120,293	12,319	1,482,221	107,629
**Serbia	20,969	1,469	4,725	24,376	825

Note: For Serbia, authors' calculations in EUR

Source: Eurostat, \*OECD statistics and \*\* The Serbian Business Registers Agency

Table 2 shows descriptive statistics of the analyzed components in the context of measuring trade efficiency of the selected countries by applying the DEA model.

Table 2. *Descriptive statistics of input/output data*

	Purchase value of goods	Personnel cost	Gross investment into equipment and machines	Turnover	Gross operating surplus
Max	1,484,551	181,280	18,199	1,959,147	123,038
Min	20,969	1,469	229	24,376	825
Average	622,872	73,114.7	8,798.86	847,023	48,984.6
SD	558,377	68,486.1	6,780.17	755,385	47,733.5

Note: Authors' calculations using the software DEA model = DEA-Solver LV8.0/ CCR(CCR-I)

Source: Eurostat, OECD statistics and The Serbian Business Registers Agency

The data in Table 2 show that the values for the trade of the selected countries are on average (in million EUR) as follows: purchase value of goods 622,872, personnel cost 73,114.7, gross investment into equipment and machines 8,798.86, turnover 847,023 and gross operating surplus 48,984.6.

Table 3 shows the correlation matrix of input/output data for the trade of the selected countries and Serbia for 2016.

Table 3. *Correlation matrix of input/output data*

	Purchase value of goods	Personnel cost	Gross investment into equipment and machines	Turnover	Gross operating surplus
Purchase value of goods	1	0.99278	0.92941	0.99919	0.93436
Personnel cost	0.99278	1	0.94311	0.99193	0.89824
Gross investment into equipment and machines	0.92941	0.94311	1	0.93366	0.76701
Turnover	0.99919	0.99193	0.93366	1	0.93304
Gross operating surplus	0.93436	0.89824	0.76701	0.93304	1

Note: Authors' calculations using the software DEA model = DEA-Solver LV8.0/ CCR(CCR-I)

Source: Eurostat, OECD statistics and The Serbian Business Registers Agency

Table 3 indicates a strong correlation of the analyzed input/output data in the context of measuring trade efficiency of the selected countries by applying the DEA model on the level of statistical significance (Sig. (2-tailed) < 0.05).

#### 4. Measuring trade efficiency of the selected countries using the CCR model

The analysis of trade efficiency of the selected countries and Serbia was conducted using the CCR model with the CCR-input (CCR-I) and the CCR-output (CCR-O) orientation. The results for the model CCR-I are given in Table 4.

Table 4. Trade efficiency of the selected countries measured by CCR-I

No.	DMU	Model = CCR-I		Slack				
		Score	Rank	Purchase value of goods	Personnel cost	Gross investment into equipment and machines	Turnover	Gross operating surplus
1	Germany	0.9565	7	0	14,255.7	0	0	11,911.1
2	France	0.9851	6	0	17,211.8	6,126.95	0	58,991
3	Croatia	1	1	0	0	0	0	0
4	Italy	1	1	0	0	0	0	0
5	Slovenia	0.9903	5	0	0	0	0	386.965
6	United Kingdom	1	1	0	0	0	0	0
7	Serbia	1	1	0	0	0	0	0
	Average	0.9903	3.1429	0	4,495.37	875.279	0	10,184.1
	Max.	1	7	0	17,211.8	6,126.95	0	58,991
	Min.	0.9565	1	0	0	0	0	0
	St. dev.	0.0161	2.7343	0	7,724.58	2,315.77	0	21,969.4

Note: Authors' calculations using the software: DEA model = DEA-Solver LV8.0/ CCR(CCR-I)

The data in Table 4 suggest that by the CCR-I model, trade of Croatia, Italy, United Kingdom, and Serbia is efficient while trade of Germany, France, and Slovenia is inefficient. In the case of Germany, in order to improve efficiency, personnel cost needs to be reduced by EUR 14,255.7 while gross operating surplus needs to be increased by EUR 11,911.1 Trade efficiency in France is achieved by reducing personnel cost by EUR 17,211.8 and gross investment into equipment and machines by EUR 6,126.9 and by increasing gross operating surplus by EUR 58,991. The increase of trade efficiency in Slovenia requires the growth of gross operating surplus by EUR 386.9.

Table 5 presents trade efficiency of the selected countries measured by CCR-O model.

Table 5. Trade efficiency of the selected countries measured by CCR-O

No.	DMU	Model = CCR-O		Slack				
		Score	Rank	Purchase value of goods	Personnel cost	Gross investment into equipment and machines	Turnover	Gross operating surplus
1	Germany	0.9565	7	0	14,903.4	0	0	12,452.3
2	France	0.9851	6	0	17,472.8	6,219.88	0	59,885.6
3	Croatia	1	1	0	0	0	0	0
4	Italy	1	1	0	0	0	0	0
5	Slovenia	0.9903	5	0	0	0	0	390.749
6	United Kingdom	1	1	0	0	0	0	0
7	Serbia	1	1	0	0	0	0	0
	Average	0.9903	3.1429	0	4,625.18	888.554	0	10,389.8

	Max.	1	7	0	17,472.8	6,219.88	0	59,885.6
	Min.	0.9565	1	0	0	0	0	0
	St. dev.	0.0161	2.7343	0	7,933.75	2,350.89	0	22,307.9

Note: Authors' calculations using the software: DEA model = DEA-Solver LV8.0/ CCR(CCR-O)

The data in Table 5 show that in terms of trade efficiency of the observed countries, the results are similar to those obtained using the CCR-I model. Three countries have inefficient trade (Germany, France, and Slovenia), while Croatia, Italy, United Kingdom, and Serbia have efficient trade. In order to increase efficiency, Slovenia trade, for example, needs to increase gross operating surplus by EUR 390 (19%).

### 5. Measuring trade efficiency of the selected countries using the BCC model

Comparative analysis of trade efficiency of the selected countries was also made using the BCC model with input and output orientation, which is characterized by a variable return-to-scale. Table 6 presents the results of this analysis using the BCC-I model.

Table 6. *Trade efficiency of the selected countries (Model = BCC-I)*

No.	DMU	Model = BCC-I		Slack					RTS of Projected DMU
		Score	Rank	Purchase value of goods	Personnel cost	Gross investment into equipment and machines	Turnover	Gross operating surplus	
1	Germany	1	1	2.399	0.641	0	0	0.597	Decreasing
2	France	0.9851	7	0	17,229.7	6,126.42	0	58,963.6	Constant
3	Croatia	1	1	0	0	0	0	0	Constant
4	Italy	1	1	0	0	0	0	0	Constant
5	Slovenia	1	1	0	0	0	0	0.004	Increasing
6	United Kingdom	1	1	0	0	0	0	0	Constant
7	Serbia	1	1	0	0	0	0	0	Constant
	Average	0.9979	1.8571	0.3427	2,461.48	875.203	0	8,423.45	
	Max.	1	7	2.399	17,229.7	6,126.42	0	58,963.6	
	Min.	0.9851	1	0	0	0	0	0	
	St. dev.	0.0056	2.2678	0.9067	6,512.17	2,315.57	0	22,286.1	

Note: Authors' calculations using the software: DEA model = DEA-Solver LV8.0/ BCC(BCC-I). Returns-to-Scale (RTS)

Table 6 suggests that in this case only the trade of France is inefficient. In order to increase efficiency, personnel cost needs to be reduced by EUR 17,229.7 and gross investment into equipment and machines by EUR 6,126.42 while gross operating surplus needs to be increased by EUR 58,963.6. The value of returns-to-scale (RTS) is reduced in Germany and increased in Slovenia. For other observed countries, its value is constant.

Table 7 shows the results of analysis of trade efficiency of the selected countries using the BCC-O model.

Table 7. Trade efficiency of the selected countries (Model = BCC-O)

No.	DMU	Model = BCC-O		Slack					RTS of Projected DMU
		Score	Rank	Purchase value of goods	Personnel cost	Gross investment into equipment and machines	Turnover	Gross operating surplus	
1	Germany	1	1	2.333	0.623	0	0	0.581	Decreasing
2	France	0.9851	7	0	17,484	6,219.32	0	59,865.7	Constant
3	Croatia	1	1	0	0	0	0	0	Constant
4	Italy	1	1	0	0	0	0	0	Constant
5	Slovenia	1	1	0	0	0	0	0.005	Increasing
6	United Kingdom	1	1	0	0	0	0	0	Constant
7	Serbia	1	1	0	0	0	0	0	Constant
	Average	0.9979	1.8571	0.3333	2,497.8	888.475	0	8,552.32	
	Max.	1	7	2.333	17,484	6,219.32	0	59,865.7	
	Min.	0.9851	1	0	0	0	0	0	
	St. dev.	0.0056	2.2678	0.8818	6,608.29	2,350.68	0	22,627.1	

Note: Authors' calculations using the software: DEA model = DEA-Solver LV8.0/ BCC(BCC-O). Returns-to-Scale (RTS)

Table 7 suggest that in terms of trade efficiency of the observed countries, the results are similar to those obtained using the BCC-I model. Only the trade of France is inefficient. The improvement of trade efficiency of France requires the reduction of personnel cost and grow investment into equipment and machines, while gross operating surplus needs to be increased. The value of returns-to-scale (RTS) is reduced in Germany and increased in Slovenia. For other observed countries, its value is constant.

## 6. Measuring trade efficiency of the selected countries using the FDH model

This part of the paper brings the comparative analysis of trade efficiency of the selected countries using the FDH model. Table 8 presents the research results.

Table 8. *Trade efficiency of the selected countries measured by the FDH model*

No.	DMU	Score	Rank
1	Germany	1	1
2	France	1	1
3	Croatia	1	1
4	Italy	1	1
5	Slovenia	1	1
6	United Kingdom	1	1
7	Serbia	1	1
	Average	1	
	SD	0	
	Maximum	1	
	Minimum	1	

Note: Authors' calculations using the software: DEA model = DEA-Solver LV(V8)/ FDH

The data in this table suggest that the trade of all the observed countries, measured by the FDH model, is efficient.

## 7. Concluding remarks

The research presented in the paper focused on the comparison of trade efficiency in Serbia and that of the other selected countries (Germany, France, Croatia, Italy, Slovenia, and United Kingdom). The trade in Serbia, measured by all the presented DEA models and the FDH model, has been identified as efficient. When compared to the trade in Slovenia, measured by CCR-I and CCR-O models, the trade in Serbia has been identified as more efficient.

The efficiency of trade in Serbia has been primarily affected by improved economic conditions in the recent period as well as by the increased presence of foreign retail chains with "new business models". This is particularly evident in terms of the application of private brands, sales of organic products, information and communication technology, and modern concepts of cost management.

The improved efficiency of trade in Serbia requires stronger implementation of modern business concepts, cost management as well as information and communication technology.

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## THE FINANCIAL SUSTAINABILITY OF LARGE CITIES IN THE REPUBLIC OF CROATIA

### FINANCIJSKA ODRŽIVOST VELIKIH GRADOVA U REPUBLICI HRVATSKOJ

#### Abstract

*Budget planning is one of the preconditions for general financial stability and sustainability in the public sector. Consequently, local government units strive to improve their services in order to raise the quality of life and to collect more revenues in their budget. Due to fiscal decentralization, revenue sources for local and regional government units in the Republic of Croatia vary. The ultimate goal of local and regional government units is to create a business environment conducive to an increase in domestic and foreign investment, the growth and development of economics operators and employment, as well as long-term financial budget sustainability. As living spaces and centers of economic activity, cities have an important role as local government units in the Republic of Croatia. The purpose of this paper is to examine the level of fiscal capacity and financial sustainability of large cities in Croatia in 2017. Therefore, a comparison of financial sustainability indicators with reference values of large cities is presented. The results of the analysis showed that there is a significant difference in the level of fiscal capacity between large cities in the Republic of Croatia. Moreover, this analysis could serve as a basis for improving the fiscal capacity of large cities, thereby helping all government actors achieve long-term financial sustainability.*

**Keywords:** financial sustainability, expenditures, revenues, large cities, local government

**JEL:** H1, H70, H72

#### Sažetak

*Proračunsko planiranje je jedan od preduvjeta za općenitu financijsku stabilnosti i održivost javnog sektora. Upravo iz tog razloga, jedinice lokalne samouprave nastoje povećati njihove usluge kako bi postignule višu kvalitetu života i prikupile više prihoda za proračun. Izvori prihoda unutar jedinica lokalne samouprave u Republici Hrvatskoj različito se prikupljaju zbog fiskalne decentralizacije. Konačni cilj svih jedinica lokalne i regionalne samouprave je stvoriti poslovno okruženje koje pogoduje povećanju domaćih i stranih investicija, rastu i razvoju ekonomskih poslova, zaposlenosti, kao i dugoročnoj financijskoj održivosti proračuna. Kao mjesta življenja i ekonomskih aktivnosti, gradovi imaju važnu ulogu kao jedinice lokalne samouprave u Republici Hrvatskoj. Cilj rada je istražiti razinu fiskalnog kapaciteta i financijske održivosti velikih gradova u Republici Hrvatskoj u 2017. godini. U tu svrhu, prikazati će se usporedba indikatora financijske održivosti s referentnim vrijednostima velikih gradova. Rezultati analize su pokazali da postoji značajna razlika razine fiskalnog kapaciteta među velikim gradovima u Republici Hrvatskoj. Povrh toga, analiza može služiti kao osnova za poboljšanje fiskalnog kapaciteta među velikim gradovima, pomažući time svim državnim akterima kako bi postignuli dugoročnu financijsku održivost.*

**Ključne riječi:** financijska održivost, rashodi, prihodi, veliki gradovi, lokalna vlast

**JEL:** H11, H70, H72

## 1. Introduction

For achieving a welfare state within a country, the units of local self-government, together with the public functions, are one of the most important determinants. Hence, the benefits are twofold – local government budget sustainability and quality of life. For the first benefit, the budget and budget planning play a very important role, while for the second one the public functions of local government, such as education, social protection, healthcare, culture and religion, economic affairs, *etc.*, are very relevant. One of the preconditions for creating overall financial stability, as well as facilitating sustainable growth and development, is rational public sector budget planning and management. Therefore, fiscal decentralization plays an important part, since revenue sources for the budgets of local and regional government units vary among different levels of government. It is a challenge for the central state government to balance the revenues and expenditures impacting the level of fiscal autonomy of the local government units. The pioneers of fiscal decentralization were Tiebout (1956), Stigler (1957), Musgrave (1959), and Oates (1972). They established the basic concept of fiscal decentralization, which holds that expenditures of local government units for public functions as well as the budget should be created according to the population's preferences and needs. Therefore, it is necessary to find sustainable models of financing for local government units to provide public sector services. As there are different levels of autonomy and development among the local government units, this is not an easy task to undertake.

The objective of this paper is to examine the level of fiscal capacity and financial sustainability of 25 large cities in Croatia, including county capitals, in 2017. As a centralized country, Croatia is faced with a low level of fiscal decentralization, coupled with a low level of fiscal capacity of local and regional government units. Due to fiscal decentralization, revenue sources for local and regional government units vary. This paper contributes not only to the scientific literature in the field of financing local government units, but this analysis could also serve as a basis for improving the fiscal capacity of large cities. Moreover, it will help all government actors to achieve long-term financial sustainability. The paper is organized as follows. After the introduction, the most important research about fiscal decentralization, the levels of fiscal autonomy and capacity and the financial sustainability of local government units is presented in the literature review. In the third section, the data and methodological approach are described. Section Four presents the results and a discussion, while the last section provides a conclusion, limitations and a recommendation for further research.

## 2. Literature review

The problem of insufficient financial resources to finance all the public functions and services is present in every regional and local government unit. Hence, it is important to explain the system of decentralization, level of fiscal capacity and financial sustainability indicators. In the literature there are quite a number of researchers that have analyzed the concept of decentralization, measured the level of fiscal capacity of local and regional government units and set up financial sustainability indicators for local government.

In the literature there are different types and characteristics of decentralization. In addition, there are different empirical analyses about the impact of decentralization on economic growth and allocation of resources. In their research, Buchanan (1950), Tiebout (1956), Tanzi (1996), Rosen (1999), Dabla-Norris and Wade (2002) found that decentralization refers to the relationship between central and local state body authorities. These local body authorities have a certain degree of autonomy when it comes to financing specific expenditures. Moreover, because of the specific budget characteristics of each country, there are different explanations for the effects of fiscal decentralization on economic growth (Davoodi & Zou, 1998; Zhang & Zou, 1998; Woller &

Phillips, 1998; Thiessen, 2003; Bodman & Ford, 2006; Rodríguez-Pose & Krøijer, 2009; Aristovnik, 2012; Bajo & Primorac, 2014; Stojcic & Suman Tolic, 2019). Based on a sample of European countries, Stojcic and Suman Tolic (2019) examined the direct and indirect effects of decentralization on economic growth. They developed a model which takes into account the dynamic nature of growth, direct and indirect transmission channels of decentralization, potential endogeneity and the distinction between short and long-term effects. The results of their dynamic analysis showed that proactive government support is inevitable. Analyzing only Croatia, Bajo and Primorac (2014) compared the level of fiscal decentralization with other member states in terms of total revenues and expenditures, where they concluded that Croatia lags behind the European Union average. Jurlina Alibegović, Hodžić, and Bečić (2019) measured the level of fiscal autonomy of large cities in three Southeastern European counties, namely Croatia, Serbia, and Bosnia and Herzegovina. They compared the level of fiscal autonomy of large cities and other remaining local units with one another by using the index of fiscal autonomy. The results of the analysis showed that, among large cities in three aforementioned countries, the highest index of fiscal autonomy was recorded in Croatia (54.95). Besides fiscal decentralization and the level of fiscal autonomy of local government units, literature also mentions a research question regarding the financial sustainability of local government units, which has never been explored in detail. This research question has been very relevant over the past two decades, which has resulted in different measurements and definitions of the financial sustainability of a local authority. Numerous researchers have examined the factors and elements of financial sustainability and established adequate models and means of measurement (Honadle, Costa & Cigler, 2004; Saha, 2009; Drew & Dollery, 2014; Bröthaler, Getzner & Haber, 2015; Kluza, 2016; Navarro-Galera *et al.*, 2016; Arunachalam, Chen & Davey, 2016). Although there are broad definitions of the term ‘financial sustainability of local authority’, the best-known are defined by PWC (2006). In their report financial sustainability is defined “as a local council’s ability to manage expected financial requirements and financial risks and shocks over the long term without the use of disruptive revenue or expenditure measures” (p. 96). Arunachalam, Chen, and Davey (2016) established a benchmark for a set of 13 financial and non-financial ratios divided into five dimensions as a basis for measuring, scoring and ranking the financial sustainability of New Zealand local authorities for the period 2001-2010. They found that eight to 35 percent of local councils in New Zealand were confronted with unfavorable financial sustainability challenges in 2010. On the other hand, researchers (Tang, 2009; Conroy & Iqbal, 2009) found that smaller local government units are slower in adjusting financial sustainability due to fiscal and technical capacity. Therefore, in this paper we contributed to the literature by investigating the fiscal capacity and financial sustainability of large cities as units of local government in Croatia.

### 3. Data and methodological approach

In order to obtain empirical results for the fiscal capacity and financial sustainability of local government units in 25 large Croatian cities, including county capitals, in 2017, all the data were collected from publicly available local budget reports. As a centralized country, Croatia is divided into three administrative levels of government. These are the central state, counties and cities as well as municipalities. According to the Act on Local and Regional Self-Government Financing, there are 20 counties and the city of Zagreb, which has the dual status of a city and county, 127 cities and 428 municipalities. The distribution of responsibilities across the three levels of government is presented in Table 1.

Table 1. *Distribution of responsibilities across levels of government in Croatia*

Public functions	Municipalities	Counties	State
01 General public services			
01.1 Executive and legislative bodies, financial and fiscal affairs, external affairs	•	•	•
02 Defense			
02.1 Military defense			•
02.2 Civil defense	•		
03 Public order and safety			
03.1 Police services			•
03.2 Fire-fighting services	•		
04 Economic affairs			
04.1 General economic, commercial and labor affairs (consumer protection)	•		
04.5 Transport	•	•	•
05 Environmental protection			
05.1 Waste management		•	
05.2 Waste water management		•	
05.3 Pollution abatement	•		
06 Housing and community amenities			
06.1 Housing planning and development	•	•	
06.2 Community planning and development	•	•	
06.3 Water supply	•		
06.4 Street lighting	•		
07 Health			
07.1 Medical products, appliances and equipment			•
07.2 Outpatient services		•	
07.3 Hospital services		•	•
07.4 Public health services		•	
08 Recreation, culture and religion			
08.1 Recreational and sporting services	•		
08.2 Cultural services	•		•
09 Education			
09.1 Pre-school and primary education	•		

09.2 Secondary education		•	
09.3 Post-secondary non-tertiary education		•	•
09.4 Tertiary education			•
10 Social protection	•	•	•
10.6 Housing		•	•
10.7 Social exclusion n.e.c.		•	•

Source: Jurlina Alibegović, Hodžić & Bečić (2018)

According to Table 1, the cities and municipalities carry out activities related to housing planning and development, community planning and development, water supply, social protection, pre-school and primary education, recreational and sporting services, transport, and others. For the purpose of this research, we observed only large cities in Croatia. According to the Law on Local and Regional Self-Government, the term “large city” refers to a city with more than 35,000 inhabitants and county capitals. The total number of large cities in Croatia is 25, where 17 cities have more than 35,000 inhabitants and eight cities are county capitals with fewer than 35,000 inhabitants. The large cities are an important part of the community because they carry out activities and responsibilities for local economic development. Therefore, to calculate the long-term financial sustainability of local government we followed the financial sustainability indicators proposed by Arunachalam, Chen, and Davey (2016). In order to calculate the level of fiscal capacity, the methodology from Bajo *et al.* (2015) was followed. According to this methodology, the level of fiscal capacity is defined as the difference between total revenues and expenditures of economic activity in certain local government units.

#### 4. Results and discussion

The sample used in this paper comprises 25 large cities, where 17 cities have more than 35,000 inhabitants and eight cities are county capitals with fewer than 35,000 inhabitants. In Table 2 the results for the level of fiscal capacity of large cities in Croatia in 2017 is presented.

Table 2. *Fiscal capacity of large cities in 2017*

	Fiscal capacity	%
Zagreb	-377,936,168.00	105.75
Split	128,918,784.00	83.72
Rijeka	16,226,916.00	97.58
Osijek	20,492,752.00	94.72
Zadar	58,181,298.00	83.95
Velika Gorica	-21,774,877.00	106.68
Slavonski Brod	1,050,401.00	99.31
Pula	16,561,788.00	95.25
Karlovac	-3,275,825.00	101.57
Sisak	-31,401,386.00	117.74
Varaždin	24,475,794.00	88.94

Šibenik	-186,444.00	100.11
Dubrovnik	33,582,161.00	91.64
Bjelovar	378,313.00	99.67
Kaštela	-7,930,357.00	107.56
Samobor	-511,111.00	100.29
Vinkovci	1,663,373.00	98.11
Koprivnica	-8,612,928.00	107.37
Vukovar	23,591,748.00	84.67
Čakovec	9,078,980.00	92.03
Požega	-14,139,229.00	121.16
Virovitica	-5,936,848.00	109.32
Gospić	-291,064.00	100.53
Krapina	-2,992,706.00	108.91
Pazin	-273,661.00	100.54

Source: Authors' calculation

The results in Table 2 showed that, in 2017, only 12 large cities had a positive level of fiscal capacity, while 13 large cities generated a negative value. A positive level of fiscal capacity means that their local budgets had enough revenues to cover all their expenditures, including capital and current expenditures, to stimulate the local economic development of the large cities.

Table 3. *Financial sustainability scores in 2017*

	Profit margin ratio (%)	Interest coverage ratio (%)	Rates coverage (%)	Population density
Zagreb	5.8	4.42	0.0	1232.48
Split	16.3	16.69	1.0	2226.28
Rijeka	2.4	0.79	-0.2	2923.27
Osijek	5.3	4.12	2.5	639.34
Zadar	16.1	36.83	-1.0	3002.48
Velika Gorica	6.7	17.62	9.4	115.07
Slavonski Brod	0.7	1.92	3.4	1182.82
Pula	4.7	7.71	4.1	1105.00
Karlovac	1.6	1.98	-5.5	138.92
Sisak	17.7	12.92	1.4	112.93
Varaždin	11.1	18.62	-1.7	795.69
Šibenik	0.1	0.10	4.0	107.00
Dubrovnik	8.4	5.46	1.0	2029.29

Bjelovar	0.3	0.32	-1.0	209.77
Kaštela	7.6	10.58	-11.7	666.67
Samobor	0.3	0.38	-7.9	149.93
Vinkovci	1.9	2.71	-28.8	375.66
Koprivnica	7.4	4.54	-1.0	339.05
Vukovar	15.3	125.95	0.2	276.83
Čakovec	8.0	4.60	6.9	371.29
Požega	21.2	10.00	2.7	195.88
Virovitica	9.3	10.46	-13.5	118.94
Gospić	0.5	1.02	2.3	13.18
Krapina	8.9	54.71	-19.1	215.17
Pazin	0.5	0.26	0.8	63.99

Source: Authors' calculation

In line with the set of financial and non-financial ratios proposed by Arunachalam, Chen, and Davey (2016) in five dimensions, the results of the empirical analysis are shown in Table 3. The selection and inclusion of the ratios are based on publicly available data for large cities in 2017. The results in Table 3 shown that, according to the profit margin ratio, the cities with the highest ratio are Požega, Sisak, Split, and Zadar. The dimension of profitability, where the profit margin ratio is an indicator, explains whether or not large cities are capable of improving their financial sustainability through fiscal management. Although profitability is not a primary goal of local government, this indicator provides insights into the resource efficiency and ability of management to finance growth. The positive result of this indicator is considered a positive financial result of a large city. In the financial structure dimension there are several indicators, such as the interest coverage ratio, debt-total asset ratio and net debt-total revenue ratio. Due to the scarcity of publicly available data regarding local budgets, we only calculated the interest coverage ratio. This indicates the ability of a local government unit to pay interest on its outstanding debt. Based on a study by PWC (2006), when the coverage ratio falls below 3, the ability to meet interest expenses is questionable. The results of the empirical analysis show that nine large cities have values below 3, and thus the financial sustainability of their local budgets is questionable. The performance dimension includes indicators like the rates coverage, rates revenue to total revenue ratio, asset turnover and net interest expense ratio. Ratios related to rates revenue and expenses are significant indicators of a local government unit's financial sustainability. The rates coverage indicator portrays a local government unit's ability to cover its costs through its tax revenue. PWC (2006) established a benchmark where a value of 40 percent or higher represents a financially sustainable outcome. Based on the results in Table 3, all the values are below 40 percent, meaning that these large cities are not able to provide enough revenues to meet their expenses. The interesting fact is also that some cities like Vinkovci, Krapina, and Virovitica have a high negative value. The demographic dimension includes more non-financial indicators, such as population growth, population density and dwellings per capita. The impact of demographics on financial sustainability were examined by Carmeli (2003), Andrews *et al.* (2005), Cohen (2008) as well as Drew and Dollery (2014). They concluded that the financial attractiveness of an area depends on its geographical location, political significance, local tax base, availability of resources, *etc.* The population density indicator is a measurement of the population per square kilometer. This indicator also explains how many citizens live in a particular area and the efficiency of a local government unit's infrastructural service provisions. In order to provide empirical results, the Census of

Population, Households, and Dwellings for 2011 was used. The results show that the large cities with the highest population densities are Zadar, Rijeka, and Split.

Similar research was done by Arunachalam, Chen, and Davey (2016) when examining New Zealand local authorities. They provided an analysis of the financial sustainability dimensions and a set of 13 financial and non-financial indicators in the 2001-2010 period. The results of the empirical analysis showed that “8 to 35 percent of local councils in New Zealand were confronted with unfavorable financial sustainability challenges in 2010” (p. 19). The major problem was detected in low levels of liquidity and high levels of debt. In both cases, the financial performance of local government units in Croatia and New Zealand has implications for their local communities as well as for the national economy and economic growth.

## 5. Conclusion

The financial sustainability of local government units has been a major concern not only for local government officials, but also for local communities and the national economy. In particular, this refers to increasing operating revenue, expenditures and debts. Only by achieving a financially sustainable local budget are local authorities able to optimize their resources and capabilities in the long run. Therefore, an efficient and effective performance management system is inevitable. Moreover, fiscal decentralization plays an important part in this context. The allocation of budget funds within local government units improves the service volume and quality, which in turn facilitates the financial sustainability of the budgets of local government units.

As a centralized country, Croatia is faced with a low level of fiscal decentralization, coupled with a low level of fiscal capacity of local and regional government units. The objective of this paper is to examine the level of fiscal capacity and financial sustainability of 25 large cities in Croatia, including counties capitals, in 2017. In line with the methodology of Bajo *et al.* (2015) to calculate the level of fiscal capacity of large cities as well as Arunachalam, Chen, and Davey (2016) regarding the dimensions and set of financial and non-financial indicators, the empirical analysis provided interesting results. Regarding the level of fiscal capacity of the 25 large cities, there are only 12 large cities with positive values, and 13 with negative values. This means that 12 large cities have enough revenues to cover all their expenditures, including capital and current expenditures, to stimulate their local economic development. Evaluating the financial sustainability dimension by using financial and non-financial indicators also showed interesting results. For each set of financial and non-financial indicators, there are different results for the large cities in 2017. The major problem of achieving the financial sustainability of large cities is the rates coverage ratio. According to the empirical analysis, all values are below 40 percent, meaning that these large cities are not able to provide enough revenues to meet their expenses. Based on the empirical analysis, it can be concluded that the financial performance management of a local government unit should be compared with the financial strategy and long-term plans in order to achieve local financial development. In addition, local government tax limitations erode the link between revenue and expenditures and decrease the level of financial sustainability and efficiency.

The limitations of this research are that we only observed one year (2017) and 25 large cities, although Croatia has 127 cities as units of local government. Besides this, and due to limited publicly available data, the results are only presented for three financial and one non-financial indicator. A recommendation for further research is to expand the sample to include all 127 cities and to extend the observation period.

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## ALIGNMENT BETWEEN ENGINEERING ASSET MANAGEMENT AND FINANCE

### USKLAĐIVANJE INŽENJERSKOG UPRAVLJANJA IMOVINOM I FINANSIJA

#### Abstract

*Modern organizations, primarily business, have to strongly focus on a sound financial management and, then, shall demonstrate their profitability and financial sustainability. They are often capital intensive and procure their assets (such as various equipment, components, engineered systems, etc.) in order to deliver products and/or services. Contemporary trends show that this goal is efficiently achieved through a structured asset management. In accordance with ISO 55000 standard, asset management is defined as a coordinated activity of an organization to realize the value from assets. Although in theory the relationship between finance and engineering appears to be rather obvious, practice has revealed that organizations often suffer from a dichotomy between these two sectors. It is commonly due to lack of communication, suitable interactions, transparency, and understanding between people working in these two fields at all levels of organization. Consequently, it leads to their misalignment and potential internal struggles. Such situations may cause serious setbacks, losses, and ultimately could put organizations in jeopardy of survival. It is particularly true in the contemporary, strongly connected world, where operational and business environment is highly complex, rapidly changing, dynamic, and strongly competitive, typically involving deep epistemic uncertainties regarding scenarios and business outcomes. Additionally, modern organizations are fairly complex as per their internal structure, management, technological processes, operations, and deployed technologies, what adds to the overall complexity of the business environment. It appears that traditional methods in modelling such environments are less successful, and novel methodologies and concepts are required. The paper proposes a holistic approach based on combining traditional modelling methods and the theory of complexity aiming at efficiently aligning financial and engineering asset management of contemporary organizations. It enables their long-term sustainability and a high level of financial performance. Various means and methods are proposed and discussed to achieve this goal.*

**Keywords:** financial management, engineering asset management, complexity theory, alignment

**JEL:** G30, G31, L00

#### Sažetak

*Moderne organizacije, posebno poslovne, moraju se snažno fokusirati na zdrav finansijski menadžment i tada će pokazati profitabilnost i finansijsku održivost. Često su kapitalno intenzivne i nabavljaju imovinu (poput različite opreme, komponenti, inženjerskih sistema i sl.) u cilju isporuke proizvoda i/ili usluga.*

*Savremeni trendovi pokazuju da se ovaj cilj efikasno postiže putem strukturiranog upravljanja imovinom. U skladu sa ISO 55000 standardom, upravljanje imovinom definiše se kao koordinirana aktivnost organizacije kako bi realizirala vrijednost svoje imovine. Iako se u teoriji odnos između finansija i inženjeringa čini sasvim očiglednim, praksa je pokazala da organizacije često “pate” od odvojenosti ta dva sektora. To je obično slučaj usljed nedostatka komunikacije, odgovarajuće interakcije, transparentnosti i razumijevanja između ljudi koji rade u ta dva područja na svim nivoima organizacije. Posljedično, to vodi prema njihovoj neusklađenosti i potencijalnim internim konfliktima. Takve situacije mogu uzrokovati ozbiljne zastoje, gubitke i, u konačnici, mogu ugroziti opstanak organizacije. Ovo je posebno slučaj u savremenom, snažno povezanom svijetu, gdje je operativno i poslovno okruženje visoko kompleksno, brzo se mijenja, dinamično i jako kompetitivno, uobičajeno uključujući duboke epistemološke neizvjesnosti u pogledu scenarija i poslovnih ishoda. Osim toga, moderne organizacije su prilično kompleksne i po svojoj internoj strukturi, upravljanju, tehnološkim procesima, operacijama i primijenjenim tehnologijama, što pridonosi ukupnoj kompleksnosti poslovnog okruženja. Čini se da su tradicionalne metode modeliranja takvih okruženja manje uspješne i da su potrebne nove metodologije i koncepti. U radu se predlaže holistički pristup koji se temelji na kombinovanju tradicionalnih metoda modeliranja i teorije kompleksnosti s ciljem efikasnog usklađivanja finansijskog i inženjerskog upravljanja imovinom savremenih organizacija. On omogućuje njihovu dugoročnu održivost i visok nivo finansijskih performansi. Za postizanje tog cilja predlažu se i diskutuju različita sredstva i metode.*

**Ključne riječi:** finansijski menadžment, inženjersko upravljanje imovinom, teorija kompleksnosti, usklađivanje

**JEL:** G30, G31, L00

## 1. Introduction

Modern industries deploy more sophisticated technologies and equipment for more products and services to satisfy consumer needs in the context of stiff competition (Adoghe, Awosope & Ekeh, 2013; Komljenovic *et al.*, 2016; Petchrompo & Parlikad, 2016; Trindade *et al.*, 2019). They are usually capital intensive organizations that are fairly complex in terms of their internal structure, management, technological processes, operations, and installed technologies. They also operate in an increasingly complex business and operational environment characterized by significant uncertainties. Furthermore, contemporary organizations must deal with the replacement of large proportions of their assets as they reach the end of their useful life or become obsolete due to technological changes. Sometimes, major upgrades are also necessary due to the need to grow capacity. High-impact, low-frequency (HILF) events<sup>1</sup> such as extreme weather/natural disasters and cyberattacks have grown into significant factors.<sup>2</sup> Nevertheless, few studies have thoroughly examined associated risks and their effects on the overall performance and vulnerabilities of electrical utilities exposed to them.

In such a context, asset management (AM) has become widespread among contemporary enterprises and organisations as an effective approach making possible to deliver value from assets and to ensure the sustainability of the business and its operations [ISO 55000, 2014; ISO 55001, 2014; ISO 55002, 2018; ISO Technical Committee for Asset Management Systems (ISO TC/251), 2019; ISO 31000:2018, 2018; Khuntia *et al.*, 2016; Komljenovic *et al.*, 2016; Komljenovic *et al.*, 2019; Komljenovic, 2018; Liyanage, 2010; Md Ghazali & Anuar, 2017; Park, S., Park, S. I. & Lee, 2016; Petchrompo & Parlikad, 2016; The Institute of Asset Management, 2015a & 2015b; Trindade *et al.*, 2019]. This concept becomes particularly relevant considering the globalisation and increased competition that characterise markets worldwide.

Advances in AM experience, practice, and the accumulated knowledge across various industries resulted in new international standards on AM, *i.e.* a “family” of standards ISO 5500x (ISO 55000, 2014; ISO 55001, 2014; ISO 55002, 2018). The ISO 55000 standard provides the following definition of AM: “Coordinated activity of an organization to realize value from assets. It also

defines an asset as an item, thing or entity that has potential or actual value to an organization". As per best practices, AM should not only focus on the asset itself, but also on the value that it can deliver to the organization. It involves the balancing of costs, benefits, risks, and opportunities ("positive risks") against the desired performance of the assets and asset systems, in order to achieve the organizational objectives. This balancing activity often involves the consideration of different timeframes and geospatial scales. AM virtually interacts with all the functions of an organization and focuses on the total business impact, similar to the controlling function in an enterprise (Polić, Kozarević & Džafić, 2016).

As already mentioned, contemporary business organizations are often capital intensive, especially those that operate in manufacturing industries and energy systems. They procure and exploit assets, primarily physical ones (equipment, components, engineered systems, *etc.*) in order to deliver various products and/or services to their customers in the most cost-effective way. What is very important, contemporary organizational practices show that this goal can be achieved through an adequate AM process. *"If properly implemented, AM principles should influence all aspects of the lifecycle, including planning, design, construction, maintenance, rehabilitation, and disposal/recycling or replacement"* (Giglio, Friar & Crittenden, 2018).

Moreover, AM may be considered as a part of a larger activity known as resilience management (Komljenovic *et al.*, 2019). In the context of deep uncertainties and complex operational and business environment, resilience has become a popular approach in managing contemporary organizations, critical infrastructures, and power grids (Cox, 2012; Hosseini, Barker & Ramirez-Marques, 2016; Komljenovic *et al.*, 2019; Woods, 2015; Zio, 2016). This concept has been developed in recent decades and includes economical, technological, and organizational resilience. Resilience has four interrelated dimensions: (a) technical, (b) organizational, (c) societal, and (d) economic (Hosseini, Barker & Ramirez-Marques, 2016; Zio, 2016). Relevant insights upon this concept are available across specialized literature in this area.

As far as the relationship between finance and engineering in AM within organizations is concerned, it appears to be rather obvious. However, in spite of theoretically logical the relationship, which appears to be inherent to the AM, practice has revealed that organizations often suffer from a divergence between these two sectors, for example because of lack of communication, suitable interactions, transparency, and understanding between people working in these sectors. In a result, it leads to their *misalignment* and internal struggles (*e.g.* misalignment between financial accounts and technical inventories, missing information in reporting on assets, lack of transparency, *etc.*). Such situations may cause serious setbacks, losses, and business disruption in the highly complex, rapidly changing, dynamic, and strongly competitive business and operational environment (*e.g.* due to globalization, evolution of market/customers, budget restrictions, changing regulatory framework and/or deregulation, advent of new technologies, malicious human actions, climate changes, *etc.*). Those situations ultimately could put organizations in jeopardy of survival. Therefore, this paper proposes a holistic approach based on combining traditional modeling methods and the theory of complexity aiming at efficiently aligning financial and engineering AM of contemporary organizations.

## 2. Contemporary view on asset management within organizations

### 2.1. Asset management framework

Based on the review of the existing literature, which largely stems from governmental organizations and industry practitioners (especially from Australia, New Zealand, the UK, France, and the USA), AM, in terms of organizations' physical rather than financial assets that are necessary for achieving the optimal (business) outcomes, can simply be characterized as a structured process of managing

assets during their lifecycle stages such as creation, acquisition, and maintenance. From a scientific point of view, AM is a discipline that enables organizations to allocate their assets (as resources) more efficiently to provide higher levels of customer service and reliability, while balancing financial objectives (Konstantakos, Chountalas & Magoutas, 2019) such as increasing profits, reducing overhead costs, elimination of debt, decreasing marketing expenses, *etc.* Although there is a relatively rich literature upon various aspects of AM, a few publications are available upon this topic despite its importance (Komljenovic *et al.*, 2017 & 2019; Md Ghazali & Anuar, 2017; The Institute of Asset Management, 2015b).

However, the International Organization for Standardization (ISO) makes a difference between managing assets and AM. While managing assets (things you do to assets) can be done with or without a structured organizational strategy and context, an organization gains more value from managing assets within a context of organizational purpose and strategy that steers this activity (and becomes AM!). AM has a broader focus than managing assets, encompassing many organizational levels and applying to all functions or departments.

Differences between managing assets and AM could be summarized as it is shown in Table 1.

Table 1. *Managing assets versus AM*

Managing assets	AM
Your <i>colleagues</i> are focused on: <ul style="list-style-type: none"> <li>Asset data, location, and condition assessment</li> <li>Current key performance indicators (KPIs)</li> <li>Department budget</li> </ul>	Your <i>colleagues</i> are focused on: <ul style="list-style-type: none"> <li>Information supported decisions (strategic context and related to customer needs)</li> <li>Strategies to select and exploit assets over their lifecycles to support business aims</li> <li>Collaboration across departments to optimize resources allocated and activities</li> </ul>
Your <i>stakeholders</i> are focused on: <ul style="list-style-type: none"> <li>Cost</li> <li>Current performance</li> <li>Response to failure/maintaining function</li> </ul>	Your <i>stakeholders</i> are focused on: <ul style="list-style-type: none"> <li>Triple bottom line and value<sup>3</sup></li> <li>Clarity of purpose of the organization</li> <li>Focus on impact of activities on organization's objectives</li> </ul>
Your <i>top management</i> is focused on: <ul style="list-style-type: none"> <li>Short-term gain/loss</li> <li>Departmental/individual performance</li> <li>Savings, especially operational expenditures (OPEX)</li> </ul>	Your <i>top management</i> is focused on: <ul style="list-style-type: none"> <li>Long-term value for the organization</li> <li>Developing competence and capability across workforce</li> <li>Business risk understood and mitigated</li> </ul>
Your <i>suppliers</i> are focused on: <ul style="list-style-type: none"> <li>Short-term contracts and performance</li> <li>Service level agreements and focused on contract specification</li> </ul>	Your <i>suppliers</i> are focused on: <ul style="list-style-type: none"> <li>Long-term contracts and/or partnering relationships in support of clients and objectives</li> <li>Understanding client strategies and needs in 5-10 years</li> </ul>

Source: ISO, 2017a

The abovementioned suggests that AM is business/purpose-centric not asset centric and a philosophy to the way to do business; it is not a new silo in organization. Because of that, it implies a holistic (systematic) as well as an interdisciplinary approach (*i.e.* synergy of finance, accounting, engineering, logistics, informatics, humanities, *etc.*).

AM importance is perhaps best illustrated by the fact that hundreds of billions of dollars are spent in this activity worldwide (Frolov *et al.*, 2010, p. 20). It involves essential elements such as strategy, risk management and other key processes, people, data, *etc.*

As far as the core functions of AM are concerned, they depend on the industry type and can be identified using two methods – top-down and bottom-up. For example, the top-down method derives AM functions of a business organization from its strategy, and *vice versa*, the bottom-up method derives them from operational levels of a business organization hierarchy.

## 2.2. ISO AM system approach

To the diverse standards and guidelines in the area of AM, ISO 5500x first and foremost,<sup>4</sup> led moving physical AM practices from an informal to a formal mode (Alhazmi, 2018) as well as gathered knowledge and good practices. The standards themselves are generic in nature and applies to any asset type. For example, the private sector has used lifecycle AM to manage large-scale assets in a cost-effective way for operations such as electric power plants, oil-drilling platforms, and refineries, many of which are valued in the billions of dollars. Such large-scale assets and facilities are intended to last anywhere from 25 to 99 years (Giglio, Friar & Crittenden, 2018).

As mentioned above, according to ISO, AM means a coordinated activity of an organization to realize the value from assets. While asset refers to an item, thing or entity that has potential or actual value to an organization; value can be tangible or intangible, financial or non-financial that will be determined by the organization and its stakeholders, depends on the organizational goals. AM does not focus on the asset itself, but on the value that it can provide to the organization and its stakeholders. The focus on the term “value” implies an optimization process between performance, risks, and lifecycle asset costs.

In accordance with ISO 55001 standard, AM system includes set of interrelated or interacting elements to establish AM policy, AM objectives, and processes to achieve those objectives. The ISO 55002 has been revised in November, 2018, in order to provide better guidelines regarding the importance and more specific consideration of “value” in AM and its decision-making. The 2014 version of the standard was rather unclear in this regard. Also, a management system for asset intensive organization is compatible with other ISO management systems such as 9001, 14001, 31000, 45001, *etc.*

## 2.3. Development of asset management across various industries

AM is composed of an array of interacting and interdependent activities and constituent parts within a multilevel structure (people, technologies, organisational units, processes, management, *etc.*). As per best practices, it should be closely linked to an enterprise’s strategic planning, the so-called “*line of sight*” that translates organisational objectives into AM policy, strategy, and objectives. The concept of AM has produced significant interest across different industries and it continues to grow (El-Akruti, Dwight & Zhang, 2013; The Institute of Asset Management, 2015a; Trindade *et al.*, 2019).

The nuclear power industry has invested significant efforts in developing AM approaches and methods tailored to its needs and particularities. It developed the “nuclear asset management” (NAM) and the “risk-informed asset management” (RIAM) processes. They aim to guide operational, resource allocation, and risk management decisions at all levels of a nuclear generation business in order to maximize the value of the nuclear power plant for stakeholders, while maintaining public and plant staff safety (Komljenovic *et al.*, 2016). Some other specific AM processes were also elaborated. The petrochemical industry developed its own processes at the end of the 1980s (Liyanage, 2010; Md Ghazali & Anuar, 2017; The Institute of Asset Management, 2015b & 2015b). Power generation, transmission, and distribution utilities adopted specific AM approaches (Adoghe, Awosope & Ekeh, 2013; Dashti & Yousefi, 2013; Khuntia *et al.*, 2016). Players in the field of infrastructure management and transportation have developed their specific

AM approaches for many years (Andrews, Prescott & De Rozières, 2014; Bale, Varga & Foxon, 2015; Ballis & Dimitriou, 2010; Bollinger & Dijkema, 2016; Park, S., Park, S. I. & Lee, 2016; Petchrompo & Parlikad, 2016).

### **3. Why “alignment” between financial and non-financial function in asset management within organizations?**

Many organizations have financial and non-financial AM functions in different departments which results in (ISO, 2018):

- Poor communication channels between these functional areas,
- Lack of transparency,
- Misalignment between the financial accounts and the technical inventories;
- Lack of internal coherence,
- Missing information in reporting on assets,
- Senior executives often struggling with many asset-related questions and issues associated to finance and accounting.

The “alignment” implies two important issues:

- Value measures have to represent organizational objectives and
- Plans and investments need to be measured accordingly.

An effective intersection between AM functions and finance functions will generally result in the following kinds of benefits (ISO, 2017b):

- Availability of and access to “financial and technical” data for improved decision support,
- Improved and scalable internal controls,
- Improved transparency and accuracy of reporting,
- More effective means of measuring performance and continuous improvement,
- Ability to more readily answer incisive questions that demand more granular details,
- Greater assurance that the needs and expectations of stakeholders are being met,
- Greater justification of budgets and improved allocation of resources,
- Ability to more accurately assess risks and develop risk mitigation strategies.

In order to achieve the alignment, the full engagement of people, processes, and technology is necessary. Similar to the other management system, these three elements need to contribute to the AM on different ways. The technical experts and engineering should focus to maximisation of asset performance of the safe way considering the organization risk profile and the lowest possible, but sustainable costs. The financial function is supposed to align accounting standards, short-time financial reporting as well as issues related to long-term funding. Communication and alignment between technical and financial functions will be better achieved if terminology between the functions is common and understandable.

AM can make influence to other management systems in the organisations (supply chain management, quality, *etc.*) and it should be recognized. Reliable and visible data can be very usefull as indicator for driving the resources to the most necessary activities. Similarly, these financial indicators can lead to some weakest points as possible risks for large losses. Detailed analysis of technical data that are the basis for financial indicators can be very usefull for recognition of assets that are capable for the defined purposes in proposed time and technical issues. It can be a model for planning of future performance of the organization since the indicators about defects show the level of risk exposure related to particular asset as well as to the whole organisation.

Requirements for training in organization can be systematically planned by implementation of ISO 55000 standard. It establishes connection between AM system and organizational purposes by the

structure for policy, AM strategic and operative plans for reaching defined AM aims. Implementation of the standard leads the organization to find deficiencies in technology providing appropriate connections between finance and engineering AM as the key management system functions.

Therefore, one of important challenges in AM is related to the alignment of engineering and financial. As an example, one may analyze the case of engineering and operations teams in a dynamic logistics organization that require the replacement of a production asset which is not entirely depreciated [ISO Technical Committee for Asset Management Systems (ISO TC/251), 2019]. Engineering team wants it replaced due to its poor condition resulting in excessive corrective maintenance to keep it available for production use. This activity takes too much time from planned maintenance on other assets start experiencing a wider spiral of decline. Operation team desires it replaced because it frequently breaks down and they cannot rely on it. Thus, they have to use other assets at a higher level of charge/load contributing further to the spiral of decline across the asset system. The finance department has refused the CAPEX required to replace the asset as it still has several years left to fully depreciate it off the balance sheet. Such a situation is a typical example of “silo thinking” that urges the need for financial and non-financial alignment. It is essential that both financial and non-financial people work narrowly together with the common objective of delivering the agreed level of service at the appropriate life-cycle cost [ISO Technical Committee for Asset Management Systems (ISO TC/251), 2019].

#### **4. Improving alignment between engineering asset management and financial management within *complex* organization**

The optimal way to address this misalignment requires a holistic approach based on combining traditional modeling methods and the theory of complexity aiming at efficiently aligning financial and engineering AM of contemporary organizations. It enables their resilience, long-term sustainability, and a high level of financial performance.

The proposed methodology involves a three-step “risk-informed decision making” (RIDM) process:

- Step 1: Establish the decision-making framework,
- Step 2: Perform detailed analyses, and
- Step 3: Deliberate and make final decisions,

as it is shown in Figure 1.

It should be emphasized that this process is more suitable for large projects addressing strategic concerns, such as long-term performance and sustainability. It is considered rather impractical for daily decision-making. Although important, risk assessment is only a part of the whole RIDM process, which includes a broader range of analyses (engineering, risk, economic, societal, environment, regulatory, *etc.*) in order to be effective. Figure 1 also represents the participants involved – namely, decision maker, management, stakeholders, and subject matter experts (engineering and non-engineering) – and their functional roles in each step.

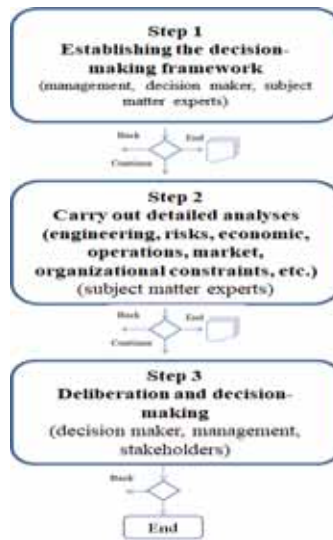


Figure 1. Global RIDM process in AM

Source: Adapted from (Komljenovic *et al.*, 2016; Komljenovic, 2018)

*Step 1* of RIDM in AM serves to adequately define the issue, the context, alternatives to be considered, the decision to be made, and suggested technical and scientific analytical methods to be used. This phase should not be underestimated and may be time consuming.

The overall AM decision-making process involves control/decision steps. They are represented by a “decision diamond” that has three potential outcomes: “back”, “end”, or “continue” (see in Figure 1). A “back” decision requires the repetition of one (or more) previous steps in order to improve assumptions, accuracy, and completeness of information/data or to perform supplementary analyses. It is iterative and enables the continuous improvement of the whole process. An “end” decision specifies the termination of the AM decision-making process. It is vital that the decision to end the process and the rationale behind it be duly documented. A “continue” decision involves proceeding to the next stage of the process.

*Step 2* involves performing the required detailed engineering, risk and economic analyses, along with any others that may be relevant. It is mainly carried out by subject matter experts and analysts using the appropriate methods, models, and tools suggested in the previous step. This phase is intended to produce results, inputs, and insights as well as formulate recommendations for the decision-maker. These analyses have to be technically and scientifically sound. A more comprehensive model is necessary to perform all the required in-depth analyses, characterize uncertainties, and assess the impact of relevant influence factors. Figure 2 shows more details regarding the model that is referred to as Step 2 in Figure 1. The model consists of seven submodels and is presented on the left side in Figure 2. The submodels and their internal parts interact in a complex manner that leads to an emergent behavior of the whole process. Risk assessment (right side in Figure 2) is carried out in accordance with the generic ISO 31000 approach (ISO 31000:2018, 2018). Before and during the detailed analyses in Step 2, it is highly important that participants evaluate the strength of their background knowledge of the subject. Given their opacity, this is particularly important when analyzing complex systems. Background knowledge also includes undocumented data, information, and beliefs, with the latter articulated as assumptions. Weaker knowledge introduces more uncertainties into the analyses and results in lower confidence in their outcomes (Komljenovic, 2018; Kozarević, 2010).

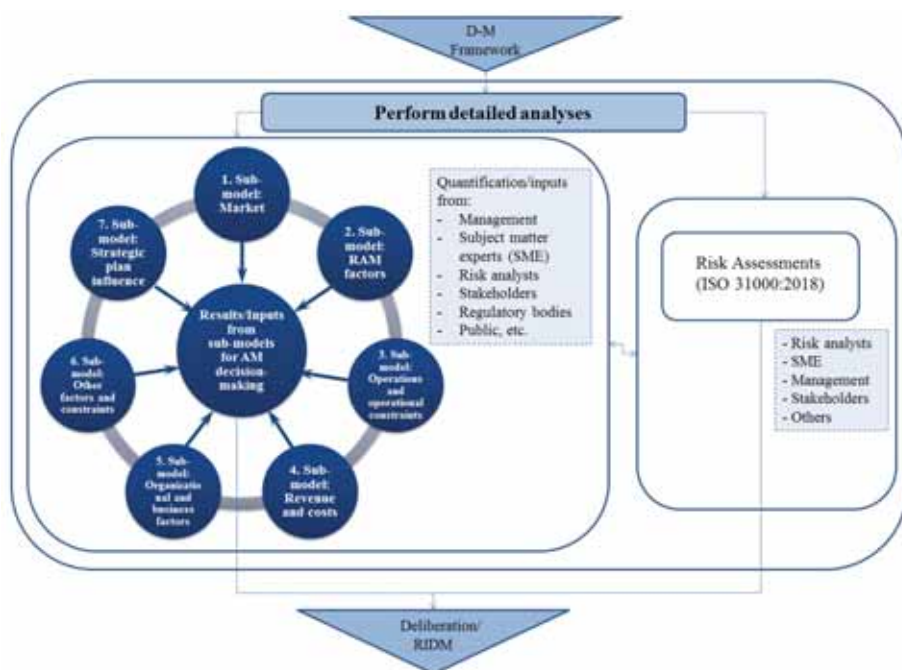


Figure 2. Model for detailed analyses in RIDM in AM (Step 2)

Source: Adapted from (Komljenovic *et al.*, 2016; Komljenovic, 2018)

Step 3 is mainly performed by the decision maker, supported by subject matter experts, analysts, and stakeholders. The aim of this qualitative and quantitative step is to gather all relevant insights for satisfactory decision-making. Through the RIDM process, an organization gives the decision maker the authority and responsibility to make critical decisions. While the ultimate responsibility for selecting from among the alternatives belongs to the decision maker, the evaluation can be performed within a number of deliberation forums that may be held before the final selection is made. The final AM decision should be made only after deliberations have taken place.<sup>5</sup> Deliberations are necessary because there may be aspects of a particular decision that cannot be considered formally or through the use of models. It is important to understand that deliberations do not delegitimize the use of either scientific understanding or detailed quantitative analyses. Both are important. The insights gained from Step 2 may eventually lead to the formulation of additional decision alternatives, in which case it is necessary to go back to Step 1, as indicated by the feedback loop (“decision diamond” in Figure 1). Without good analyses from Step 2, deliberative processes can lead to agreements that might be unwise, misleading or unfeasible.

Once deliberations are complete, the final decision is made and documented. The organization has to provide the necessary resources to implement it. This may be done as part of regular activities or as a specific distinct project, using internal or external resources. It will depend on the scale and size of activities to be carried out as well as on the internal governing rules of the enterprise. Key stakeholders have to be informed.

Thus, the proposed model has a strong potential to address above discussed challenges of aligning engineering, non-engineering, and financial functions in an AM system within an organization. It should further developed, tested, and validated through various real-life applications.

## 5. Concluding remarks

AM is business purpose-centric and a philosophy to the way to do business. As a coordinated activity of an organization to realize the value from assets (physical rather than financial assets), it involves a holistic as well as an interdisciplinary approach. Reviewing the existing literature, the specific area of AM should be further explored, especially through collaboration between academics and industry practitioners. Namely, moving physical AM practices from an informal to a formal mode, gathered knowledge, and good practices resulted in the development of the international standards in the area of AM (ISO 5500x) that provide generic guidelines regarding structured AM process and that can be applied to any asset type. Properly implemented AM takes into account a context of organizational purpose and strategy, on the one side, and enables organizations to allocate their assets (as resources), which are necessary for achieving the outcomes, more efficiently to provide higher levels of customer service and reliability, while balancing financial objectives (such as increased profits, reduced overhead costs and debt), on the other side.

Alignment between engineering and finance, as the key AM system functions within organizations, provides a wide spectrum of benefits, especially for business organizations (such as improved decision-making, internal controls, reporting, risk management, *etc.*, and, consequently, resilience, long-term sustainability as well as higher level of financial performance). In order to achieve the efficiently aligning financial and engineering AM, the full engagement of people, processes, and technology is necessary. As opposite to that, the misalignment can cause serious damage of various kinds and ultimately put the organization in jeopardy of survival. However, strongly connected world, where operational and business environment is highly complex, rapidly changing, dynamic, and strongly competitive, requests a novel concept based on combining traditional modeling methods and the theory of complexity. A three-step RIDM process we proposed contains several submodels and their internal parts interact in a complex manner. The proposed comprehensive model has a huge potential to address challenges of discussed aligning in an AM system. As a concept, it needs to be further developed, virtually tested, and validated across diverse industries.

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<sup>1</sup> Nicolas Nassim Taleb named these events as the „Black Swan(s)“. The occurrence of the “Black Swan” most commonly has following three main features: (a) unusual and unpredictable; (b) it has an extreme impact; (c) despite unpredictability, the human nature subsequently seeks to explain this phenomenon, attempting to make it explainable and predictable (Taleb, 2010).

<sup>2</sup> More details about emerging risks in industry 4.0 can be found in: (Brocal *et al.*, 2019).

<sup>3</sup> The *triple bottom line* (TBL) is a theory that recommends that companies commit to focus on social and environmental concerns just as they do on profits. According to TBL theory, companies should be working simultaneously on these three bottom lines: Profit, People, and Planet (People + Planet = Social + Environmental Responsibility).

<sup>4</sup> For more details see: <https://committee.iso.org/home/tc251> (Accessed: August 22, 2019).

<sup>5</sup> This is one of the differences between a risk-informed as opposed to a risk-based process.

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## MULTIDIMENSIONALITY OF THE CONTROLLING FUNCTION ROLE IN COMMERCIAL BANKING

### MULTIDIMENZIONALNOST ULOGE FUNKCIJE KONTROLINGA U KOMERCIJALNOM BANKARSTVU

#### Abstract

*As it is more or less known, controlling does not imply control as a managerial function, but rather a special business function that deals with the establishment of efficient and effective processes of planning and control of business operations (by adopting appropriate procedures, selecting measurable performance indicators, and the establishment and application of standards) as well as the coordination of those processes for providing support to management of companies in setting and realizing business goals. As such, controlling is "management's right hand", since it directly affects two of its functions – planning and control. Additionally, controlling links individual business functions (finance, accounting, sales, human resources management, etc.) into a singular, compact entity to maximize efficiency and effectiveness of the company.*

*The aim of this paper is to examine whether and to what extent has the controlling function been developed in the Bosnian and Herzegovinian commercial banks, which play a key role in the country's financial system. Research results show that in these banks, the potential of controlling is recognized in the area of strategic and operational planning, control and reporting, connection with other business functions as well as in the area of providing information necessary for making managerial decisions. However, the results of the research indicate that the development of controlling in commercial banks requires more notable attention, especially when it comes to clearer positioning of this function in the organizational structure of banks and business decision-making based on the use of information obtained from controlling.*

**Keywords:** controlling function, functions of management, commercial banking, BiH

**JEL:** G20, G21, M10

#### Sažetak

*Kao što je manje-više poznato, kontroling ne podrazumijeva kontroliranje/kontrolu kao menadžersku funkciju, već posebnu poslovnu funkciju koja se bavi uspostavljanjem efikasnih i učinkovitih procesa planiranja i kontrole poslovanja preduzeća (i to usvajanjem odgovarajućih procedura, izborom mjerljivih pokazatelja performansi i utvrđivanjem i primjenom standarda), kao i koordinacijom tih procesa radi pružanja podrške menadžmentu preduzeća kod postavljanja i realizacije poslovnih ciljeva. Kao takav, kontroling je „desna ruka menadžmenta“ preduzeća, s obzirom da direktno utiče na dvije njegove funkcije – planiranje i kontrolu. Pored toga, kontroling povezuje pojedine poslovne funkcije (finansije, računovodstvo, prodaju, menadžment ljudskih resursa i dr.) u jedinstvenu, kompaktnu cjelinu radi maksimizacije efikasnosti i*

*efektivnosti preduzeća. Cilj ovog rada je da ispitamo da li je i u kojoj mjeri funkcija kontrolinga razvijena u bosanskohercegovačkim komercijalnim bankama, koje igraju ključnu ulogu u finansijskom sistemu zemlje. Rezultati istraživanja pokazuju da je u navedenim bankama prepoznat potencijal kontrolinga na području strateškog i operativnog planiranja, kontrole i izvještavanja, povezivanja sa drugim poslovnim funkcijama te na području pružanja informacija neophodnih za donošenje menadžerskih odluka. Međutim, rezultati istraživanja ukazuju na to da se razvoju kontrolinga u komercijalnim bankama treba posvetiti dužna pažnja, posebno kada je riječ o jasnijem pozicioniranju ove funkcije u organizacijskoj strukturi banaka te kada je riječ o poslovnom odlučivanju utemeljenom na korištenju informacija dobivenih od kontrolinga.*

**Ključne riječi:** funkcija kontrolinga, funkcije menadžmenta, komercijalno bankarstvo, BiH

**JEL:** G20, G21, M10

## 1. Introduction

Considering the characteristics of the modern banking environment, which generate many constraints in making quality decisions, controlling is recognized as an important function that should be able to identify the reasons for discrepancies between the planned and realized, to detect which resources are underutilized, and provide recommendations to the bank's management for business improvement. Hence, the study of controlling as a subsystem of management, which largely determines its efficiency and effectiveness, has lately received increasing attention. Controlling has evolved from accounting and finance, but today in most banks it is organizationally treated as a separate function and an organizational unit. Its potential in the banks is more and more evident as voiced by the fact that once employees at the lowest levels were engaged in controlling, while today they are employees who are, in a hierarchical sense, highly positioned in banks. Considering the abovementioned as well as the fact that the banking environment in Bosnia and Herzegovina (BiH) is even more complex (above all, given the legal and political complexity and uncertainty), it is clear that research on the potential and positioning of controlling in commercial banks in BiH, the results of which are analyzed and presented in this paper, is very significant.

## 2. Literature review

Today, it is generally accepted that controlling contributes to enhancing the competitiveness of organizations, starting with businesses, higher education institutions, insurance companies, and all the way to banks. Acknowledging its undeniable importance in contemporary business practices and impact, numerous theoretical and empirical studies contribute to shedding light on the characteristics, roles, and functions of controlling.

The development of controlling in today's sense can be attributed to the industrialization of the United States in the second half of the 19th century (Osmanagić-Bedenik, 2007, p. 30). The first industrial enterprise, introduced to the controller, was the *General Electric Company* in 1892. The oldest controlling instrument was developed into the chemical holding company *DuPont* in 1919. Controlling obtained similar significance in other large systems of that time – *General Motors*, *Sears* or *Standard Oil*, which also faced greater need for integration and coordination because of diversification of business operations (Perović & Vujičić, 2015, pp. 165-166). For example, Alfred Sloan of *General Motors* was among the first to define the term “acceptable quality level” (AQL), by which he named products that were good enough but not perfect (Blaney, 1965, p. 55). According to representatives of scientific management, control should be carried out by experts, mainly technical experts, with the aim of identifying and correcting defects in products (Erić, 2000, p. 467). Henry Fayol defines the concept of control as “an action of checking whether everything is being carried out in accordance with the adopted plan, with orders that have been given and with the principles that have been laid down” (Domnişoru, Gherghinescu & Ogarca, 2010, p. 111; Boboc, 2003). According to Fayol as well as to other management classics, the object of control consists in

detecting weaknesses and errors, correcting them in a timely manner, and preventing them from recurring. In Europe, controlling appears for the first time in the 1950s and 1960s, developing initially with the entry of American companies into West European countries markets (Germany, France, Italy, Switzerland, Austria) and the opening of a branch network (Perović & Vujičić, 2015, p. 167). Although the development of controlling was initially mainly related to large companies, the intensification of competition and the challenges generated by this process initiated the introduction of controlling in medium and small enterprises, and other types of organizations (banks, insurance companies, institutions, *etc.*). As a rule, in most organizations today, controlling exists as an organizational unit, while in some organizations the controller is responsible for this function (Osmanagić-Bedenik, 2004, p. 43).

Scientific research on controlling has long remained on the theoretical and conceptual plane. For example, the proportion of academic articles on controlling that contained the results of empirical research in German scientific journals was only about 20% by the mid-1990s (Messner *et al.*, 2008; Vuko & Ojvan, 2013, pp. 44-52). Thereby, empirical research has mainly focused on the analysis of the scope of control and the organizational treatment of controlling function (Becker & Messner 2005; Wagenhofer, 2006; Becker *et al.*, 2011; Vuko & Ojvan, 2013, pp. 44-52).

The evolution of controlling can be summarized through following six concepts (Roman, C., Roman, A-G. & Meier, 2014, p. 49; Rogošić & Budimilić, 2016, p. 80):

- controlling as an administrative record tracking (the 1980s);
- controlling as an administrative information system (end of the 1980s);
- controlling as planning and control (beginning of the 1990s);
- controlling as coordination activity (the 1990s);
- controlling as business administration (end of the 1990s);
- controlling as a system for coordinating decision-making process (the 2000s).

Contribution to the research area on controlling in Croatia was largely made by Nidžara Osmanagić-Bedenik, who conducted two studies on the development of controlling (2003 and 2007) and subsequently made a comparative analysis of their results. That research showed a progressive increase in the use of controlling in Croatian companies (with a controlling interest from 53% of Croatian companies in 2003 to 74% in 2007). Research conducted by Špac and Mošnja-Škare (2009) found that controlling was conducted in more than 60% of the most successful Croatian companies, with controlling evaluated as an important success factor (Vuko & Ojvan, 2013, pp. 44-52). Research conducted in Croatia by Vuko and Ojvan (2013, pp. 44-52) to determine the effectiveness of the controlling function in Croatian companies and the controlling characteristics that contribute to business efficiency showed a positive correlation between the development of controlling and business performance. A study titled “Recent Situation of Controlling in Serbia and Comparison with its Implementation in Croatia”, authored by Perović, Osmanagić-Bedenik, Bojanić, and Todorović-Dudić (2016), showed a greater degree of controllability in Croatian companies compared to those in Serbia, although in both countries there is a need for even greater affirmation of controlling for business improvement. With regard to BiH, practice has revealed that the use of controlling has been increasing in recent years, but controlling as an important determinant of modern business needs to be given even more considerable attention (Polić, Kozarević & Džafić, 2016; Kozarević, Delić & Omerović, 2019, pp. 93-103).

When it comes to investigating the phenomenon of controlling in banking, one of the most significant studies in the ex-Yugoslav area is one conducted by Jakelić (2013, pp. 397-430), entitled “The Role of Controlling in Central Banking and Criteria for Controlling Effectiveness”, which showed that there is a high correlation between the efficiency of controlling and the performance of banks.

### 3. Theoretical background and hypothesis

Basically, controlling deals with the establishment of efficient and effective processes of planning and control of business operations (by adopting appropriate procedures, selecting measurable performance indicators, and the establishment and application of standards) as well as the coordination of those processes for providing support to management of companies in setting and realizing business goals (Polić, Kozarević & Džafić, 2016). The role of controlling can be viewed at the operational and strategic levels.

Operational controlling is aimed at securing inputs to the management system to increase the efficiency of the company. The basic instruments used for operational controlling are operational planning instruments (comparative costing, contribution account coverage, scoring models, investment budget, operating budget, accounting prices, *etc.*), control, organization, and human resources management. Strategic controlling is aimed at building and maintaining the competitive advantage of the organization. The basic instruments of strategic controlling are instruments of strategic planning, control, information, organization, and human resources management (Osmanagić-Bedenik, 2007, p. 250). Operational controlling at banks usually involves auditing projections delivered by organizational units and monitoring projection adjustments based on the findings of controlling. Controlling is involved in the development of the plan, monitoring, and reporting of the plan. When it comes to strategic controlling, it implies an active role in the bank's strategic planning (macroeconomic projections, scenario analyzes, sector analysis of major competitors' analysis, bank position in the market). Controlling has several key functions in every organization, including the bank. These functions are planned, controlling, informative, coordinating, and integrating (Osmanagić-Bedenik, 2004, 2007). Controlling is thus a multifunctional part of the management system, focused on collecting data from all organizational units, with the aim of effectively coordinating business processes and providing timely and accurate information to assist in managerial decision making (Grubisic & Blace, 2017, p. 322).

Considering the above, the aim of the research, the results of which are presented in this paper, was to determine the objective importance of the controlling business function in commercial banks as key players within the financial system of BiH, *i.e.* the backbone of BiH financial system (Kozarević, Kokorović Jukan & Softić, 2017). Starting from the previously defined general goal of research, the basic research hypothesis is defined as follows: "Business controlling function in commercial banks in Bosnia and Herzegovina has a multifunctional role".

### 4. Methodology of the empirical research

Within the primary research (field research), data were collected applying a questionnaire method. In doing so, the questionnaire was used as a data collection tool. The questionnaire was created in accordance with the content elements of the research. Accordingly, the questionnaire is divided into three sections: 1) planning, control, and reporting; 2) relationship with other business functions, and 3) management consulting in business decision making. The design of the questionnaire was based on the elements of the empirical data collection instrument used in the study "The Role of Controlling in Central Banking and Controlling Performance Criteria" by Jakelić (2013, pp. 397-430). The basic set of research consisted of 100 managers or members of the top management team of commercial banks in Bosnia and Herzegovina. For data processing, descriptive and inferential statistics as well as correlation and regression analysis, were used. The analysis of the collected data was realized using corresponding software support (IBM SPSS, MS Excel, *etc.*).

In accordance with the empirical research plan, a total of 100 survey questionnaires were distributed to the respondents, with a total of 88 completed and returned, accounting for 88% of the defined

sample. The survey questionnaires were completed 48% by men and 52% by women. Majority of the respondents belong to the age group of 31-40 years (51.16%), 27.91% of respondents belong to the age group of 41-50 years, while 18.6% are younger than 30, and 2.33% were over 51 years old (see Figure 1).

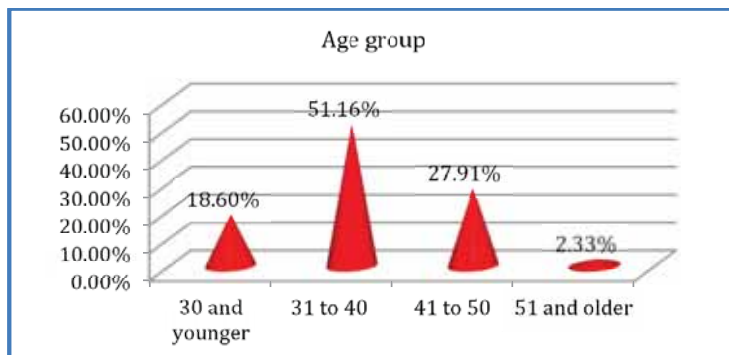


Figure 1. Demographic characteristics of respondents by age

Source: Authors' research

According to the conducted research, 69.05% of the respondents have a bachelor's degree, while 16.65% of the respondents have a master of science degree, and 4.78% have a doctor of science degree. Of the total number of respondents, 2.38% had a high school diploma, and 7.14% had an associate degree (Figure 2).

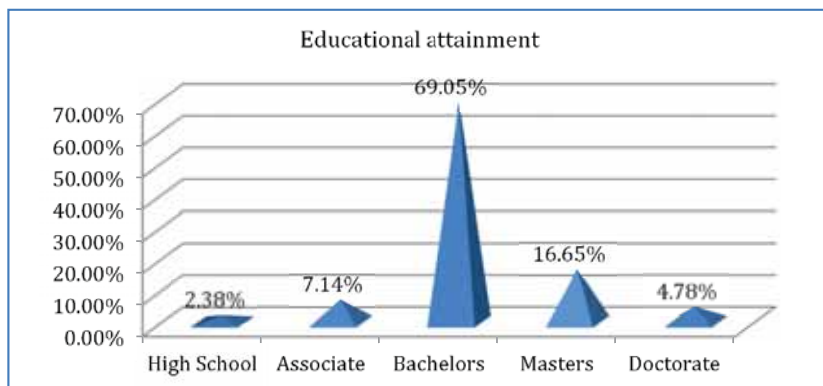


Figure 2. Demographic characteristics of respondents by educational attainment

Source: Authors' research

## 5. Results and discussion

The results of empirical research show that in 79.07% of commercial banks in BiH, the controlling function is organized as an organizational unit, which is currently relatively satisfactory, but in the future the organizational treatment of the controlling function could be further improved (Figure 3).

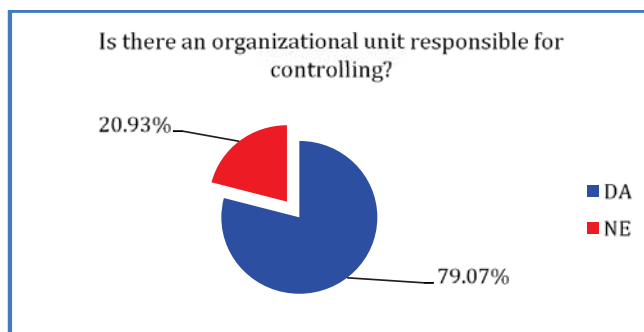


Figure 3. *Controlling function in commercial banks in BiH*

Source: Authors' research

Analyzing the time dynamics of the application of the controlling function in commercial banks in BiH, it is evident that the application of this controlling function dates from 1995, and the importance of controlling has grown steadily, for the peak of recognizing the role of controlling being in 2013, when it's officially introduced by a large number of banks (Figure 4).

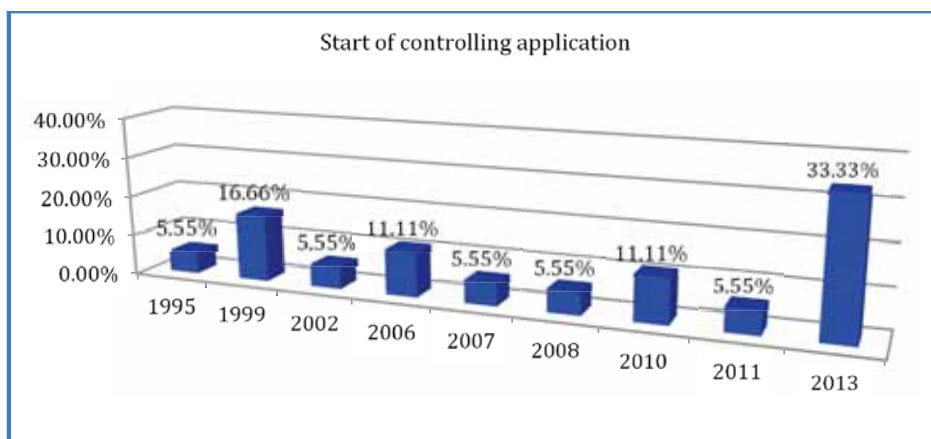


Figure 4. *Start of application of controlling in commercial banks in BiH*

Source: Authors' research

Table 1 shows the average ratings of all variables that represent the current application of controlling in commercial banks in BiH. Within this table, other statistical parameters are shown as well: median, mode, and standard deviation. It is visible that the arithmetic mean in the observed banks ranges from 3.783 to 4.311 (on a scale of 1 to 5, where 1-never, 2-rarely, 3-often, 4-very often, 5-always), which suggests the conclusion that the application of controlling at the observed banks is at a satisfactory level as well as that the expectations from the application of controlling as a business function in the banks included in this research are at a very high level. This is supported by the fact that the most common rating is 4 (mode). The mode represents the value of the quantitative or qualitative characteristic with the highest frequency. The median value in the observed sample is generally 4.

Table 1. *Roles of the controlling function in commercial banks in BiH*

Variable	Mean	Median	Mode	Standard deviation
Participates in the development of the mission and vision	4.251	4	4	0.5408
Participates in setting and analyzing strategic goals	3.957	4	4	0.4747
Participates in translating strategic goals into operational goals	4.010	4	4	0.7385
Provides guidance for aligning individual goals with the main goals	3.870	4	4	0.8689
Participates in strategy development	3.826	4	4	0.8869
Participates in strategy implementation and coordinates business functions in the process	4.130	4	4	0.5565
Participates in reporting on strategy implementation	4.311	4	5	0.7785
Coordinates and integrates operational planning process	3.783	4	4	0.7399
Participates in budgeting	4.043	4	4	0.4006
Aligns the plans of individual functions with the strategy	3.996	4	4	0.8664
Integrates the individual annual plans and prepares a proposal for the annual business plan	4.213	4	4	0.5965
Participates in the control and monitoring of the implementation of operational plans	4.277	4	5	0.7636
Creates cost execution reports	3.779	4	4	0.7456
Provides advice and proposes measures to manage costs more effectively	4.123	4	4	0.3886
Integrates individual reports and produces reports on the implementation of the project plan	4.131	4	4	0.5466
Analyzes deviations from the plan	4.211	4	5	0.7448
Reports deviations from the plan	3.999	4	4	0.7449

Source: Authors' research

Table 1 also lists the standard deviation values that measure the dispersion of data in the sample. The table demonstrates that the values of standard deviations are less than 1, in the interval between 0.3886 and 0.8869, which shows that the average deviations from the arithmetic mean are generally statistically insignificant.

Based on the results of empirical research regarding the relationship of controlling function with other business functions in commercial banks in BiH, the following can be summarized:

- The controlling function plays a significant role in identifying deviations from plans and in providing information necessary to create measures directed to address the gap between what is planned and realized in banks.
- Internal audit uses information and reports provided by the controlling function in banks.
- The controlling function plays a significant role in managing bank operational risks.
- The controlling function develops an early warning system, making it easier for bank managers to make operational and strategic decisions.
- Controlling function plays a significant role in the system of managing human resources performance in banks.

## 6. Concluding remarks

Research results show that in commercial banks in BiH, the potential of controlling in the field of strategic and operational planning, control and reporting, linking with other business functions, and in providing information necessary for making managerial decisions is recognized. The controlling function, namely, often plays an advisory role in the implementation of operational and strategic goals and plans, and provides inputs for creating measures to manage the discrepancies between planned and achieved. In addition, controlling has a significant role in the performance management system of, that is, in creating appropriate human resources practices and policies in commercial banks in BiH. It is therefore evident, that the business function of controlling in commercial banks in BiH has a multifunctional role, and the main hypothesis set out in this research can be accepted.

However, the results of the research also indicate that more attention should be paid to the development of controlling in commercial banks in BiH, especially when it comes to clearer organizational positioning of this function as well as to establish a system in which the potential of controlling in business decision-making is used to a greater extent. The limitations of this study are reflected in the relatively small number of respondents. Therefore, future research in this area recommends the use of a larger sample to better understand the location and role of the controlling function in banks.

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## MACROECONOMIC DETERMINANTS OF STOCK MARKET DEVELOPMENT: EVIDENCE FROM THE MACEDONIAN STOCK EXCHANGE

### MAKROEKONOMSKE ODREDNICE RAZVOJA TRŽIŠTA KAPITALA: NALAZI SA MAKEDONSKE BERZE

**Abstract**

*The stock market, as an important component of the capital market, plays a significant role in a capital formation process due to the tremendous opportunities that ensue from its activities. The establishment of a successful stock market in a developing economy can be one of the major sources of its economic growth if it provides development of the finance sector by channeling domestic savings and attracting foreign investments. In order to stimulate capital market development, it is necessary to analyze the determinants that influence its progress. Hence, the main objective of this study is to examine the important macroeconomic determinants that underpin the stock market growth. The focus has been put on the investigation of one dependent variable, market capitalization to GDP ratio, as a parameter resembling the size of the capital market, and how it depends on the economic growth, gross investments to GDP ratio, and trade openness. The empirical study is based on a time-series data analysis originating from valid secondary data sources, based on the utilization of the Johansen Test of Cointegration and the development of a Vector Error Correction model to estimate the relationship, the impact, the magnitude, and the significance of the determinants that support the development of the capital market in North Macedonia during the period from 2008:Q1 to 2018:Q4. The examination conducted in this paper shows the existence of a significant relationship between the observed macroeconomic factors and the stock market development. The findings indicate that economic growth has a negative impact, whereas trade openness has a significant, yet a positive impact on the Macedonian stock market development. The gross investments to GDP ratio exhibits a positive, but still insignificant impact on the stock market development.*

**Keywords:** capital market, stock market development, macroeconomic determinants, North Macedonia**JEL:** G10, G17

## Sažetak

*Tržište dionica, kao važan sastavni dio tržišta kapitala, igra značajnu ulogu u procesu stvaranja kapitala zbog ogromnih mogućnosti koje proizlaze iz njegovih aktivnosti. Uspostavljanje uspješnog tržišta dionica u gospodarstvu u razvoju može biti jedan od glavnih izvora njegovog gospodarskog rasta ako osigura razvoj financijskog sektora usmjeravanjem domaćih ušteda i privlačenjem stranih ulaganja. Kako bi se potaknuo razvoj tržišta kapitala, potrebno je analizirati odrednice koje utječu na njegov napredak. Stoga je glavni cilj ove studije ispitati važne makroekonomske odrednice koje podupiru rast tržišta dionica. Naglasak je stavljen na istraživanje jedne ovisne varijable, omjeratrzžišne kapitalizacije i BDP-a, kao parametra koji slični veličini tržišta kapitala, te kako on ovisi o gospodarskom rastu, omjeru bruto investicija u BDP-u i otvorenosti trgovine. Empirijska studija temelji se na analizi podataka iz vremenske serije koja potječe iz valjanih sekundarnih izvora podataka, temeljenoj na korištenju Johansenova testa kointegracije i razvoju modela vektorske korekcije pogrešaka (Vector Error Correction modela) za procjenu odnosa, utjecaja, veličine i značajnosti odrednica koji podržavaju razvoj tržišta kapitala u Sjevernoj Makedoniji tijekom razdoblja od 2008:Q1 do 2018:Q4. Istraživanje provedeno u ovom radu pokazuje postojanje značajne veze između promatranih makroekonomskih čimbenika i razvoja tržišta dionica. Nalazipokazuju da gospodarski rast ima negativan utjecaj, dok otvorenost trgovine ima značajan, a opet pozitivan utjecaj na razvoj makedonskog tržišta dionica. Omjer bruto investicija i BDP-apokazao je pozitivan, ali još uvijek neznatan utjecaj na razvoj tržišta dionica.*

**Ključne riječi:** tržište kapitala, razvoj tržišta kapitala, makroekonomske odrednice, Sjeverna Makedonija

**JEL:** G10, G17

## 1. Introduction

The efficient financial sector is key to efficiency in the real economy. A well-developed financial system promotes investment by identifying and financing lucrative business opportunities, mobilizing savings, allocating resources efficiently, helping diversify risks and facilitating the exchange of goods and services (Mishkin, 2001, p. 11). The development of equity markets, as the most important part of the financial system, is crucial towards the further development of the financial system. The stock market increases flexibility in the financial intermediation process, as it provides investors with a clear exit strategy (Cherif & Gazdar, 2010, p. 140). The stock market provides a platform for raising funds and at the same time an opportunity to the investors. Namely, through the financial instruments that are offered on the capital market, the domestic savings are stimulated, and also they satisfy the needs of both individual and institutional investors. Therefore, companies which require financing may be listed on the stock exchanges by offering their shares to the general public through Initial Public Offering (IPO), while people invest in those companies by participating in the IPO. Because shares become available for trading at the stock exchanges, these play the role of intermediaries, by bringing both financiers and finances at the same platform. This way, a well-developed capital market offers an alternative way to the business sector for financing their investments, which leads to decreasing of their dependence on banks' loans. Thus, the increased competitive pressure on banking institutions is affecting the reduction of interest rates in the economy, which also creates potentials for higher economic growth.

Based on the results of the conducted research on the impact of the capital market on the financial sector development and economic growth, it is necessary to analyze the macroeconomic factors determining the capital market development. So, the main objective of the research in this paper is to analyze the determinants of the capital market development in the Republic of North Macedonia and on the basis of the obtained results to give measures and recommendations to the policymakers in direction of creating better strategies, in order to stimulate its development.

## 2. Literature review

The positive impact of stock market development on the economic growth initiated the researchers to determine the fundamental determinants of stock market development. A number of the researches were studied, which had derived number of variables such as liquidity in the market, economic growth, saving rates, banking sector development, new listing of capital, trade openness, opportunity cost as the alternative investment option available to the investor with minimum level of risk i.e. discount rate (DR), foreign investment, which are contributing towards the development of the stock market, macroeconomic stability in the country, *etc.*

Calderón-Rossell (1991) conducted one of the leading studies about the determinants of stock market development, suggesting that economic development and stock market liquidity are major determinants of stock market development. According to Calderón-Rossell, in the short-run, positive business cycles of a gross domestic product has a positive influence on the corporate profits and, accordingly, increase their value on the capital market. In the long term, with the increase in gross domestic product, there is a need for new financial instruments for economic agents in order to fertilize their income at a given level of risk. On the other hand, liquidity in the capital market refers to the ease and speed at which economic agents buy and sell financial instruments on the capital market.

Extensive studies have been conducted on the determinants of stock market development by adding further institutional and macroeconomic variables such as savings and investments, macroeconomic stability, development of the financial sector, *etc.*, to the model of Calderón-Rossell (1991). For instance, Sin-Yu (2017) examined the fundamental determinants of stock market development in South Africa using the ARDL bounds testing procedure. The results showed that both banking sector development and economic growth have a positive long-run impact, whereas inflation rate and trade openness have a negative long-run impact on stock market development. On the other hand, Raza *et al.* (2012) examined the impact of foreign direct investments and economic growth on stock market development in Pakistan using cointegration test based on ARDL bounds test, error correction model and rolling window estimation method and found that foreign direct investments, remittances, and economic growth had a positive impact on stock market development in the short- and long-run. El-Nader and Alraimony (2013, p. 91) implemented the maximum likelihood technique developed by Johansen (*i.e.* Johansen cointegration) to test the dynamic cointegration relationship between stocks market development and macroeconomic variables. Their results confirmed that banking sector development, domestic investment, consumer price index and stock market liquidity had a positive impact on stock market development, while nominal GDP and net remittances had a negative impact on stock market development. Kemboi and Tarus (2012, p. 57) examined macroeconomic determinants of capital market development in Kenya using Johansen-Julius cointegration technique. The findings indicated that macroeconomic factors comprising income level; banking sector development and stock market liquidity are important determinants of the Nairobi Stock Market.

A common characteristic of the previously mentioned studies is that all of them employ advanced econometric techniques based on time series analysis, as well as the Johansen cointegration technique, which is also used in our research.

## 3. Stock market evolution in North Macedonia

The modern history of the Macedonian capital market is associated with the structural changes in the 1990s of the 20th century when the process of country transition started. The process of privatization resulted in the formation of a larger number of shareholding companies, which posed a need for creating suitable market infrastructure for the transfer of newly-created securities. As a

result of that, the Macedonian Stock Exchange was founded in 1996. The development of the Macedonian Stock Exchange is based on two projects of mandatory listing, the first in 2002, and the second in 2013. As a result of the mandatory listing, the number of listed companies increased on 78 companies at the end of 2002, and 116 companies in 2013 (Spaseska *et al.*, 2019, p. 827).

The development of the capital market is usually considered through its size and depth. Indicator for the size of the capital market is market capitalization to GDP ratio, while the depth of the market that actually refers to its liquidity is measured by stock exchange turnover to GDP ratio and stock exchange turnover to market capitalization ratio (Turnover Ratio). Higher numbers of these indicators indicate a higher development of the capital market.

The Market Capitalization to GDP ratio in the observed period of time is depicted in Figure 1, while Figures 2 and 3 show the liquidity dynamics of the Macedonian Stock Exchange. Figure 1 shows a drastic fall of the Market Capitalization to GDP ratio in 2008, under the influence of the global financial crisis, which had a significant impact on the Macedonian securities market.

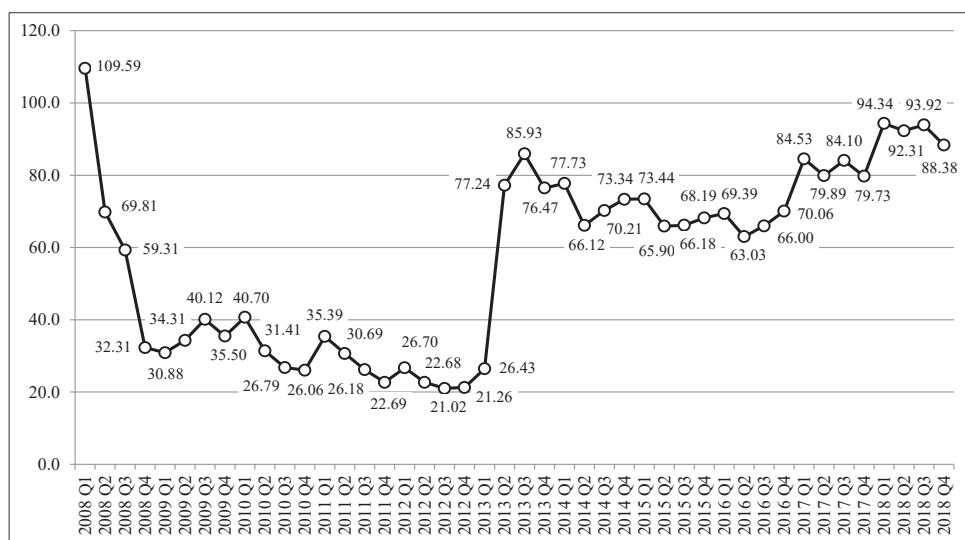


Figure 1. Market Capitalization to GDP ratio, in percentages (2008:Q1-2018:Q4)

Source: Annual reports of Macedonian Stock Exchange and State Statistical Office of the Republic of North Macedonia, 2008-2018)

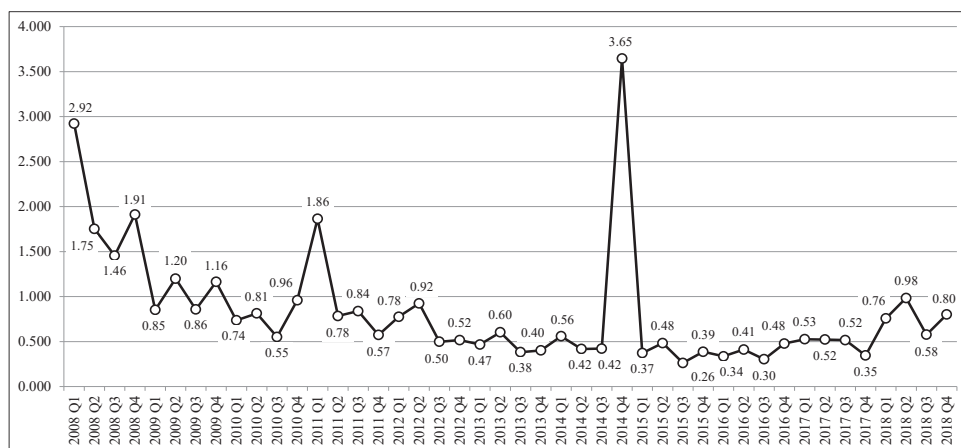


Figure 2. Stock Exchange Turnover to GDP ratio, in percentages (2008:Q1-2018:Q4)

Source: Annual reports of Macedonian Stock Exchange and State Statistical Office of the Republic of North Macedonia, 2008-2018)

Additionally, the fact that North Macedonia did not get the desired status as a member country of NATO Alliance had negative implications on the Stock Exchange operations. In 2013, an increase of this ratio (MC/GDP) is quite evident, which is a result of the second project of Mandatory Listing when the number of listed shareholding companies increased from 32 to 116; as a result, the market capitalization reached about 1.6 billion EUR and saw a rise of 277.18%. From Figure 1, it can be seen that the market capitalization of the listed companies from 2013 up to now has been in a continuous rise with small fluctuations, with an exception of the second quarter of 2015, which is a result of the prolonged political crisis in the country and refugee crisis.

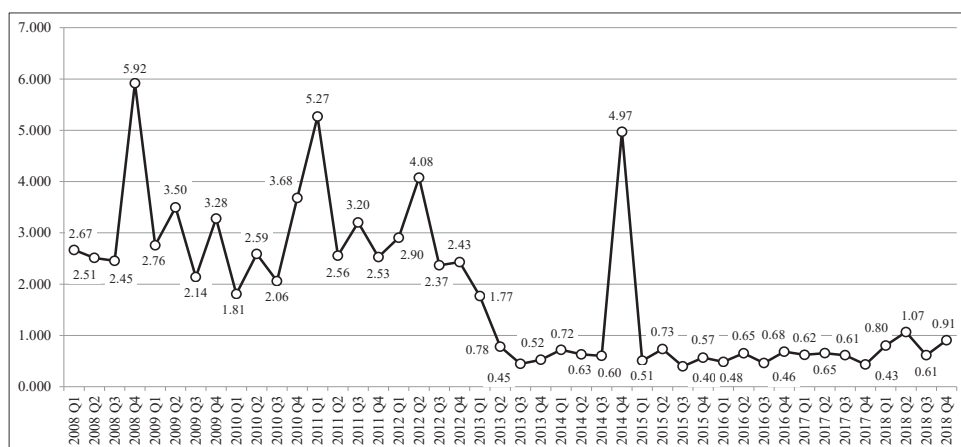


Figure 3. Stock Exchange Turnover to Market Capitalization ratio, in percentages (2008:Q1-2018:Q4)

Source: Annual reports of Macedonian Stock Exchange and State Statistical Office of the Republic of North Macedonia, 2008-2018)

The liquidity dynamics of the Macedonian Stock Exchange (Figures 2 and 3) show a continuous decrease of Stock Exchange Turnover to GDP ratio and Stock Exchange Turnover to Market Capitalization ratio, with an exception of 2015 when both ratios saw a drastic rise as a result of the realization of three new public offerings of stocks with a value of about 70.18 million EUR that caused an increase in stock exchange turnover of about 169.10%.

## 4. Data, methodology and results

### 4.1. Data

Our study is restricted to a single dependent variable and four independent variables, as follows:

- *Dependent variable*
  - Market Capitalization to GDP ratio (*MCGDP*), as a measure of the Macedonian capital market size;
- *Independent variables*
  - Real Gross Domestic Product (*GDP*) at current prices in MKD, as a measure of the economic activity in the country;
  - Gross Investments to GDP ratio (*GIGDP*), in percentages, as a measure of the investment rates in the country;
  - The level of the openness of the national economy, presented by the (a) Exports to GDP ratio, in percentages (*EXGDP*); and (b) Imports to GDP ratio, in percentages (*IMGDP*);
  - A dummy variable (*DUMMY*), which takes a value of 0 for the period from 2008:Q1 to 2013:Q1, and 1 for the period from 2013:Q2 to 2018:Q4; It is being introduced to capture the impact of the implementation of a mandatory listing, for the second time, back in 2013.

All the data used in this research have been exploited from secondary online sources only, i.e. the Macedonian Stock Exchange web pages (MSE, –), the State Statistical Office web pages (MAKStat Database, s.a.), and the National Bank of the Republic of North Macedonia web pages (NBRNM, s.a.), in a form of quarterly time series, covering the time period from 2008:Q1 to 2018:Q4.

### 4.2. Methodology

In order to determine the impact and the magnitude of the chosen independent macroeconomic determinants on the Macedonian capital market size, the initial regression equation we are estimating can be specified as follows [Equation (1)]:

$$MCGDP_t = \beta_0 + \beta_1 \cdot GDP_t + \beta_2 \cdot GIGDP_t + \beta_3 \cdot EXGDP_t + \beta_4 \cdot IMGDP_t + \beta_5 \cdot DUMMY_t + \varepsilon_t \quad (1)$$

With an aim to determine the order of integration of each of the individual variables found in Equation 1, we have used the Augmented Dickey-Fuller Test (ADF Test). An important practical issue for the implementation of the ADF test is the specification of the optimal lag length,  $p_{opt}$ , based on the maximal lag length,  $p_{max}$ . According to the common rule of thumb, suggested by Schwert (1989, p. 151), the maximal lag length,  $p_{max}$ , can be estimated using Equation (2).

$$p_{max} = \left\lceil 12 \cdot \left( \frac{T}{100} \right)^{\frac{1}{4}} \right\rceil \quad (2)$$

In Equation (2),  $T$  is the total number of observations in the time series, and  $[x]$  denotes the integer part of  $x$ . Since all variables of interest contain  $T = 44$  observations (11 years  $\times$  4 quarters per year), the initial maximum lag,  $p_{max}$ , has been set to 9 for all ADF tests, whilst the specification of the optimal lag length,  $p_{opt}$ , has been done using the simple algorithm proposed by Ng & Perron (1995). The optimal lag order selection for the needs of the Johansen Cointegration Test, which is  $p_{opt} = 4$ ,

has been conducted taking into account five criteria, including the Akaike Information Criterion (AIC).

The Johansen Cointegration Test was based on two tests to estimate the number of cointegration vectors (relationships) among the variables, including the Trace of the Stochastic Matrix test ( $\lambda_{\text{trace}}$ ) and the Maximal Eigenvalue of the Stochastic Matrix ( $\lambda_{\text{max\_eigen}}$ ), which are both based on a same null hypothesis that there are no cointegration vectors among the variables. The number of cointegration vectors has been determined by using the Pantula principle, which helps in determining the presence/absence of deterministic elements in the regression equation by taking into account five options, including “Option 4. Intercept and trend in CE – no intercept in VAR”.

Based on the findings of the Johansen Test of Cointegration, the Vector Error Correction Model (VECM) of the regression equation (1) has been used for estimating the coefficients of the long-run equilibrium among the variables of interest, based on a VAR model with 3 lags (VAR 3) and Option 4, using one cointegration equation (equation #1), since we investigated the jointly effect of all independent variables on the dependent variable.

Finally, the resulting VECM has been subject to a diagnostic checking of the residuals against the existence of a serial correlation (autocorrelation), heteroscedasticity, and normality of their distribution. All the analyses have been carried out using the econometric package EViews v10.

### 4.3 Results and discussion

The results of the ADF test are given in Table 1, according to which all the variables are of order I(1), i.e. they are not stationary at level, but all become stationary after being first-differenced, which is a key premise for applying the Johansen Test of Cointegration.

Table 1. Results of the ADF Test

		Variable				
		MCGDP	GDP	GIGDP	EXGDP	IMGDP
In level	t-Statistics	-2.06536	3.00279	-0.94988	1.56091	-1.87291
	Crit. value (1%)	-3.59246	-3.63940	-3.60559	-3.63940	-3.59661
	Crit. value (5%)	-2.93140	-2.95112	-2.93694	-2.95112	-2.93315
	Crit. value (10%)	-2.60394	-2.61430	-2.60685	-2.61430	-2.60486
First difference	t-Statistics	-6.18697	-3.16762	-4.28807	-3.73275	-8.70242
	Crit. value (1%)	-3.59661	-3.61045	-3.62678	-3.61045	-3.59661
	Crit. value (5%)	-2.93315	-2.93898	-2.94584	-2.93898	-2.93315
	Crit. value (10%)	-2.60486	-2.60793	-2.61153	-2.60793	-2.60486
Order of integration		I(1)*	I(1)**	I(1)*	I(1)*	I(1)*

\* = The Null hypothesis that the time series has a unit root has been rejected at  $\alpha = 1\%$  level of significance

\*\* = The Null hypothesis that the time series has a unit root has been rejected at  $\alpha = 5\%$  level of significance

\*\*\* = The Null hypothesis that the time series has a unit root has been rejected at  $\alpha = 10\%$  level of significance

Source: Authors' research

Based on the value of the LR criterion (53.86626), which was the lowest of all other criterions, the optimal number of lags for applying the Johansen Test of Cointegration is  $p_{\text{opt}} = 4$ . The number of cointegrating vectors has been estimated by using the Pantula principle (Table 2).

Table 2. Results of the appliance of the Pantula principle for testing the number of cointegrating vectors for the regression equation (1):  $MCGDP = f(GDP, GIGDP, EXGDP, IMGDP, DUMMY)$

Number of cointegrating vectors	Option 1		Option 2		Option 3		Option 4		Option 5	
	$\lambda_{trace}$	$\lambda_{max\_eigen}$	$\lambda_{trace}$	$\lambda_{max\_eigen}$	$\lambda_{trace}$	$\lambda_{max\_eigen}$	$\lambda_{trace}$	$\lambda_{max\_eigen}$	$\lambda_{trace}$	$\lambda_{max\_eigen}$
No vectors ( $r = 0$ )	×	×	×	×	×	×	×	×	×	×
At most 1 ( $r = 1$ )	×	×	×	×	×	×	×	×	×	×
At most 2 ( $r = 2$ )	×	×	×	×	×	×	×	×	×	×
At most 3 ( $r = 3$ )	×	√	×	×	×	×	×	×	×	×
At most 4 ( $r = 4$ )	×		√	√	×	×	√	√	√	√
At most 5 ( $r = 5$ )	√				√	√				

Note: × = The null hypothesis is being rejected at 5% level of significance; √ = The null hypothesis is being accepted at 5% level of significance

Source: Authors' research

We focused solely on Option 4 since it allows for the existence of a linear deterministic trend in data (i.e. in the cointegrating equation), whose presence is of a technical nature (i.e. it has no economic meaning). According to the test results presented in Table 2 for Option 4, the model variables  $MCGDP$ ,  $GDP$ ,  $GIGDP$ ,  $EXGDP$ , and  $IMGDP$ , including  $DUMMY$  are all cointegrated, meaning that they share a common stochastic trend and grow proportionally, by moving together in a long-run. Vector Error Correction estimates were obtained by specifying and running the corresponding VECM with  $p = 3$  lags, for Option 4. The resulting cointegrating equation is a basis for inferring the Error Correction Term (ECT), given by Equation (3).

$$ECT_{t-1} = 1.000000 \times MCGDP_{t-1} - 4.07 \times 10^{-11} \times GDP_{t-1} + 0.037915 \times GIGDP_{t-1} + 0.080921 \times EXGDP_{t-1} - 0.089335 \times IMGDP_{t-1} + 0.040982 \times @TREND(08Q1) + 4.626554 \quad (3)$$

The  $MCGDP$  as a target (dependent) variable is given by Equation (4), which can be yielded from the cointegration equation obtained during estimating the VECM.

$$\begin{aligned} \Delta MCGDP_t = & -0.542476 \times ECT_{t-1} + \\ & +0.284778 \times \Delta MCGDP_{t-1} - 0.072775 \times \Delta MCGDP_{t-2} + 0.150560 \times \Delta MCGDP_{t-3} - \\ & -1.40 \times 10^{-11} \times \Delta GDP_{t-1} - 6.85 \times 10^{-12} \times \Delta GDP_{t-2} + 3.07 \times 10^{-13} \times \Delta GDP_{t-3} + \\ & +0.005595 \times \Delta GIGDP_{t-1} + 0.004211 \times \Delta GIGDP_{t-2} - 0.004452 \times \Delta GIGDP_{t-3} + \\ & +0.027568 \times \Delta EXGDP_{t-1} + 0.027999 \times \Delta EXGDP_{t-2} + 0.002219 \times \Delta EXGDP_{t-3} - \\ & -0.024148 \times \Delta IMGDP_{t-1} - 0.016762 \times \Delta IMGDP_{t-2} - 0.004157 \times \Delta IMGDP_{t-3} - \\ & -0.146917 + \\ & +0.300620 \times DUMMY \end{aligned} \quad (4)$$

The significance of the coefficients in Equation (4) has been obtained by estimating Equation (4) utilizing the method of the Least Squares (Gauss-Newton / Marquardt steps), or, more specifically, by estimating the following equation, Equation (5).

$$\begin{aligned} D(MCGDP) = & C(1) * (MCGDP(-1) - 4.07271186028E-11 * GDP(-1) + \\ & 0.0379153470586 * GIGDP(-1) + 0.0809209266313 * EXGDP(-1) - \\ & 0.0893349619066 * IMGDP(-1) + 0.0409815480553 * @TREND(08Q1) + 4.62655407553) \\ & + C(2) * D(MCGDP(-1)) + C(3) * D(MCGDP(-2)) + C(4) * D(MCGDP(-3)) + C(5) * D(GDP(-1)) + \\ & C(6) * D(GDP(-2)) + C(7) * D(GDP(-3)) + C(8) * D(GIGDP(-1)) + C(9) * D(GIGDP(-2)) + \\ & C(10) * D(GIGDP(-3)) + C(11) * D(EXGDP(-1)) + C(12) * D(EXGDP(-2)) + C(13) * D(EXGDP(-3)) \end{aligned} \quad (5)$$

$$+ C(14)*D(IMGDP(-1)) + C(15)*D(IMGDP(-2)) + C(16)*D(IMGDP(-3)) + C(17) + C(18)*DUMMY$$

As per the long-run causality relationship investigation, the adjustment coefficient, which is the coefficient  $C(1) = -0.542476$  multiplying the ECT, is found to be both negative and significant (Prob. =  $0.0000 \leq 0.05$ ), meaning that the whole system is getting adjusted towards a long-run equilibrium at the speed of 54.25%. Coefficients  $C(5)$ ,  $C(11)$ ,  $C(14)$ , and  $C(18)$  are all significant at a 0.05 level, i.e. the corresponding variables  $GDP$ ,  $EXGDP$ ,  $IMGDP$ , and  $DUMMY$ , have all statistically significant impact on the dynamics of the dependent variable. However, the coefficient  $C(8)$  is not significant at a 0.05 level, i.e. the variable  $GIGDP$  has no statistically significant impact on  $MCGDP$ . The interpretation of the estimated coefficients in the VECM (Equation 4), assuming the *ceteris paribus* principle, is as follows:

- Coefficient  $C(5) = -1.40E-11$ : The increase in Gross Domestic Product ( $GDP$ ) by 1 billion MKD would statistically significantly ( $p\text{-Value} = 0.0113 \leq 0.05$ ) decrease the Market Capitalization to GDP ratio ( $MCGDP$ ) by 1.40 percentage points. Generally, an increased GDP should lead to increased investments, which, in turn, are financed from various sources, including capital market. However, the results of the applied model have shown that the increased GDP does not have a positive impact on market capitalization. The main reason is that the business entities provide necessary capital by expensive bank loans in a form of long-term credits, while alternative forms of financing, such as financing through issuing securities, are used in a very small volume. So, companies use capital market financing rarely in a sense of resources collecting through an issue of new shares or debt instruments, which is a restricting factor for a more substantial scope of activities with the corporate sector.
- Coefficient  $C(8) = +0.005595$ : The increase in Gross Investments to GDP ratio ( $GIGDP$ ) by 1% would statistically insignificantly ( $p\text{-Value} = 0.3903 > 0.05$ ) increase the Market Capitalization to GDP ratio ( $MCGDP$ ) by 0.56 percentage points.
- Coefficient  $C(11) = +0.027568$ : The increase in Exports to GDP ratio ( $EXGDP$ ) by 1% would statistically significantly ( $p\text{-Value} = 0.0352 \leq 0.05$ ) increase the Market Capitalization to GDP ratio ( $MCGDP$ ) by 2.76 percentage points.
- Coefficient  $C(14) = -0.024148$ : The increase in Imports to GDP ratio ( $IMGDP$ ) by 1% would statistically significantly ( $p\text{-Value} = 0.0178 \leq 0.05$ ) increase the Market Capitalization to GDP ratio ( $MCGDP$ ) by 2.41 percentage points.
- Coefficient  $C(18) = +0.300620$ : The effects of the implementation of a mandatory listing, for the second time, back in 2013, captured by the introduction of a dummy variable  $DUMMY$  in the model, are positive and statistically significant ( $p\text{-Value} = 0.0000 \leq 0.05$ ).

The R-squared value of 0.683099 indicates that the independent variables explain quite well (a good portion, up to 68.31% of) the variability of the dependent variable,  $MCGDP$ . Since the F-statistics is significant at a 0.05 level of significance, i.e. Prob. (F-statistic) =  $0.012602 \leq 0.05$ , data are fitted quite well within the model. The residuals' diagnostic tests suggest that the VECM is correctly specified so it can be used for hypothesis testing and forecasting purposes, because:

- According to the Breusch-Godfrey Serial Correlation LM Test, Obs\*R-squared = 1.169963 (Prob. Chi-Square(3) =  $0.7602 > 0.05$ ), there is no serial correlation (autocorrelation, lagged correlation) in the residuals of the model, at a 5% level of significance;
- According to the Breusch-Pagan-Godfrey Heteroskedasticity Test, Obs\*R-squared = 26.67435 (Prob. Chi-Square(21) =  $0.1819 > 0.05$ ), there is no heteroscedasticity in the residuals of the model, at a 5% level of significance;
- According to the Jarque-Bera Test statistics = 4.629216 (Prob. =  $0.098805 > 0.05$ ), the residuals of the model are normally distributed, at a 5% level of significance.

## 5. Conclusion

This paper examined the impact of selected macroeconomic determinants on stock market development in the Republic of North Macedonia. Specifically, the study investigated the extent to which economic growth, gross investments, and trade openness influence the capital market development in North Macedonia. The empirical study has been carried out on a compendium of time-series data, originating from valid secondary data sources. It utilizes the Johansen Test of Cointegration as a preliminary step that leads towards the development of a corresponding Vector Error Correction model, which was used to estimate the nature of the relationship among the factors that are fostering the development of the capital market in the country during the period from 2008:Q1 to 2018:Q4. The analysis results provided evidence of a significant relationship between the observed macroeconomic factors and the stock market development. The findings indicate that economic growth has a negative, whereas trade openness has a significant and positive impact on the Macedonian Stock Market development. Although the Gross Investments to GDP ratio showed a positive impact on stock market development, the coefficient was not significant. Based on the results of this research, and in order to accelerate the stock market development in the Republic of North Macedonia, it is recommended to create and implement effective and prudent policies that will stimulate the trade openness and the gross investments in the country. The results of the analysis revealed that the rise of GDP has a negative impact on the stock market development, which is not in line with the theory. On the contrary, it is essential for our country to implement economic policies which will lead to accelerated economic growth based on increased productivity. Simultaneously, a more aggressive campaign for promoting stock exchange operations should be carried out, i.e. measures for increasing the business sector awareness about the benefits of capital mobilization through issuing securities, which will decrease the role of bank credits in financing the current and developing work of the firms. In this manner, the activities on the Macedonian Stock Exchange would be encouraged, indirectly of its performances, which would have positive implications on the overall Macedonian economy. Since the development of the capital market in small and transitional economies like the Macedonian is expressed through its size and depth (liquidity), a challenge for our next research will be to study the relationship between the liquidity of the capital market and the same macroeconomic determinants that were hereby analyzed.

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## CREDIT RISK MANAGEMENT IN BANK: IMPACTS OF IFRS 9

### UPRAVLJANJE KREDITNIM RIZIKOM U BANCI: UTJECAJI MSFI 9

#### Abstract

*IFRS 9 was developed by the IASB to replace IAS 39. During the international financial crisis, the delayed recognition of credit losses identified as a substantial weakness in accounting rules. Both the IASB and the FASB have been requested to modify the existing incurred loss approach, based on the impairment discipline established by IAS 39, and to consider alternative approaches to the recognition and measurement of losses on loans that incorporate a broader information base. The expected loss approach defined by IFRS 9 replaced the incurred loss approach of the old IAS39. The IFRS 9 are accompanied by new regulatory frameworks (BCBS), opinion (ECB), Technical Standards and guidelines (EBA) which do not always provide the same methodological and operational implications of the accounting standard setter. The purpose of this paper is to investigate the Expected Credit Loss Model, its main impacts on the pillars of Credit Risk Management (also concerning to the new prudential supervision framework) and its interdependencies and overlaps with the new prudential supervisory framework (Basel 3) on credit risk. The latter is not always reason in the same terms as the accounting principle and implies the same methodological and operational consequences for the Credit Risk Management activity.*

**Keywords:** credit risk, expected loss approach, pricing at risk, IFRS 9

**JEL:** G1, G19

#### Sažetak

*MSFI 9 je razvijen od strane Odbora za MRS kao zamjena za MRS 39. Za vrijeme globalne finansijske krize, odgođeno priznavanje kreditnih gubitaka identificirano je kao značajna slabost u računovodstvenim principima. Od Odbora za MRS i FRS zatraženo je da izmijene postojeći pristup nastalih gubitaka, temeljen na disciplini umanjenja utvrđenoj MRS-om 39, i da razmotre alternativne pristupe priznavanja i mjerenja gubitaka po kreditima koji sadrže širu bazu podataka. Pristup očekivanog gubitka definisan MSFI 9 zamijenio je stari pristup nastalog gubitka MRS 39. MSFI 9 prate novi regulatorni okviri (BCBS), mišljenje (ECB), Tehnički standardi i smjernice (EBA) koji ne pružaju uvijek iste metodološke i operativne implikacije postavljanja računovodstvenih standarda. Svrha ovog rada je istražiti model očekivanog kreditnog gubitka, njegove glavne utjecaje na stubove upravljanja kreditnim rizikom (također, u vezi s novim okvirom prudencione supervizije) i njegove međuovisnosti i preklapanja s novim okvirom prudencione supervizije (Bazel III) na kreditni rizik. Ovo zadnje nije uvijek razlog u istim uslovima kao računovodstveni princip, ali podrazumijeva iste metodološke i operativne posljedice za aktivnost upravljanja kreditnim rizikom.*

**Ključne riječi:** kreditni rizik, pristup očekivanog gubitka, određivanje cijena u uslovima rizika, MSFI 9

**JEL:** G1, G19

## 1. Introduction to IFRS 9

IFRS 9 *Financial Instruments* (IFRS 9) replaces IAS 39 *Financial Instruments: Recognition and Measurement*, for the accounting periods beginning on or after January 1, 2018, and requires the measurement of impairment loss allowances to be based on an expected credit loss (ECL) accounting model rather than on an incurred loss accounting model. The IAS 39 *impairment* criterion linked the credit impairment made by financial intermediaries to the emergence of a “trigger event” that showed the dubious availability of cash flows produced by the loan. In this way, often non-congruous reserves and movements were produced, strongly pro-cyclical and not adequately anticipated in terms of provisions to cover risks. The new *impairment* model, prepared by the IASB called “the three buckets model”, provides for the recognition of expected losses and therefore, the recognition of provisions, according to the degree of deterioration of the of assets credit risk. In the current accounting regime, the occurrence of an event or an explicit sign of actual loss for the recognition of an accounting charge is no longer required. Unlike IAS 39, the financial intermediary must immediately recognise, regardless of the presence or absence of a trigger event, future expected losses on its financial assets and must continuously adjust the estimate also in consideration of the credit risk for the counterpart.

Compared to the IAS 39, the IFRS 9 provides a single method for calculating value adjustments on loans valid for all financial instruments that are not recognized at fair value with effect on the income statement. This is done in order to standardize the methodology and facilitate the comparison of loan impairments. The FASB and the IASB worked together on the development of the three-stage model (*three buckets model*), but feedback from stakeholders led US *standard setters* to review the impairment project. In 2012, the FASB published its proposal to update accounting standards in the *Exposure Draft, Accounting Standard Update "Financial Instruments - Credit Losses (Subtopic 825-15)"*, which was followed by subsequent changes until the publication of the final version in July 2016. The model introduced is also based on expected losses (CECL - *Current Expected Credit Losses*) and *forward-looking* losses, which differs from that chosen by the IASB, as it provides the calculation of the expected *lifetime* loss of all financial instruments. The enforcement of the CECL model will be mandatory from January 2020, for some types of banks and for *public companies*, while for all other banks it will follow the year after, i.e. January 1, 2021 (FASB, 2016).

Table 1. IASB vs. FASB

	PERFORMING ASSET	UNDERPERFORMING ASSET	IMPAIRED ASSET	Mandatory
IFRS 9 (IASB)	Stage 1 <i>Expected Loss 1 year</i>	Stage 1 <i>Lifetime Expected Loss</i>	Stage 1 <i>Lifetime Expected Loss</i>	From 1/1/2018
ASU Topic 326 (FASB)	Lifetime Expected Loss			From 1/1/2020

Source: Authors' creation

It is common knowledge that IAS 39 was based exclusively on historical data (*backward-looking*), while IFRS 9 must also incorporate *forward-looking* informations, related to scenario analysis, which must be periodically updated and revised to take account of market trends. This *forward-looking* approach will allow credit adjustments to be set up in advance proportionally to the increase in credit risk, avoiding overburdening the income statement when loss events occur and thus, hopefully mitigating the pro-cyclical effect of the accounting valuation of loans in the portfolio (IASB, 2014, par. 5.5).

Randall and Thompson (2017) outlined that forward-looking approach permit to include, in the estimation process, qualitative informations, such as the macroeconomic trend, current economic environment, along with both statistical models and non-statistical quantitative information. Regardless of the specific information considered, there is still a subjective aspect involved in a

financial institution's assessment of credit risk for loans, but it is crucial for each bank to have a sound underlying modelling framework. Some different studies have looked at effects of IFRS implementation on accounting for credit losses in banks. Gebhardt and Novotny-Farkas (2011) study smoothing and conditional conservatism for a sample of listed European banks. They find conflicting evidence with respect to the benefits of IFRS, which may be attributed to their chosen earnings quality measures; O'Hanlon (2013) focuses on the predictive ability of LLP; however, the sample is limited to UK banks.

The new standards require various ECL measures for loans classified into three different buckets of progressively higher default risk, compared to the initial default risk when the loan is issued. According to the *three buckets approach* (Table 2), the financial instruments falling within the application field of the norm are allocated into three classes (*stage or buckets*) and transferred from one class to the other about whether the bank detects a *significant increase in credit risk* (SICR) in comparison to the origin. These IFRS 9 buckets are not to be confused with the typical rating buckets in which banks with an internal rating diversified loan portfolio. For loans in Bucket 1, ECL is estimated over a one-year period, when the obligor generally possesses "good credit" relative to their initial credit quality, so it is considered to be a performing loan. Therefore, IFRS 9 Bucket 2 represents underperforming loans that have experienced a significant increase in credit risk since initial recognition. Furthermore, impaired loans, which result in the bank actually incurring credit losses, are classified in Bucket 3.

Table 2. *The three-stage approach*

Stage 1	Performing loans which credit risk is not significantly increased compared to the origin; impairment corresponds to the <i>expected loss</i> measured for one year. Interest income is recognized from the effective interest rate (EIR) applied to the <i>gross carrying amount</i> . Corrections to positions classified in Stage 1 of IFRS 9 may be partially matched by the adjustments that, under the IAS 39, were made for a portion of the performing portfolio to recognize the <i>incurred but not reported</i> component (IBNR). The IBNR logic of losses incurred (but not accounted for) required to create an impairment provision against credits that have already suffered a loss event. However, the internal monitoring system considers them still performing ( <i>in bonis</i> ), due to physiological delays in the mechanism for identifying the losses incurred.
Stage 2	<i>Performing loan</i> which credit quality has deteriorated significantly since the date of initial recognition. For these loans, the so-called " <i>lifetime expected credit losses, ECL</i> " (IASB 2014, Appendix A) is measured, i.e. the expected loss calculated over a period covering the entire lifetime of the financial instrument. The calculation of income interest takes place as in the previous stage.
Stage 3	Includes all assets known as <i>impaired</i> which present objective evidence of decline. Non-performing due dates, probable defaults, and non-performing loans are part of this stage. Additionally, in this case, the criterion for determining the expected loss is that of " <i>lifetime expected credit losses</i> " as in Stage 2, while the interest income is calculated by the value of the net exposure of the instrument. A financial asset is considered impaired ( <i>credit-impaired financial asset</i> ) if one or more events have occurred that have a negative effect on expected cash flows. In this stage, the expected loss is detected with a lifetime perspective, but unlike the positions in Stage 2, the calculation of expected lifetime loss is analytical. Increases in accounting provisions are expected due to the adoption of a forward-looking forecast estimate on positions classified as a default.

Source: Authors' creation

The higher impacts of adjustment increase, following the introduction of the new IFRS 9 model, are likely to be attributable to Stage 2; the calculated according to IFRS 9 will be significantly higher than those envisaged for IAS 39. Considering this tri-partition underlined above, it is clear that, compared to IAS 39, the new standard will determine greater impacts on the recognition of the provision, especially in Stage 2 and, to a lesser extent, to positions classified in Stage 3. Also, with the aim of introducing operational simplification to the general context of the new standard, IFRS 9 introduces two "presumptions". It allows the financial intermediary to assume that: a) there has not been any significant deterioration in comparison to the time of initial recognition if, at the time of reporting, the instrument being measured has a low credit risk ("*low credit risk*"); b) on the contrary, there has been a significant deterioration compared to the time of initial registration if, at the time of reporting, the instrument being measured has been "expired" for 30 days or more. If the intermediary has sufficient evidence to show that a past due is greater than the time "threshold" contained in IFRS 9 does not represent, in his experience, an indication of an effective increase in

the probability of default of the “expired” instrument, it may avoid considering the tool as *underperforming*. There is also a simplified approach to trade receivables and other assets that do not contain a significant financial component. In this case, it is possible to estimate the total expected losses immediately (IASB, 2014), par. 5.5 - 5.12).

IFRS 9 prescribes the measurement of *expected lifetime loss* for all assets that, at the balance sheet date:

- A. have undergone a significant increase in credit risk concerning initial recognition, therefore falling within Stage 2;
- B. for impaired assets and for those whose losses materialized, therefore, falling within Stage 3.

The new classification of instruments, the impairment model based on the *expected loss approach* and the forward-looking measurement logic, summarize the main changes in IFRS 9 (Table 3).

Table 3. *IAS39 vs. IFRS*

<b>Instrument classification</b>	<ul style="list-style-type: none"> <li>• Lower categories of classification for financial instruments</li> <li>• Classification depends on business model adopted and on the contractual cash flows</li> </ul>
<b>New and only impairment mode</b>	<ul style="list-style-type: none"> <li>• Expected losses as <i>forward looking</i></li> </ul>
<b>Remain unchanged</b>	<ul style="list-style-type: none"> <li>• Hedge accounting models;</li> <li>• Derecognition;</li> <li>• Derivates always valued as <i>fair value</i>;</li> <li>• Determination of amortized cost</li> </ul>

Source: Authors' creation

The expected *lifetime loss* for assets referred to in point A, based on the provisions mentioned in the previous paragraphs and always considering a measurement approach based on the *probability of default* and the *loss given default*:

$$EL_{lifetime} = \sum_{t=1}^T \frac{EAD_t \times (PD_{0,t} - PD_{0,t-1}) \times LGD}{(1 + EIR)^t} \quad (1)$$

in which:

$EL_{lifetime}$  is the expected loss calculated on the residual life of the asset;

$EAD$  exposure to period  $t$ ;

$(PD_{0,t} - PD_{0,t-1})$  is the difference between cumulative default probabilities in the period  $t$  and  $t-1$ ;

$LGD$  is the loss rate in case of default in the period  $t$ ;

$EIR$  is the effective interest rate determined at the origin.

Conversely, for instruments referred to in point B, the probability of default should be equal to 100 per cent, for which the expected loss will be equal:

$$EL_{lifetime} = EAD \times LGD \quad (2)$$

The measurement of EL over the lifetime of the assets must also be carried out for impaired assets; so-called, *credit-impaired financial asset*. In particular, a financial asset is considered impaired if one or more event has occurred that produces a negative effect (*detrimental impact*) on the estimated cash flow of the financial asset. IFRS 9 sets out that expected losses should reflect reasonable and supportable information available at the reporting date, without incurring excessive costs or efforts including information on past events, current conditions, and forecasts of future

economic conditions [IASB, 2014, par. 5.5.17 (c)]. The IASB therefore, considers both *backward-looking* information, such as past events, and information about the current state, that is the current condition, as well as more forward-looking information, i.e. the forecast for *future conditions*. The sources to which the *IASB adopter* can draw such information can be both internal to the entity and external. Possible sources of data are internal historical experience of credit losses, historical experience of losses on receivables from other entities, internal ratings, external ratings, external relations, and statistics (IASB, 2014, Appendix B, par. B5.5.51). The possibility to draw on external information sources helps to make the information used in estimating the expected loss both sustainable and accurate.

In this perspective, the purpose of this paper is to investigate the Expected Credit Loss Model, its main impacts on the pillars of Credit Risk Management (also concerning to the new prudential supervision framework) and its interdependencies and overlaps with the new prudential supervisory framework (Basel 3) on credit risk. The latter is not always reason in the same terms as the accounting principle and implies the same methodological and operational consequences for the Credit Risk Management activity.

## 2. The three-stage approach

The definition of *staging* rules is a very delicate and critical aspect; it must be carried out in such a way as to ensure firstly, the timely detection of significant increases in credit risk and secondly, the reduction in false signs of deterioration. The interception of false deterioration signs in credit risk become more relevant as the inclusion in Stage 2 of exposure (with a high probability of return to regularity) involves a temporary weighting of provisions and an immediate impact on profitability. In model IAS 39, a false signal did not produce a significant increase in funds and could give rise to a temporary lack of coverage. In the context of IFRS 9, the reference to *lifetime* ECL produces an increase in coverage throughout the period of the permanence of positions in Stage 2. This leads to the belief that the presence in Stage 2 of positions with a high probability of regularization is likely to translate into a constant excess of funds with unavoidable impact on profitability. The IFRS accounting principle in question specifies that the assignment to Stage 2 should be done, not about the absolute risk of the exposure, but to its variation.

The assessment of the change in credit risk/creditworthiness must be made reasonable information. This can be acquired without excessive cost or effort that could affect credit risk (IASB, 2014, Appendix B, B5.5.12), with particular regard to market indicators with “signaling value”, internal factors and information on the debtor. The IASB did not want to prescribe a standard or mechanical mechanism for assessing changes in credit risk in the knowledge that this varies depending on the availability of information, asset characteristics, *etc.* The examination of the significant increase in credit risk carried out by the *IASB adopter* requires a multifactorial and integrated analysis; the importance and weight assigned to each individual factor depend on the type of financial instrument, its characteristics and the debtor, as well as the geographical area of origin (IASB, 2014, Basis for Conclusion, par. BC5.157).

IFRS 9 introduces a *relative presumption* that a significant decrease in credit quality is presumed concerning *origination* if, at the *reporting* date, the asset expires after *more than 30 days* (IASB, 2014, par. 5.5.11). Since this is a relative presumption, it can be refuted if the bank shows that, even though the financial asset has expired for more than 30 days, the credit risk has not deteriorated significantly compared to the initial detection.

Another simplification is also envisaged, and it is known as a *low credit risk exemption*. Based on this exemption, the bank can choose to calculate the expected loss in the next twelve months. It can assume that there will be no significant worsening of the risk of credit if the financial instrument, at

the balance sheet date, presents a low credit risk (IASB, 2014, par. 5.5.10). This is an optional simplification, i.e. it is left to the banks' will to choose whether to adopt it or not. To determine whether credit risk is low, it is possible to use internal rating or other methodologies that are consistent with a globally shared definition (for example, credit ratings of rating agencies). To define the staging rules, Risk Management could draw useful suggestions not only from the standard accounting setter but also from an integrated reading of internal practices, delivery criteria and credit processes (*watchlist* feed, *past due* management, *etc.*). It is clear from what has been briefly stated that the new model of impairment implies a significant effort by the bank intermediary regarding *credit risk modeling* and *data collection*; a more rigorous process of monitoring the credit risk of loan's portfolio. Nonetheless, the *three-stage approach* requires the banks' Risk Management function to identify indicators of a significant increase in credit risk and, therefore, the "rules" of staging.

### 3. Supervisor view on IFRS9 and EBA's impact study

In general, the role of IAS 39 for financial stability has generated a lively debate even among academics (Laux & Leuz, 2009; Barth & Landsman, 2010; Laux, 2012), because IAS 39 is considered to be a controversial accountings standard, largely due to its complexities (Armstrong *et al.*, 2010; Paananen, Renders & Shima, 2012). Nevertheless, the Supervisory authority developed a great interest to the IFRS 9, to its expected loss model and relative impacts on Credit Risk Management framework. In fact, the new accounting standard are accompanied by new regulatory frameworks (BCBS), opinion (ECB), Technical Standards and guidelines (EBA) which do not always provide the same methodological and operational implications of the accounting standard setter.

BCBS (2015) and EBA (2017a, 2017b) welcomes the move from an incurred loss model to an ECL model under IFRS 9 that probably will address some prudential concerns and contribute to financial stability. In this perspective these Authorities hope an high-quality and consistent application of IFRS 9 and to help the promotion of a consistent interpretations and practice issued guidelines. Nevertheless, IFRS9 gives an important role to credit risk management because it proposes mitigation actions to prevent loans from becoming underperforming and falling into bucket 2 and some actions able to reduce the risk of credit deterioration (see also Maggi *et al.*, 2017). These guidelines aim at ensuring sound credit risk management practices for credit institutions, and move from the idea that high-quality and consistent application of accounting standards are the basis for the effective and consistent application of regulatory capital requirements. It's important to underline that BCBS and EBA' guidance is intended to complement, not replace, the relevant accounting standards and it encourages robust implementation by banks and thorough supervisory review.

The BCBS (2015) supervisory guidance contains eight principles for banks on robust governance, methodologies, credit risk rating processes, experienced credit judgment and allowance adequacy, ECL model validation, common data and risk disclosures. The BCBS also has three principles calling for supervisors to adequately evaluate credit risk management, ECL measurement and capital adequacy (principle 11 requires banking supervisors to consider banks' credit risk practices and recognize their ECL processes and models when assessing capital adequacy). Nevertheless, BCBS (2015) highlights that banks must: (a) maintain sound corporate governance over their credit risk management and ECL estimation processes; (b) define sound methodologies for assessing credit risk and estimating ECL that should cover all lending exposures, including for restructured and credit impaired loans, should be subject to independent reviews, and must go beyond historical and current data to consider relevant forward-looking information; (c) define clear roles and responsibilities for model validation with adequate independence and competence, sound documentation and independent process review.

IFRS 9 implementation represents a significant change for banking entities not only in terms of modelling and the use of new processes to estimate loan loss provisioning but also in terms of internal controls, reporting and market disclosure. In fact, the Enhanced Disclosure Task Force (EDTF) recommended disclosures to help market participants understand the upcoming changes to ECL approaches and to promote consistency and comparability. For example, EDTF recommends banks following IFRS should provide: a) qualitative disclosures about general ECL concepts, differences from the current approach, and implementation strategy, starting with 2015 and 2016 annual reports; b) qualitative disclosures about detailed principles, governance organisation and capital planning impact starting with 2016 annual reports; c) disclosure of quantitative assessments of the impact of adoption of the ECL approach starting when practicable and reliable but, at the latest, in 2017 annual reports. IFRS 9 will prompt banks to:

- reengineering their credit risk model;
- improve their *early-warning* system to detect any deterioration in a client's lifetime credit risk;
- reconsider their appetite for credit risk and their overall risk appetite framework (RAF), and to introduce mechanisms to discourage credit origination for clients, sectors, and durations that appear too risky and expensive in light of the new standard;
- increase the monitoring activities on collateral data and on quality data in general;
- redefine control and internal reporting activities;
- restructure the credit risk public disclosure.

In this context, the EBA (2018a) has conducted a new exercise on the standard's impact on EU institutions. The analysis is based on actual data reported by banks to competent authorities (COREP/FINREP templates) and supplemented by public disclosures where possible. In order to collect and analyse these data, the EBA has considered a series of indicators relating to initial impact, classification and measurement, impairment and solvency, which were used to determine the effects of the new standard on a representative sample (consisting of 54 institutions across 20 Member States) of EU credit institutions.

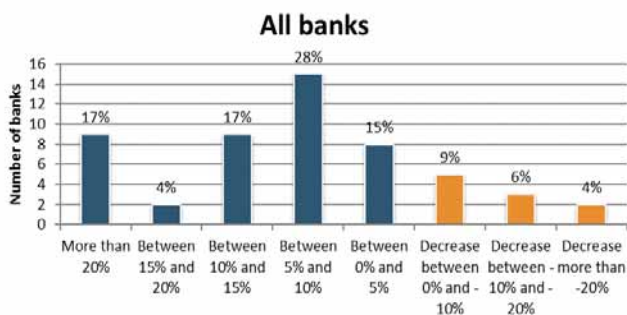


Figure 1. Increase in provisions: all banks

Source: EBA, 2018a

There are some conclusions that can be drawn from this EBA exercise. First of all, remains significant variability in the CET1 impact among the banks in the sample (EBA 2018a). Furthermore banks using mainly an IRB approach experience a significantly smaller negative impact in terms of the CET1 fully loaded ratio (-19 bps on simple average) than banks mainly using the Standard approach for credit risk (-157 bps on simple average).

The increase in provisions on the initial application of IFRS 9, considering the supervisory data reported by 53 banks in FINREP, amounts to 9% on simple average<sup>2</sup> (and up to 15% for the 75th percentile of banks). It is important to highlight that results reported on the first application date do not indicate future trends (mainly because of changes in the expected economic conditions). For this reason, continuous monitoring of IFRS 9 numbers has a great importance for EBA. The difference between the increase in provisions and the related CET1 impact, in relative terms, for IRB and SA banks can be mainly attributed to the differences in terms of regulatory calculations where, for IRB banks, regulatory expected losses are already reflected in CET1. In practice, this means that the existing IRB shortfall under IAS 39 absorbs part of the increase in provisions when applying IFRS 9, as it was already being deducted from CET1 (EBA, 2018a).

In relation to staging assignment, the supervisory data for the second quarter of 2018, banks have reported that 85% of on-balance-sheet exposures (gross amount) are allocated to Stage 1, 8% to Stage 2 and 7% to Stage 3. Regarding the off-balance-sheet exposures (commitments and financial guarantees), the allocation corresponds to 93%, 5% and 2% in Stages 1, 2, and 3, respectively. This allocation doesn't show the relevant aspects related to staging assessment/accounting policies applied for the transfer between Stages (EBA, 2018a).



Figure 2. Allocation of on-balance-sheet items per stage

Source: EBA, 2018a

There is a lot of difference between smaller and larger banks in coverage ratio. For larger banks, the coverage ratios correspond to 0.1%, 3% and 43%, respectively, per stage. For smaller banks, coverage ratios of 0.5%, 6% and 50% were observed. The coverage ratio for mainly IRB and mainly SA banks would be consistent with the results for large and small banks. EBA will work further on understanding the modelling aspects of IFRS 9, as implemented by EU institutions, and their related impact on capital.

Table 4. Coverage ratio (%) per stage – large and small banks (reference date: 30 June 2018)

Coverage ratio	All banks	Large banks	Small banks
Stage 1	0.2%	0.1%	0.5%
Stage 2	3.9%	3%	6%
Stage 3	45%	43%	50%

Source: EBA, 2018a

#### 4. Some conclusive reflections on Credit Risk Management framework

From what has been explained above, it is understood how incisive the changes in the Credit Risk Management framework are regarding new accounting principle, as well as about the degree of coverage of losses in a loan portfolio. These include revisions and changes to be made to: *pricing risk-adjusted* models (to make them consistent with the new credit valuation model that takes into account the classification of internship positions), planning, budgeting and *capital adequacy* activities (use of macroeconomic scenarios that converge the CRO/CFO logics), monitoring

activities (adoption of a new *early warning* logic for the transition between internships), definition of *credit policy* (selection of origination of counterparties and sectors with a profile of stable risk, or with a positive outlook, less dependent on the performance of the economic cycle), the activity of *credit risk modelling* (also for the IRB banks it seems to have, in this regard, a position of advantage).

Nonetheless, the new principle requires an increasingly integrated and active involvement between risk management and accounting functions. This aspect is in continuity with supervisory regulation provisions for the internal control system which has assigned to the risk control function new responsibilities regarding the verification of the credit management and evaluation process: the monitoring of the individual exposures, adequacy of classifications of the credit portfolio and impaired exposures, as well as the analysis of the consistency between the risk measurement systems and the models for the valuation of financial assets. However, the new accounting standard gives new force to this regulatory provision by replacing the accounting logic of *incurred loss* with that of the risk management of *expected loss* and *forward-looking*. This way, it confers new responsibilities and tasks, not just regarding credit risk modeling to the bank's Risk Management. These were, in fact, during the process of adoption of IFRS 9, involved in further areas of activity (Letizia, 2016): contribution to the design of the SPPI test; development of the cash flow test benchmark model; analysis of the calculation model of the *Lifetime Expected Credit Loss* developed by the computer servicer; definition of how to use the internal ratings system for the calculation of PDs and transition matrices or, alternatively, of datasets taken from scoring systems (anomalous statistical or experiential system) for the construction of "decay" curves, development of Perspective-sensitive multi-period PD calculation systems for the definition of forward-looking ECL, calculation of the LGD *workout* and *back testing* of recovery assumptions (realization times and estimates) that feed *impairment* modelling, verification of congruity of provisions according to IFRS 9.

However, at this moment in history, the Credit Risk Management framework is not only impacted by the new accounting principle, but is grafted onto a constantly changing regulatory framework that continuously produces frameworks (BCBS), opinions (ECB), guidelines, technical standards (EBA) on the subject of credit risk (modelling, capital requirement, NPLs management, *etc.*) which inevitably must be read and analyzed in an integrated manner with the new accounting framework in order to avoid duplication of measures, information flows, reporting, monitoring activities, roles and organizational responsibilities. The integrated reading by the intermediary is an undeniably important strategic-management challenge.

Due to possible differences in application and interpretation of the new impairment models, in addition to the *implementation guidance* provided by the IASB and the support of the ITG, the regulatory bodies (BCBS, EBA) and auditing (GPPC<sup>1</sup>) also intervened with the publication of its own guidelines to support intermediaries in the process of convergence to the new Standard. As early as December 2015, BCBS published prudential guidelines that defined the possible interactions between the *expected credit loss* (ECL) model and the general practices of measuring and managing a bank's credit risk. In recent times, the European Banking Authority (EBA) has also intervened with the publication of its own guidelines (EBA/GL/2017/06) on accounting for expected losses and with various indications on the estimate of credit risk parameters. Many of these prudential regulatory innovations do not exactly coincide with the standard accounting setter; many seem to enrich this with new operational repercussions for the Credit Risk Management process. For example, among these, it should be noted that the identification, among performing credits, of positions that present a greater degree of credit risk than "normal", (which was, in fact, an objective which, albeit with other purposes) had already been set up by the Authorities prudential supervision. In fact, the introduction of the concept of *forborne* credit (object of concession, *forbearance*) dates back to 2014 (EBA, 2014), following a situation of difficulty for the

debtor (renegotiation of maturity on the term loans that reduces) that had already requested the banks careful review of credit granting and monitoring practices and an increase in *forbearance* practices, especially for retail and corporate real estate exposures.

Among the regulatory changes not yet implemented that open area of overlap and divergences between the supervisory framework and the accounting framework, it is considered appropriate to recall those relating to the *capital requirement* for credit risk. *Finalizing Basel 3*, BCBS (2017) defines the revision of the Standard approach and *Internal Rating Based*<sup>2</sup> models, with the aim of mitigating the well-known variability and poor comparability of the *Risk Weighted Assets* of European banks<sup>3</sup>. Additionally, in 2017 the EBA guidelines (which will be applied with effect from 1/1/2021) intervene in the following areas (EBA, 2017a): data requirements for the estimate of the PD, general principles for calculating the default rate; observed average default rates; estimate of the *long-run average default rate* (LRAVDR), *risk drivers*, *rating philosophy and calibration*, *discount rate for the estimate of LGD* (Euribor 1 y + 5 per cent<sup>4</sup>); *identification of three categories deficiencies for the application of the margin of conservatism* (MoC); estimate of LGD by "open" default (mandatory inclusion of open defaults for transactions whose recovery process has not been completed), *IRB floor for the estimate of PD and LGD*.

From this perspective, the supervisory models, as often specified by both the IASB and the Supervisory Authorities, may constitute a starting point for ECL accounting. However, they are not directly usable for accounting purposes and need adjustments due to the different purposes pursued concerning the standard accounting setter. Recalling that the expected loss of Stage 1 of IFRS 9 is conceptually similar to the prudential EL: both are calculated on a time horizon of 12 months, and in both cases, the variables to calculate it are PD and LGD. However, due to the different objectives of the two accounting and prudential regimes, the estimates of PD and LGD are not the same in both cases; the Prudential estimates of these variables must be "modulated" to comply with the requirements of IFRS 9. Nevertheless, the measurement and regulatory treatment of loan loss provisions are closely linked to the adoption of the standard or IRB approach by that of the credit institution.

The prudential rules for the estimation of the EL are relevant only for IRB banks, while the provisions for the EL of IFRS 9 include all *assets* and are also relevant for banks that adopt the *standard* approach. For these banks in general, prudential regulation does not require a provision for loan loss provisions, while accounting provisions directly affect Tier 1. IRB banks, for *performing exposures*, use their estimate of PD that may be of type PIT, TTC or hybrid. The CRR does not require a specific rating philosophy to be used, but it should be noted that the PD estimates should reflect a long-term average of one-year default rates to ensure that they are stable over time. This would suggest that only a TTC or hybrid approach would be consistent with the *prudential framework*. In this regard, the IASB clarifies that the TTC estimates are not consistent with the EL requirements for IFRS 9 as they consider a range of possible results, rather than those that are expected at the *reporting date*. This would not allow it to reflect the economic characteristics of the financial instruments at the *reporting date*.

Further differences related to EL arise in respect to the estimate of LGD. Prudential regulation, as seen above, requires an estimate of the LGD based on the *long-run average weighted by the number of defaults* and, in any case, the *LGD downturn* should be used, if more conservative. Conversely, according to IFRS 9, LGDs should incorporate actual expectations on the future into *reporting date*. Moreover, according to the prudential regime, the fewer information banks have, the more conservative the estimates of PD and LGD should be; in addition to this, *floors* are applied to the credit risk parameters. These conservative forecasts are inconsistent with EL according to IFRS 9 and must be removed.

Finally, prudential EL is always calculated over a 12-month time horizon for *performing portfolios*, while according to IFRS 9 *lifetime losses* must be recognized for those exposures that have significantly increased their credit risk (those falling so on Stage 2). For in-default exposures, losses must be a *lifetime* in both schemes. As briefly summarized above, important divergences arise in the estimates of PD and LGD (Table 5) between the regulatory framework and the new accounting standard that require careful and integrated reformulation of *credit risk modeling*. These modeling proposals for estimating credit risk drivers often lead to at least the quadrupling of necessary measures (PD PIT, PD TTC, PD at one year, PD lifetime, LGD at one year, LGD lifetime, LGD stressed down turn, LGD defaulted asset).

Table 5. IASB vs. BCBS

		IASB (IFRS 9)	BCBS
PD	MEASUREMENT PERIOD	12 MONTHS (STAGE 1) LIFETIME (STAGE 2 E 3)	12 MONTHS
	SENSITIVITY TO THE ECONOMIC CYCLE	POINT-IN-TIME (PD PIT), FORWARD-LOOKING AND HAS TO TAKE INTO ACCOUNT MACROECONOMIC FACTORS	THROUGH THE CYCLE (PD TTC)
LGD	MEASUREMENT	NEUTRAL, FORWARD-LOOKING AND ABLE TO CONSIDER MACROECONOMIC FACTORS	THE DOWNTURN, TIME SERIES AT LEAST 5 YEARS LONG FOR RETAIL, 7 YEARS FOR CORPORATE, SOVEREIGN BANKS
		NON-BINDING ON THE DEPTH OF DEFAULT TIME SERIES	DEFINED BY THE REGULATIONS
		COSTS TO EXCLUDE TO AVOID DOUBLE COUNTING	THE IMPACT OF THE REAL ELIGIBLE GUARANTEES;
		ACTUALIZATION RATE INTENDED AS (EFFECTIVE INTEREST RATE), ANNUAL CONTRACTUAL RATE (ANNUAL RATE COMPOSED IN CASE OF INFRA-ANNUAL CAPITALIZATION, IF PERMITTED)	DIRECT AND INDIRECT COSTS OF THE CREDIT PROCESS TO BE INCORPORATED IN THE ESTIMATE
			ACTUALIZATION RATE LEFT TO DISCRETION OF THE BANK

Source: Authors' elaboration

The EBA has also recently tried to measure the qualitative and quantitative impacts on the IRB and Standard banks of the new accounting standard<sup>5</sup> (*classification and measurement, impairment and other qualitative impacts - implications for supervisors*). Below is a summary table of the results of this quantitative analysis (Table 6).

Table 6. Impacts of IFRS 9

	Estimated impact on CET1 ratio(bps)	Estimated impact on total capital ratio (bps)	Estimated provision increase (%)
Whole sample			13%
Small banks	-78	-78	5%
Large banks	-33	-20	15%
Standard Approach	-77	-77	6%
IRBA approach	-32	-17	16%
Weighted average			15%

Source: Authors' elaboration on (EBA, 2017a)

It can be seen from this work that the evolution of the Credit Risk Management process in banks must be planned by analyzing the regulatory and accounting framework in an integrated manner; to clearly and unambiguously design the process and methodological changes on measurement, monitoring, credit risk control and data collection. Challenging changes, but certainly of a different nature and depth for the Standard and IRB banks.

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<sup>1</sup> The Global Public Policy Committee (GPPC) is the committee that brings together the six major audit firms (BDO, Deloitte, EY, Grant Thornton, KPMG, and PwC).

<sup>2</sup> In order to restore credibility in the calculation of RWA and increase capital ratios comparability, the BCBS decided to: (a) remove the option to use IRB advanced approach for some asset classes; (b) adopt "input" floors (for measures such as PD and LGD) to ensure minimum levels of conservatism in cases where the IRB approach remains usable; (c) provide a better specification of the parameter estimation practices. These changes will have to be implemented by banks since January 2022 (definitively since January 2027).

<sup>3</sup> It is largely attributable to discretions applicable in the modelling phase of credit risk variables and in the operational declension of non-compliance concept.

<sup>4</sup> However, the EBA guideline on the 5 per cent spread is still provisional: "...While the level of the add-on is consistent with the results of the IRB survey carried out across the institutions and reflects a balanced figure between the discounting rates applied within and outside the euro area, the adequacy of the 5 per cent add-on will be further analysed and, if necessary, reviewed before the date of application of these GL...".

<sup>5</sup> EBA used data from 54 institutions from 20 different Member States. For the purposes of the financial year, it was assumed that banks with total financial assets of less than 100 billion euro were part of the group of smaller banks in the sample. In any case, most of the sample banks (94%) were identified as G-SIIs (63%) or as (O-SIIs) (31%). In addition, most of the sample banks use both the standard and the IRB approach for measuring credit risk.

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## FINANCIAL INCLUSION AND ECONOMIC GROWTH: A LITERATURE REVIEW

### FINANSIJSKA INKLUZIJA I EKONOMSKI RAST: PREGLED LITERATURE

#### Abstract

*Financial inclusion is no longer a policy choice, but a policy compulsion toward banking sector as a key driver of financial inclusion/inclusive growth. Access to safe, easy and affordable credits and other financial services for poor and vulnerable groups in disadvantaged areas and lagging sectors is recognized as a precondition for accelerating growth and reducing income disparities and poverty. Access to a well-functioning financial system, by creating equal opportunities, enables economically and socially excluded people to integrate better into the economy and actively contribute to development and protects themselves against economic shocks. This paper provides an overview of theoretical and empirical researches of financial inclusion effects on economic growth. Empirical evidence shows that countries with large proportion of population excluded from the formal financial system show higher poverty ratios and higher inequality. The main contribution of this paper as it adds to existing literature in the way to summarize the key research addressing financial inclusion and economic growth.*

**Keyword:** financial inclusion, financial system, economic growth, poverty

**JEL:** G21, G92, O40, I30

#### Sažetak

*Finansijska inkluzija više nije politički izbor, već prisila politike prema bankarstvu kao ključnom pokretaču finansijskog uključivanja/uključivog rasta. Pristup sigurnim, lakim i pristupačnim kreditima i drugim finansijskim uslugama za siromašne i ranjive skupine u ugroženim područjima i zaostajućim sektorima prepoznat je kao preduslov za ubrzanje rasta i smanjenje nejednakosti u dohotku i siromaštva. Pristup funkcionalnom finansijskom sistemu, stvaranjem jednakih mogućnosti, omogućuje ekonomski i socijalno isključenim ljudima da se bolje integrišu u ekonomiju i aktivno doprinesu razvoju i zaštite se od ekonomskih šokova. Ovaj rad daje pregled teorijskih i empirijskih istraživanja uticaja finansijske inkluzije na ekonomski rast. Empirijski dokazi pokazuju da zemlje s velikim udjelom stanovništva koji su isključeni iz formalnog finansijskog sistema pokazuju veći omjer siromaštva i veću nejednakost. Glavni doprinos ovog rada je u sistematizaciji ključnih istraživanja koja se bave finansijskom inkluzijom i ekonomskim rastom.*

**Ključne riječi:** finansijska inkluzija, finansijski sistem, ekonomski rast, siromaštvo

**JE:** G21, G92, O40, I30

## 1. Introduction

In recent years, financial inclusion has been in the focus of many researchers, politicians, and all other stakeholders in financial sector. The reason for this is the considerable amount of academic research that has revealed the existence of a link between financial inclusion and economic growth. Financial inclusion implies easy access to formal financial services, such as bank deposit, credit, insurance, but also their accessibility, to all participants in the financial system. In other words, a high level of involvement in financial system implies the existence of circumstances in which most participants use formal financial services that enable them to obtain certain benefits, thereby promoting the stability of their earnings and capital.

World leaders, international organizations and academia recognized the importance of financial inclusion and its potential to increase economic growth and reduce poverty. Following the G20 (May Declaration) initiative, an environment of international synergy has been created in which countries can seek professional assistance and engage in a global process of increasing financial inclusion. Today, more than 60 countries are implementing national strategies for financial inclusion. The past two decades have seen a consensus on the large role of financial inclusion in facilitating economic growth and poverty reduction, supported by a large body of empirical research.

Having that in mind, the main purpose of this paper is to review the literature on the linkages between finance, financial inclusion, economic growth, and poverty reduction, through individual's income, education and banking health. As it will be shown in most of the developing countries who implemented strategies of financial inclusion increase, empirical evidences showed positive correlation between financial inclusion and economic growth.

## 2. Nexus between financial inclusion, economic growth and poverty reduction

Theory of finance suggests that financial sector can be a driver of economic growth. There is a strong nexus between financial sector development, economic growth, and poverty reduction, through individual's income, education and banking health. In his book titled "The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle" Schumpeter (1934) demonstrated that finance boost growth. According to this evolutionary approach, financial sector via its services not only increase the accessibility of capital formation, but also encourage innovation, efficiency and investment which in turn result in economic growth. In line to growth in economy, banking sector (as the core of financial sectors in developing countries) becomes more specified and cost effective since it encourages capital accumulation and attract business competition among the banks which, in the end, result the more investment and growth as a whole. Based on Schumpeter findings, other research confirmed that financial system (development) positively impacts economic growth in terms that competition among financial institutions accelerates savings and investment that contributes to economic growth (Goldsmith, 1969; McKinnon, 1973; Dimamod, 1984; Boyd & Prescott, 1986).

Additionally, Mohan (2006) strongly advocated that financial development creates enabling conditions for economic growth through either a "supply-leading" (financial development spurs growth) or a "demand-following" (growth generates demand for financial products) channel. To support that thesis, empirical evidence shows that almost 50 percent of the variation in gross domestic product (GDP) per capita across countries can be explained by the variation of private credit to GDP. In a simple analysis, financial development is ranked second among variables that are known for their substantial impact on GDP per capita (Claessens & Feijen, 2006, p. 19).

Moreover, developed financial sector contributes to poverty reduction in two different ways – directly and indirectly (see Figure 1).

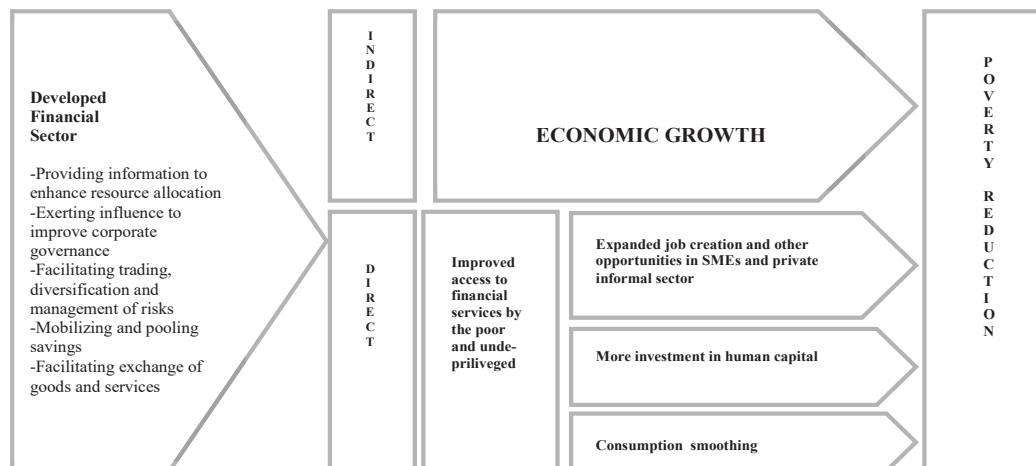


Figure 1. *Financial sector development, economic growth, and poverty reduction nexus*

Source: Claessens & Feijen, 2006

Directly, financial sector contributes to poverty reduction through improving the access to financial services for poor and underprivileged people. Government may enforce policies which promote and create opportunities for self-employment and SMEs development. Furthermore, government can invest in better education and human capital development. Through better allocation of fiscal revenues for social spending, government can contribute to consumption smoothening among different population groups. Indirectly, the financial sector contributes to poverty reduction through boosting economic growth.

In most developing countries, the major challenge of financial systems development is to provide access to formal financial sources (products and services) to the poor. Poor people are usually deprived of accessing commercial bank loans and financial services since poor people are observed as risky clients. For that reason, poor people mostly rely on the informal or semi-formal financial institutions which, in general, offer much more expensive financial products and/or services. Empirical evidence by Beck, Demirgüç-Kunt, and Martinez-Peria (2007) confirmed that the most important direct channel through which financial sector development impacts on poverty reduction is better access to financial services.

Kakwani and Pernia (2000) showed that the lack of access to finance is a significant factor responsible for persistent income inequality as well as lower rate of economic growth. This theoretical framework proclaims that more countries with more developed financial systems will yield in higher economic growth. Claessens and Feijen (2006) argued that many financial systems are simply too small and lack outreach to poorer households and smaller firms, meaning that in financially less-developed countries with limited outreach, poorer households and smaller firms use fewer financial services than richer households and larger firms. As a consequence, smaller firms experience higher growth obstacles than larger firms.

Paper issued by World Bank (2009) implied that without an inclusive financial system, poor individuals and small enterprises have to trust on their own limited savings and earnings to invest in education and entrepreneurship to take advantage of growth opportunities. Further, a well-

functioning financial system does create equal opportunities; allows economically and socially excluded people to integrate better into the economy, actively contribute to development and protect themselves against economic shocks and also, helps in equal distribution of benefits of economic growth.

Greater financial inclusion is positively associated with individual bank stability. Results revealed by Ahamed and Mallick (2019) suggested that banks perceive financial inclusion as a mechanism to garner ample cheap retail deposits, providing a significant leeway to reduce reliance on volatile and often costly money market funding. Increasing financial inclusion also act as an instrument to reduce marginal cost of producing outputs, which contributes to greater pricing power of banks and makes them more stable. As greater financial inclusion promotes stable socio-political environments, banks operating in an inclusive financial sector and in countries with high levels of institutional quality can improve stability as they get to operate efficiently in those settings. The findings suggested that banking stability is strongly influenced by then degree to which households and SMEs have access to financial services, indicating the importance of ensuring an inclusive financial sector for achieving inclusive economic growth. By broadening banking services to unbanked and/or underbanked people, bank managers can not only take early advantage of exploiting the untapped potential of customers and create a “lock-in” effect but also aid an inclusive development agenda while allocating resources in more productive areas.

Financial inclusion has a strong positive effect on household income. This effect can be found across all households with different levels of income. The quantile regression approach shows that low-income households benefit more from financial inclusion than richer ones. Zhang and Posso (2017) argued that, as a result, financial inclusion could help reduce poverty and vulnerability and improve income inequality. Policy-makers and regulators must continue to promote financial inclusion in many ways so as to improve household welfare and reduce income inequality.

### **3. Impact of financial inclusion on economic growth – empirical evidence**

There are numerous research on financial inclusion impact on economic growth, showing the positive correlation between these two constructs. Several multi country researches show that financial inclusion results in a positive effect on economic growth. According to results of Kim, Yu, and Hassan (2018), Andrianaivo and Kpodar (2011), Balach, Law, and Habibullah (2016), Dabla-Norris *et al.* (2014), financial inclusion plays a vital role in a strong structure of financial system.

The study of Kim, Yu, and Hassan (2018) for a period 1990-2013 in a sample of 55 OIC (Organisation of Islamic Countries) countries showed a positive relation between financial inclusion and growth of OIC countries. The results indicated that the high level of financial inclusion is an essential factor toward generating economic growth. There was evidence of the close positive relationship between financial inclusion and economic growth in OIC. The researchers explored the World Bank's GFDD, WDI, and IMF's FAS data related to financial inclusion and economic growth. These data showed the obvious positive relationship between financial inclusion and economic growth in OIC countries. From the analysis results, it can infer that the level of financial inclusion is a critical factor for economic growth in OIC countries and these results can broaden the understanding of the relationship between financial inclusion and economic growth in OIC countries for scholars and policymakers.

Andrianaivo and Kpodar (2011) investigated whether financial inclusion affects growth in 44 African countries. The results showed the positive and significant effect on growth and revealed that a well financial sector has positive role on economic growth. Balach, Law, and Habibullah (2016) used bank branches per 100,000 adults and ATMs per 100,000 adults as an indicator of financial inclusion to assess if it has any effect on growth economy for 97 cross section countries for the

period 2004-2012. The results confirmed the positive effect on growth for both proxies. Ganti and Acharya (2017) argued that, financial inclusion boost growth compared with demand following approach. Likewise, the study by Demircuc and Klapper concluded that the countries where bank branches as well as deposit are high obviously, the income level also increase rapidly. This indicated that the higher financial inclusion in a given countries boost high growth economy. However, in this study the high number of branches and banking account was observed more in advanced economy rather than low and middle countries.

Dabla-Norris et al. (2014) used a general equilibrium model to illuminate how lowering monitoring costs, relaxing collateral requirements and thereby increasing firms. The result confirmed that for a high extent access to credit would increase economic growth. In Nigeria, Omojolaibi (2017) found that the financial inclusion is significant factor for generating per capita GDP and poverty reduction. Aduda and Kalunda (2012) confirmed that access to finance for household definitely has a strong positive significant relation with growth. Beck, Demirgüç-Kunt, and Martinez (2007) reported that, the rising number of bank also generate efficiency among the banks and growth economy as whole. Khan (2011) demonstrated that the accessibility on financial services boost the economic activities as well as employment opportunities at rural households in India.

Other individual countries research (Swamy, 2010; Chattopadhyay, 2011; Dixit & Ghosh, 2011) also confirmed positive link between financial inclusion, economic growth, and poverty reduction, where it was showed that tailored made and accessible financial services and products increase the usage of them by people from lower income groups.

#### 4. Impact of financial inclusion on poverty alleviation – empirical evidence

Besides accelerating economic growth, a large body of empirical literature on finance suggests that developing the financial sector and improving access to finance (better financial inclusion) may reduce income inequality and poverty. There is a number of empirical studies that confirm positive relationship between the financial inclusion and poverty reduction, i.e. in developing Asia (Park & Mercado, 2016), Sub-Saharan Africa (Mohammed, Mensah & Gyeke-Dako, 2017), India (Arun, Imai & Sinha, 2006), Nigeria (Hussain & Chibuzo, 2018), Mali (Amadou, 2018), *etc.*

Using broad cross-country sample Beck, Demirgüç-Kunt, and Levine (2004) found that financial development reduces income inequality where countries with better-developed financial intermediaries experience faster declines in measures of both poverty and income inequality. Arun Imai, and Sinha (2006) as well as Hussain and Chibuzo (2018) revealed that microfinance positively moderate the relationship between the variables under studies.

Burgess, Pande, and Wong (2005) found that the rural branch expansion policy of India significantly contributed in removal of poverty from rural areas. In addition, a developed financial system allows a large access to funds, while in an under developed financial system, access to funds is restricted and people are constrained by the availability of their own funds and have to resort to high-cost informal sources such as moneylenders. The developed financial systems also encounter difficulties in serving low-income groups for financing their consumption and other needs.

Financial inclusion can bring many welfare benefits to individuals. Yet we know very little about the factors underpinning financial inclusion across individuals and countries. Using data for 123 countries and over 124,000 individuals, Allen *et al.* (2016) tried to understand what factors are correlated with the use of formal accounts and what policies are especially effective among those most likely to be excluded. They found that greater financial inclusion is associated with a better enabling environment to access financial services, such as lower banking costs and greater proximity to branches. Stronger legal rights and political stability also matter for inclusion. The

effectiveness of policies to promote inclusion varies depending on the characteristics of the individuals considered. In general, policies appear to be relatively less effective in encouraging account use by women and youth. The authors also studied the factors associated with perceived barriers to account usage among those who are financially excluded. Those who are financially excluded reported lower barriers to account use in countries with lower costs of accounts and greater penetration of financial service providers. It was also found that among those who report lack of money as the main barrier to account use, government policies to promote inclusion can increase the likelihood that individuals perceive that financial services are within their reach. Overall, results suggested a role for policy to expand the pool of eligible account users and increase account use to save and with higher frequency.

## 5. Concluding remarks

In the last few decades financial inclusion and financial sector development are core objectives of many developing countries since research findings show positive link between financial inclusion and economic growth as well as between financial inclusion and poverty alleviation. This literature review shows casual links between financial inclusion, economic growth, and poverty reduction. Financial inclusion can therefore be seen as an accelerator of economic progress and can help realize national objectives of building prosperity.

Furthermore, fast growing literature show that there are many challenges in financial inclusion in terms of bringing the gap between financially excluded (both households and small entrepreneurial firms) and formal financial system. Bridging that gap with formal financial system providing both affordable financial products and/or services, strengthening credit delivery mechanisms, and providing financial literacy and education would improve economic growth.

Also, it is shown that majority of available research partially analyze variables affecting increase in financial inclusion and therefore, directly and indirectly, impact economic growth. As concluded by Baker and Solung (2018), a multidimensional approach using variables on access, usage, and barriers to financial inclusion might provide broader insight into effects of financial inclusion on growth and poverty reduction. Additionally, this would better inform policy makers what are more appropriate strategic action to strengthen financial system in order to reduce poverty and generate economic growth.

Moreover, we found research gap in terms of research on financial inclusion and economic growth in European countries, and more specifically South-east European countries. In that respect, we suggest more country specific and region-specific research that would provide more precise policy recommendation tailor-made for specific country taking into the consideration the specific of financial system and other demographic characteristics of countries for which the recommendations are being produced.

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## THE SUSTAINABILITY AND DESIRABILITY OF A CURRENCY BOARD ARRANGEMENT WITH REFLECTIONS ON BOSNIA AND HERZEGOVINA'S CURRENCY BOARD

### ODRŽIVOST I POŽELJNOST VALUTNOG ODBORA I OSVRT NA VALUTNI ODBOR U BOSNI I HERCEGOVINI

#### Abstract

*A currency board arrangement (CBA) is a monetary regime under which a country fixes its nominal exchange rate to some foreign currency and maintains 100 percent backing of its monetary base with foreign exchange. Although it is known for its success in achieving monetary stability, a CBA also imposes constraints that may obstruct economic development, especially when the economy is hit by a shock. Therefore, the question about its desirability and sustainability arise. This paper analyses the concepts of sustainability and desirability of a monetary regime/policy and the main features in the context of a CBA as a specific monetary regime. The aim of the paper is to investigate the main issues regarding the desirability and sustainability of the CBA in Bosnia and Herzegovina (BiH) in the medium- and long-term and to offer arguments for and against retaining a regime. Our analysis implies that CBA in BiH has been successful in achieving monetary stability and therefore contributed to overall stability in the economy. However, there are some other features in the economy that potentially might affect sustainability of CBA in the long-term, but we do not consider a switch to another monetary regime to be more appropriate in the current circumstances in BiH, as potential political pressures and uncertainties that might arise with more flexible regime are likely to undermine monetary stability as well.*

**Keywords:** sustainability, desirability, currency board, BiH

**JEL:** E52, E58

#### Sažetak

*Valutni odbor je monetarni režim u kojem zemlja fiksira nominalni devizni kurs svoje valute za stranu valutu i drži 100% pokriće monetarne baze u toj stranoj valuti. Iako je poznat po uspjehu u održavanju monetarne stabilnosti, valutni odbor također uspostavlja ograničenja koja mogu ometati ekonomski razvoj, posebno u slučaju kada je ekonomija pogođena šokom. Zbog toga, postavlja se pitanje njegove održivosti i poželjnosti. Ovaj rad analizira koncepte održivosti i poželjnosti monetarnog režima/politike i osnovne elemente u kontekstu valutnog odbora kao specifičnog monetarnog režima. Cilj rada je da ispita glavne determinante poželjnosti i održivosti valutnog odbora u Bosni i Hercegovini (BiH) u srednjem i dugom roku i ponudi argumente za i protiv zadržavanja režima. Naša analiza implicira da je valutni odbor u BiH bio uspješan u postizanju monetarne stabilnosti i tako doprinio ukupnoj stabilnosti ekonomije. Iako smo u radu identificirali da postoje nestabilnosti u ekonomiji koje potencijalno mogu ugroziti održivost i poželjnost valutnog odbora*

*u srednjem i dugom roku, ne smatramo da bi napuštanje režima bila dobra opcija u trenutnim okolnostima u BiH, s obzirom na to da bi politički pritisci i neizvjesnosti koje bi donio fleksibilniji režim mogli ugroziti monetarnu stabilnost.*

**Cljučne riječi:** održivost, poželjnost, valutni odbor, BiH

**JEL:** E52, E58

## 1. Introduction

A currency board arrangement (CBA) is defined as a monetary regime under which a country fixes its nominal exchange rate to some foreign currency and maintains 100 percent backing of its monetary base with foreign exchange. It is usually introduced in countries which need to achieve macroeconomic stability and credibility and which are in the process of transition to market economy and/or have desire to further integrate with a country to which they are pegging their currencies. Although it is known for its success in achieving these desired goals a currency board also imposes constraints and threats that may obstruct economic development, especially when the economy is hit by a shock, and consequently question desirability and sustainability of the regime. This paper analyses the concepts of sustainability and desirability of a monetary regime and the main features in the context of a CBA as a specific monetary regime. CBA is introduced in four European countries in late 1990s as a transitory regime. However, all countries kept the regime and two of them entered the Eurozone (EMU) without changing the regime prior the entrance. Bosnia and Herzegovina (BiH) adopted the regime in 1997 and its accession to the EMU seems like a very long-term goal, as it still does not even have a European Union candidate country status. Therefore, the question about its desirability and sustainability in the medium- (and long-) term is raised. Studies which investigated these issues in BiH focused only on some issues of sustainability and desirability. This paper aims to offer broader overview by investigating the main features of sustainability and desirability of CBA in BiH based on which the arguments for and against retaining a regime prior to accession to EMU are evaluated. In Section 2 we develop the interrelated concepts of sustainability and desirability of a monetary regime/policy, with a focus on CBA. In Section 3 we critically assess studies which investigated sustainability of a CBA and in Section 4 we analyse sustainability and desirability features of BiH's CBA.

## 2. The sustainability and desirability of a monetary regime

The term sustainability is usually related to a concern for the future and the ability to adjust to shocks (Hlivnjak, 2011). However, there are many explanations of the term and the preferred definition depends on the topic being investigated. In this paper the term will be defined in the context of monetary policy and then related specifically to a CBA in the context of the country of interest. Only a few studies examine the sustainability of a monetary regime and most of these investigate only one or two features of sustainability. Although it is difficult to integrate all of the features into one model, these should at least be identified and separately assessed. According to previous analyses, there are three categories of factors that are likely to affect the sustainability of a monetary regime: market perceptions/expectations about the maintenance of a specific monetary regime and its target(s) (the monetary authority's credibility) (Ferderer, 1998; Mulino, 2002); performance of economic fundamentals (Ho C. & Ho W., 2009) and exposure to shocks and ability to react to shocks (Sepp & Randveer, 2002). These categories are interrelated and interdependent (see Figure 1). Thus, the sustainability of a monetary policy (and a CBA specifically) may be defined as the capability of the monetary authority to maintain their announced policy (which under a CBA is the maintenance of a fixed exchange rate) in the medium-to-long run<sup>1</sup>, while sustaining economic stability in the country. The latter is especially important in the case of limited monetary discretion, such as under a CBA, since such a regime is not likely to be desirable, and consequently sustainable, if macroeconomic performance is unfavourable or the economy is exposed to large

and/or frequent shocks and there are no effective tools/mechanisms in the economy which could help the adjustment. There is no universally accepted definition of desirability either. One can argue that a monetary regime is desirable when: utilization of a specific monetary regime generates a better effect on macroeconomic stability and performance compared to other monetary regimes, taking into consideration the specific circumstances in the country. Desirability of a CBA is especially related to the existence of “other tools” which could be used as buffers and stimulators in the economy. Since monetary policy under a CBA is restricted, flexibility and economic “soundness” are needed, namely flexibility of prices and wages together with “soundness” of the financial sector and fiscal policy. Beside these, under a CBA, the automatic adjustment mechanism between the balance of payments and monetary base (or, more broadly, the money supply) should restore balance in the economy after a shock. However, the existence of this mechanism in modern CBA countries is, as noted by Desquilbet and Nenovsky (2007, p. 20), “disputable: theoretically not completely consistent and empirically unproved”. One more important “tool”, in the context of transition countries, is the support and intermediation of the international community, which “comes to the rescue” when all other buffers within the economy are inefficient. From the above it could be perceived that the concepts of desirability and sustainability intertwine and it is difficult to separate the two, as shown in Figure 1.

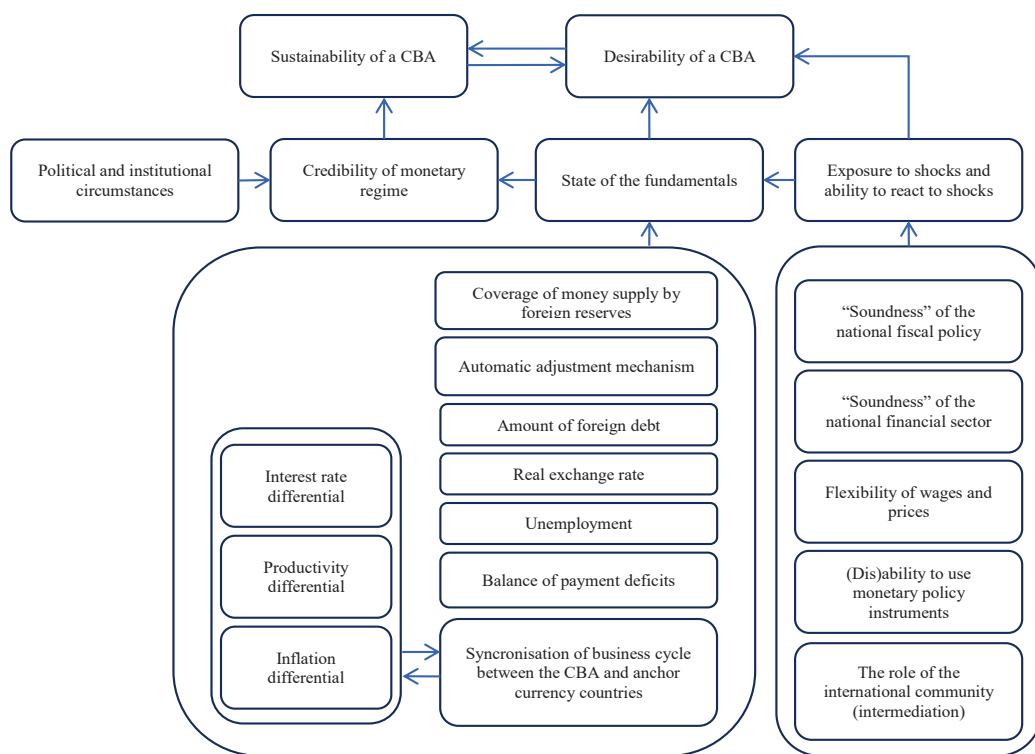


Figure 1. Sustainability and desirability of a CBA

Source: Authors' illustration

As noted by Sepp and Randveer (2002, p. 21), a CBA's sustainability "also depends on the ability of the real economy to function reasonably well under such exchange rate regime". This is an important issue since, it is still commonly accepted that monetary policy is the macroeconomic policy that should ultimately be responsible for macroeconomic stability and growth, even when that is not its primary goal. If it focuses on fulfilling only its primary goal(s) this may undermine

economic growth if, for example, the nominal exchange rate is overvalued, current account deficits persist and business cycles are not synchronised between the domestic and anchor currency countries. Moreover, it is usually argued that persistent (and high) unemployment may undermine the sustainability of the CBA, since a central bank or government is more likely to come under pressure to abandon the CBA in favour of an expansionary policy to stimulate growth and lower the unemployment rate. The interconnection between desirability and sustainability of a CBA exists in another direction as well: a CBA should provide high credibility for the monetary authority, which is usually argued to be the main pre-condition for its sustainability and consequently it may increase stability that then increases its desirability. The issue of stability, which should be increased by CBA, is especially important for transition countries with political problems. It is a combination of all of the above factors that will ultimately determine the CBA's sustainability. To our knowledge, none of the existing studies considers all these factors in assessing a CBA's sustainability and desirability. Accordingly, after assessing previous studies that investigate some of the sustainability and desirability features most of the features from Figure 1 are assessed for BiH and a more comprehensive analysis and approach for the case of BiH is proposed.

### **3. A critical assessment of studies investigating the sustainability of a currency board arrangement**

As noted in the previous section there are different definitions and aspects of a monetary regime's sustainability. There are also different approaches to assessing the regime's sustainability. Only few studies conducted an empirical research, with most studies assessing a CBA's sustainability in a specific country by observing the performance (flexibility) of other policies in that country. In this section we will critically assess these studies in order to identify different features of CBA's sustainability as well as the different measures applied.

Kahmi and Deheija (2006) analysed trends in the main macroeconomic variables in BiH after the introduction of the CBA and based on these trends concluded that the introduction and maintenance of BiH was justified. However, since this was the period of recovery after the war these trends cannot be assigned to the implementation of the CBA. They also identified a lack of solid legal and regulatory infrastructures and the lack of political cohesion as the major potential threats to its sustainability. Kristić (2007) identified some other potential threats, such as the persistent current account deficit and more rapid growth of wages than productivity, mainly driven by the high rise of wages in the public sector. Despite this conclusion, she argued that fiscal policy was prudent. The same conclusion was drawn by Kahmi and Deheija (2006). They based this conclusion only on an observation of the trend in the fiscal balance and did not consider other relevant fiscal factors. Moreover, both studies fail to identify some other potential threats to CBA's sustainability, such as high unemployment persistence and lack of funds for development. The common approach to empirically investigating a CBA's sustainability is by analysing the differences in the interest rates in the CBA and anchor-currency countries. Those differences are likely to place devaluation/appreciation pressures on the domestic currency and are argued to be direct estimates of the probability of a devaluation/appreciation and thus thought to be good proxies of a regime's credibility (Jeanne & Masson, 2000). As the pressure on maintaining a CBA observed through the probability of currency devaluation is not directly measurable, Ho C. and Ho W. (2009) used the expected rate of depreciation as an indicator of devaluation pressure, which they also proxied by the interest rate differential between the domestic countries and the anchor currency country. However, one may argue that the devaluation pressure may also come from differences in productivity growth or inflation rates between the CBA and the anchor currency country, as well as from a high variation in the exchange rate between the CBA country's currency and currencies of trading partners other than those to whose currency the CBA's currency is pegged. Some studies investigate sustainability based on investigation credibility of monetary authority. The credibility of a monetary authority is usually identified as an important feature, since there is a "prevailing

opinion that economic policies are more effective if they are credible to private economic agents” (Blackburn & Christensen, 1989, p.1). These expectations are likely to be firmer in countries with a CBA than in countries with fixed exchange rate regimes since, under a CBA, it is harder to deviate from a fixed rate since the rule of a fixed rate is embedded in law and the costs of changing legislation are argued to be high. Begović, Adnett, and Pugh (2016) investigate credibility of central bank which operates under a CBA in BiH and Bulgaria by assessing its effect on expectations about the currency’s stability and their empirical analysis implies that this regime is highly effective in increasing favourable perceptions and expectations, especially when trust in government is low. However, this subjective data approach should be supplemented by evaluation of other non-monetary issues which could undermine CBA’s sustainability in the long term. Finally, the most comprehensive approach is applied by Sepp and Randver (2002). They analysed aspects of the sustainability of the Estonian CBA using two methods by looking at the outcomes of shock-simulations and then at how the economy had actually “coped with shocks”. Their simulation analysis suggested that external shocks did not cause a divergence of the Estonian economy from its “long-run” path. They argued that observations of the real (and financial) sectors in Estonia during and after the crises are a good test of the sustainability of the CBA (especially from the perspective of the viability of the financial sector). They further observed changes in the money supply, forward market, interest rates and credit growth during and after the Russian crisis. The need for “soundness” and flexibility of fiscal policy, flexibility of prices and wages and “soundness” of banking system were emphasised as highly important conditions for the stability/sustainability of the CBA. One aspect missing from this “comprehensive” study is the neglect of the importance of public beliefs and expectations regarding the credibility of the monetary authority, which can threaten the sustainability of the CBA even when the fundamentals are “sound”. Moreover, they did not discuss the effect of unemployment on the sustainability of the CBA which, if persistent, is argued to be potential reason for decreased credibility of the monetary authority (Drazen & Masson, 1994; Mulino, 2002) and may consequently undermine a CBA’s sustainability. Sustainability and desirability features identified in this section and Section 2 will be investigated in the context of BiH in the next section.

#### **4. Assessing desirability and sustainability features of the currency board arrangement in Bosnia and Herzegovina**

One of the features for CBA’s sustainability is 100% coverage of monetary base in foreign reserves. This requirement has been satisfied since the introduction of CBA in BiH. In the last 10 years the coverage has been around 110% (Figure 2). In 2016 The Centre for civic initiatives in their “State of nation” noted that more than half percent of money supply in BiH is not covered in euros, “which undermined the stability of the local currency”. However, the statement about currency’s stability cannot be based on money supply-foreign reserves ratio. This ratio has been between 40 and 50 percent, which is much higher than IMF’s suggested baseline for reserve adequacy of 20%, and average 30% in emerging market economies (IMF, 2015) and it is among the largest coverages in the region. Therefore, we consider this requirement to be fulfilled and not in any case a threat for currency’s stability on its own.

As noted in Section 3, some studies which investigated the credibility of monetary regimes used interest rate differentials relative to the anchor (or some credible) monetary policy (Arestis & Mouratidis, 2005; Ho C. & Ho W., 2009), as a “good proxy for expected devaluation and hence for the lack of credibility of fixed parities” (Drazen & Masson, 1994, p. 744). However, this cannot be conducted for BiH since it has no money market. As an alternative we compare lending interest rates in BiH and Euro area, even though these are not directly comparable. Figure 3 shows that there is presumably no high level of convergence if we observe the period 2008-2011 and some convergence for the period after. The rates are higher in BiH, but considering the difference in country risk this is expectable (according to Standard and Poor’s BiH country risk has been

assessed as highly speculative, while none of the EMU countries, except Greece, have had this low rank).

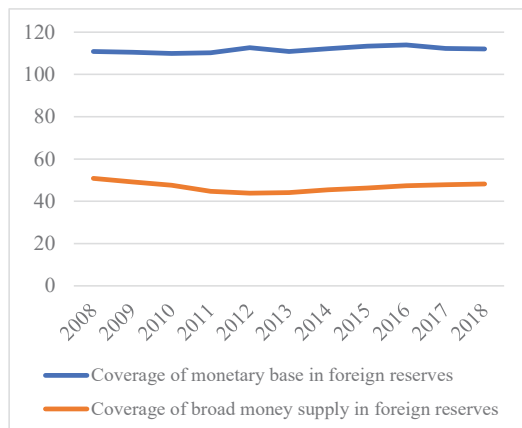


Figure 2. Coverage of monetary base and money supply in foreign reserves in BiH  
Sources: Central bank of BiH

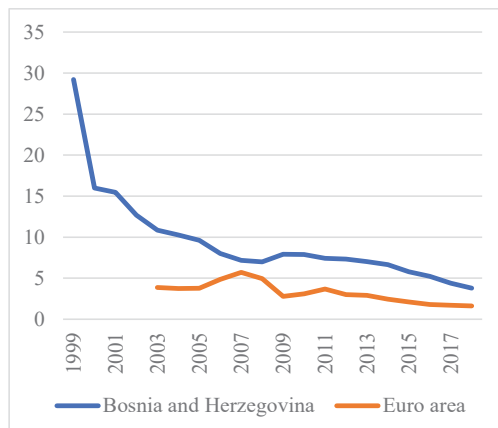


Figure 3. Lending interest rates in BiH and Euro area  
Source: World Development Indicator and Euro area Stat.

Ferderer (1998) and Mulino (2002) emphasised that the gain in credibility should be represented by the extent to which the announced policies influence expectations about future policy. Begović, Adnett, and Pugh (2016) measured credibility by the subjective residents' attitudes regarding their currency's stability found positive effect of BiH's and Bulgaria's CBA on these attitudes. This approach can be considered advantageous compared to previous approaches since it directly reflects expectations without the need to use any proxies for expected exchange rate changes. When observing the key macroeconomic variables, it should be emphasised that the persistent deficit of the current account (Figure 4) and high and persistent level of unemployment<sup>2</sup> (Figure 5) could potentially undermine BiH's CBA's sustainability. A persistent current account deficit puts pressure on the domestic currency, potentially signalling an overvalued exchange rate and uncompetitive export goods. This, together with low level of foreign investment (foreign net inflows in 2018 were 2.5% of GDP) and decreasing foreign aid, as well as the persistent and high unemployment and inflexibility of BiH's labour market (for detailed analysis on inflexibility of BiH labour market see Jusić and Numanović, 2015), also raises the question of the CBA's desirability and sustainability, since in this regime monetary policy cannot be used to stimulate economic growth.

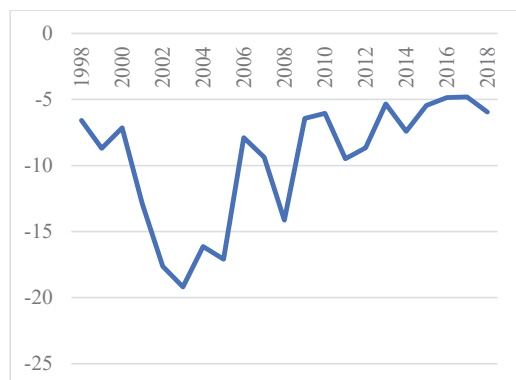


Figure 4. Current account balance to GDP  
Source: World Economic Outlook

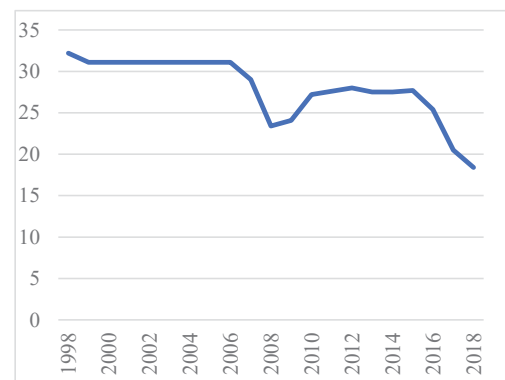


Figure 5. Unemployment  
Source: World Economic Outlook

The share of public sector employment has been high (30.2% in 2015, while the OECD average is 22%) and well as their wages, which undermines development of private sector and productivity and consequently overall economic activity and growth. Ratio between the average wage in the public administration and average wage has been the highest in the region (1.42 in 2015, while it was 1.16, 1.10 and 1.07 in Macedonia, Serbia and Montenegro, respectively) (Vladislavljević Narazani & Golubović, 2017) which points to inexistence of necessary flexibilities in the economy, which could mitigate the effects of shocks. Inability to smooth shocks could also be observed by comparing inflation rates in BiH and EMU (Figure 6). By comparing trends in inflation rates between BiH and EMU we can see that, although the trends are similar, the peaks are higher in BiH, as the country has no resources to absorb these shocks. Moreover, there has been divergence in the productivity, measured as unit labour costs (Figure 7). However, by comparing trends in GDP growth we can see that the cycles are quite synchronised (Figure 8).

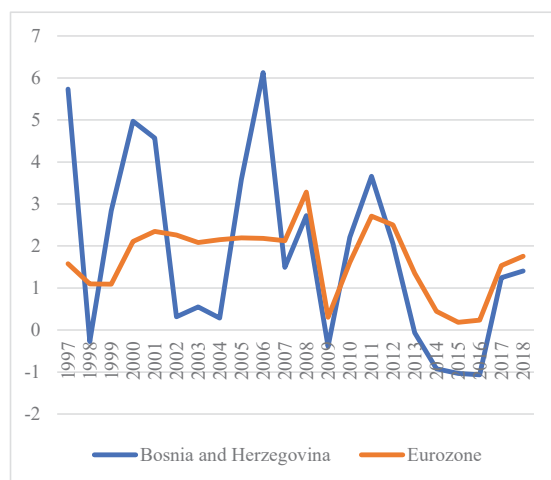


Figure 6. Inflation rate in BiH and EMU

Source: World Economic Outlook; Statistical Data Warehouse

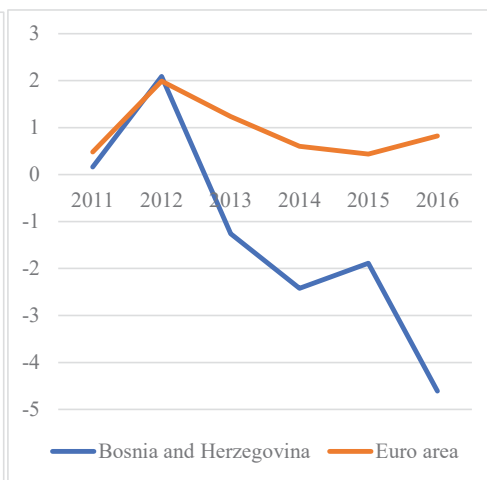


Figure 7. Productivity³ in BiH and EMU

Source: SEE jobs gateway and OECD

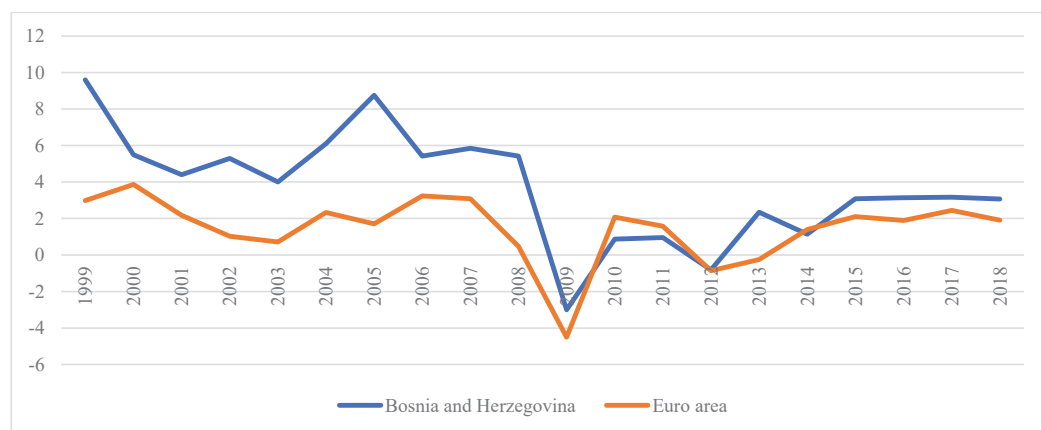


Figure 8. GDP growth in BiH and EMU

Source: World Development Indicator

The “*soundness*” of the financial sector can be assessed by its stability, ability to stimulate the economy, and to absorb shocks. The financial sector in BiH is bank-centric (the share of banking assets in total financial assets in 2017 was 88.3%) and can be considered as stable, but it is not stimulating the economy, since it is under-developed and credit growth is slow. Moreover, the depth of financial sector is quite “shallow” compared to more developed countries (Figure 1A in Appendix). The basic features of banking sector in BiH are presented in Table 1A in Appendix. Even though ratio of non-performing loans (NPLs) in total loans has been decreasing since 2014 (for NPLs longer trend see Figure 2A in Appendix) it is still considered to be high.

Most banks are foreign banks (80%) and not focused on development of the economy, but solely on their profits. Small and medium sized enterprises (SMEs) continue to have limited access to credit, which is associated with high cost and stringent conditions. Alternative financing sources for SMEs are limited and this is limiting for economic growth as the role of SMEs in economic activity is quite high: in BiH SMEs account for 99% of total number of enterprises and are responsible for 66% of total employment (OECD, 2016). According to OECD’s (2018) Competitiveness Outlook BiH has the lowest score for access to finance in the region (on a scale from 1 to 5, where 1 is the worst BiH has a score of 1.9) and on 60<sup>th</sup> place (out of 190 countries assessed) when it comes to the ranking of getting credit component of World Bank’s (2019) Doing Business assessment. According to World Economic Forum’s (2018) The Global Competitiveness Report BiH’s financial system is ranked 83<sup>rd</sup> (out of 140 countries from all over the world) again the worst performer in the region (except Albania, which is on 105<sup>th</sup> place).

As noted in Section 3, Kristić (2007) and Kahmi and Dehejia (2006) assessed BiH’s fiscal policy as prudent, given that government debt and budget deficit are not high (see Figures 3A and 4A in Appendix). However, *fiscal policy* in BiH is heavily constrained, and poses a question about its ability to fulfil a role as both a stimulator and buffer in the economy. Firstly, public revenues are low due to high percentage of “grey” economic activities, while, on the other side, requirements for public expenditures are high. Consequently, the funds needed for the economic growth are limited internally and foreign borrowing is also limited, due to low country risk and questionable potentials for servicing debt. Secondly, the high proportion of social benefits and extensive public administration expenditures do not provide a foundation for a sustainable fiscal policy. Third, international institutions, such as the IMF, impose strict rules on fiscal policy, but, international institutions also provide some of the additional funds necessary for growth in an economy with low domestic public revenues and savings. Finally, the political situation in BiH is very complex and political institutions are perceived to be of low quality and high corruption. According to World Bank’s World Governance Indicators (WGI) which assess voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption indicate that BiH has had the lowest rank in the region (Figure 5A in Appendix).

A further role of *the international community* is as a buffer, which could be observed through its initiative at the beginning of the financial crisis in 2008. Namely, when “mother” banks started withdrawing funds from their subsidiaries in BiH action orchestrated by the IMF mitigated this process that would have put downward pressure on the financial sector and the whole economy. This would most likely have led to a decrease in trust in the financial sector and people would start withdrawing money from banks, and potentially converting their domestic into foreign currency, which would ultimately undermine confidence in the local currency and consequently the CBA’s sustainability. Therefore, since central bank is constrained in its function of lender of last resort, the role of international community still plays an important role.

## 5. Conclusion

Since the end of the war BiH has implemented CBA as its monetary framework. It was introduced as a transitional regime that was aimed at facilitating the process of recovery and early transition. However, 22 years later it is still in operation and its sustainability and desirability, especially in turbulent periods and with the low ability of BiH's economy to counter shocks, should be examined. Studies investigating the CBA in BiH are relatively scarce and they usually address just few issues of its sustainability and desirability. In this paper we noted interrelations between desirability and sustainability of CBA and their potential determinants. The features that may affect CBA's desirability and sustainability have been identified through a critical assessment of studies that addressed this issue. These features are assessed for BiH's CBA based on evaluation of their trends and descriptive analysis, which gives an overall comprehensive framework for the assessment of BiH's sustainability and desirability.

According to our analysis CBA in BiH fulfilled its main task of holding the currency stable by keeping an adequate level of reserves and through compliance with strict monetary rules. However, there are other factors, outside the monetary policy area, that could potentially threaten its sustainability and desirability. The analysis suggests that there are inflexibilities in fiscal policy, as well as in prices and wages in the economy that may potentially undermine the CBA's sustainability and desirability. The analysis also stresses out the importance of international intermediation for mitigating shocks. During the global financial crisis in 2008 the BiH's central bank could not mitigate the shocks or stop withdrawals of money from BiH subsidiaries, both those by residents and the foreign parent banks and international intermediation was important to stop further withdrawals.

However, we do not presently suggest abolition of the CBA in BiH, since its operation contributes to the increased credibility of the monetary authority and consequently assists overall macroeconomic stability. A switch to another monetary regime would not be more appropriate in the current circumstances in BiH, as potential political pressures and uncertainties that might arise with more flexible regime are likely to undermine monetary stability as well. Under these circumstances we can only advocate somewhat more flexible CBA in BiH. These flexibilities might go in the direction of developing buffer mechanisms for the periods of crisis. These buffers could be provided from the share of reserves in the central bank that exceeds 100 percent backing of the monetary base, and could be used as a support for financial institutions during the periods of crises (i.e. a limited lender of last resort function), but under a strictly defined rules (so that it is not misused by politicians). This would provide more security to banks and could also potentially stimulate them to lend more domestically. However, these conclusions are only a baseline and could not serve for making policy implications. Further detailed empirical assessment, which would account for all identified features, is needed. Unfortunately, this is currently not possible as there is no reliable macroeconomic model of the BiH economy for conducting simulations in order to observe the effect of the alternative regimes and the effect of potential external shocks on real economy.

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## APPENDIX

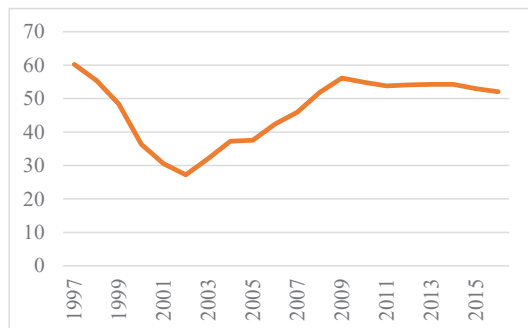


Figure 1A. The depth of financial sector  
(measured as private credit to GDP)

Source: Financial Development and Structure Dataset

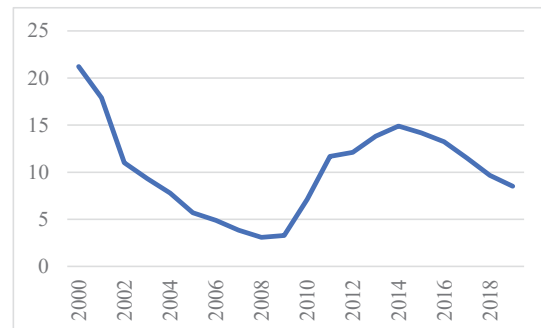
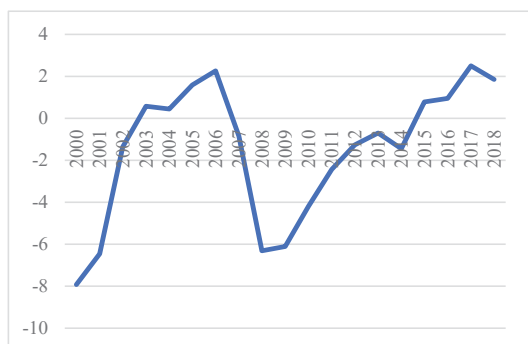


Figure 2A. Ratio of NPLs in total loans

Source: Graph based on the data from CBBiH website



3A. General government structural balance

Source: World Economic Outlook Dataset

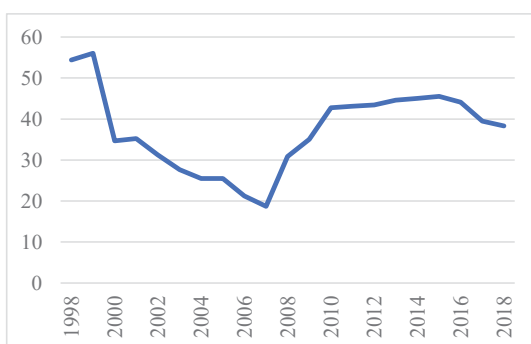


Figure 4A. General government gross debt

Source: World Economic Outlook Dataset



Figure 5A. World Governance Indicators in BiH and neighbouring countries in 2018

Source: World Bank, World Governance Indicator<sup>4</sup>

Table 1A. *Basic features of banking sector in Bosnia and Herzegovina*

	2012	2013	2014	2015	2016
Regulatory capital (EUR million)	1439.29	1531.32	1415.26	1352.88	1477.12
Total weighted risk (EUR million)	8462.90	8581.52	8702.70	8992.09	9333.63
Capital adequacy rate	17.00	17.80	16.30	15.00	15.80
Total loans (EUR million)	7778.28	8041.60	8131.07	8414.84	8605.04
Ratio of non-performing to total loans	13.50	15.10	14.20	13.70	12.00
Net profit/loss	64.42	-19.94	73.63	35.79	111.97
Return on equity	4.90	-1.40	5.20	2.40	7.00
Liquid to total assets	25.40	26.40	26.80	26.40	27.00
Liquid assets to short-term financial liabilities	44.10	46.20	46.10	44.00	44.10

Source: Data from CBBiH, Financial stability reports 2013, 2015, 2017

<sup>1</sup> For European transition countries this „medium-to-long run“ period can be argued to be the period until EMU accession.

<sup>2</sup> Even though there has been a decrease in unemployment rate it is still high compared to EU average (which was around 7% in 2018) and decrease in the level of unemployment is partially result of unemployed people leaving the country

<sup>3</sup> Note: Productivity is measured though unit labour costs in Bosnia and Herzegovina and Euro area. Unit labour costs are calculated as average annual gross wages per employee (cost of labour) relative to unit of output produced.

<sup>4</sup> Data from the website: <https://info.worldbank.org/governance/wgi/Home/Reports> (Accessed: October 9, 2019). Due to space limitations we present here the data only for neighbouring countries and only for 2018, but BiH has been even the worst performer in previous years and compared to other countries from the region.



# MARKETING



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## INFLUENCING FACTORS ON STUDENTS' UNETHICAL BEHAVIOR IN HIGHER EDUCATION

### UTJECAJNI ČIMBENICI NA NEETIČNO PONAŠANJE STUDENATA U VISOKOM OBRAZOVANJU

#### Abstract

*Today, higher education students largely behave unethically if they see an opportunity to do that and if they feel they can control their behaviour. Higher education institutions are faced with this problem and in most cases, they do not resort to any "penalties", restrictions and other measures that would reduce the unethical behaviour of the students. Students' unethical behaviour is the result of many influencing factors. Theory of planned behaviour is used in this paper to determinate which factor(s) have the highest influence on student's unethical intentions and behaviour. The aim of the study was to see if there is a statistically significant difference between factors of the theory of planned behaviour (personal attitudes, subjective norms, perceived behaviour control) and students' intentions of unethical behaviour. The research was conducted on a sample of 622 university students (undergraduate and graduate). Descriptive analysis, multivariate analysis (reliability analysis, cluster analysis, linear regression and correlation analysis) and analysis of variance (ANOVA) were used in the data processing and analysis. The results show a statistically significant positive correlation between the three observed variables of the theory of planned behaviour (personal attitudes, subjective norms, perceived behaviour control) toward unethical behaviour and their future intentions toward unethical behaviour. More than half of the students who were cheating in high school cheat at university as well. A quarter of the respondents behave unethically if they find an easier way to solve the colloquium/exam or use other, unethical methods when writing seminar or graduate paper. All this leads to the fact that the control by the university/faculty is not at a level that would solve these problems and thus reduce the students' future intentions for unethical behaviour.*

**Keywords:** theory of planned behaviour, students, unethical behaviour, higher education, marketing

**JEL:** I23, M31

#### Sažetak

*Studenti u visokom obrazovanju danas u velikoj mjeri se ponašaju neetično ukoliko vide priliku za to te ukoliko smatraju da mogu kontrolirati svoje ponašanje. Institucije visokog obrazovanja suočene su s navedenim problemom i u većini slučajeva ne pribjegavaju "kaznama", restrikcijama i drugim mjerama koje bi smanjilo neetično ponašanje studenata. Neetično ponašanje studenata rezultat je mnogih utjecajnih čimbenika. U radu se koristila teorija planiranog ponašanja u cilju determiniranja koji čimbenik(ci) u najvećoj mjeri utječu na namjere i neetično ponašanje studenata. Dakle, cilj je bilo uvidjeti postoji li statistički značajna razlika između varijabli Teorije planiranog ponašanja (stavova, subjektivnih normi, percipirane kontrole ponašanja) i namjera neetičnog ponašanja studenata. Istraživanje je provedeno na uzorku od 622 sveučilišnih studenata (preddiplomskog i diplomskog studija). Pri obradi i analizi podataka koristila se deskriptivna analiza, multivarijatna analiza (analiza pouzdanosti, klaster analiza, linearna regresija i korelacijska analiza) te analiza varijance (ANOVA). Rezultati su pokazali kako postoji pozitivna statistički značajna razlika između tri promatrane varijable Teorije planiranog ponašanja (stavova, subjektivnih normi, percipirane kontrole ponašanja) i namjera neetičnog ponašanja. Više od polovice studenata koji su varali u srednjoj školi varaju i na fakultetu. Četvrtina ispitanika se neetično ponaša ukoliko pronađu „lakši“ način za riješiti kolokvij/ispit ili ukoliko koriste druge, nedopuštene načine pri pisanju*

*seminarskih/diplomskih radova. Sve navedeno vodi činjenici kako kontrola od strane sveučilišta/fakulteta nije na razini, koja bi rješavala navedene probleme te, samim tim, i smanjila buduće namjere studenata za neetičnim ponašanjem.*

**Ključne riječi:** teorija planiranog ponašanja, studenti, neetično ponašanje, visoko obrazovanje, marketing

**JEL:** I23, M31

## 1. Introduction

Today's education faces many challenges. New and more demanding generations, where pupils and students raise their expectations, new technologies that advance education through new ways of learning, transparency is higher, there more opportunities to learn, but pupils and students rely on technology more and more so the creativity is lost. The education vertical faces increasingly widespread unethical behaviour of stakeholders, primarily by the users of educational services. Given that the paper focuses on higher education, the focus will be on students in the rest of the paper.

Students' unethical behaviour is largely present and higher education institutions are faced with this problem, but they only take certain measures to reduce such behaviour. The problem of students' unethical behaviour has multiple causes, starting from their attitude regarding the unethical behaviour, the environment that affects them and the unethical behaviour is all right in the minds of students as long as they see that it will not be "punished" for it. Students' unethical behaviour is the result of many factors, and precisely due to the above-mentioned the motive for writing this article was to determine which factors influence students' unethical behaviour in higher education and how to reduce the problem. Theory of planned behavior was used which, using three elements, allows to predict students' intentions to behave unethically. To this end, it is necessary to know the attitude regarding the specific behaviour we are interested in, the subjective norms (beliefs about how others in the environment view this behaviour) and how many people believe they can control this behaviour.

The aim of this paper was to determine which factor(s) have the most influence on students' intentions to behave unethically and to find out whether there is a statistically significant difference between the mentioned variables of theory of planned behaviour (personal attitudes, subjective norms, perceived behaviour control) and students' intentions to behave unethically.

On the basis of the above three hypotheses were stated, as follows:

- H<sub>1</sub>: Students' personal attitudes have a positive impact on the students' unethical behaviour intentions.
- H<sub>2</sub>: Subjective norms have a positive impact on students' unethical behaviour intentions.
- H<sub>3</sub>: Perceived behaviour control has a positive impact on students' unethical behaviour intentions.

The second aim of the paper was to cluster respondents regarding their socio-demographic data and individual predictors of the theory of planned behaviour.

## 2. Theoretical framework of the theory of planned behaviour

Theory of planned behaviour is an extended theory of reasoned action which includes perceived behaviour control (Armitage & Conner, 2001, p. 471). The premise of the theory of planned behaviour is that individuals make rational decisions to behave in a certain way based on their beliefs about behaviour and their expected outcome after a certain behaviour (Harding *et al.*, 2007, p. 258). Theory of planned behaviour asserts that intention to engage in a specific behaviour precedes actual engagement in the behaviour. Theory of planned behaviour is a model consisting of

three predictors which influence the intentions of future behaviour. Three stated predictors are: (1) personal attitude, *i.e.* beliefs about behaviour and/or its consequences, (2) subjective norms, *i.e.* others expectations from the environment on my behaviour, and (3) perceived behaviour control, *i.e.* the perceived difficulty or ease of performing the behaviour (Ajzen & Fishbein, 1980; Stone, *et al.*, 2007, p. 41).

### 3. Previous research on the topic

Ajzen (1991) defined attitude as a particular mood that positively or negatively affects a person, institution, object, or event, while Miller (2005) defines individual's attitude as a group of beliefs about a particular behaviour influenced by the same beliefs. Most studies related to students' unethical behaviour in higher education show that there is a positive correlation between students' personal attitude and their future behavioural intentions. In his study, Hardigan (2004) found that mostly female students (56%), older students (58%) and students with higher grade average (51%) have a negative attitude towards unethical behaviour. Štimac *et al.* (2019) used the factor analysis to observe attitudes through two factors (attitudes of students toward cheating by other students and the general attitude of students toward cheating). Both factors showed a statistically positive correlation with the future intent of unethical behaviour ( $r=.105$ ,  $p=.016$  vs.  $r=.492$ ,  $p=.492$ ). Stone *et al.* (2007) and Harding *et al.* (2007) also concluded in their research results that attitude is a strong predictor of unethical behaviour.

Another predictor are subjective norms related to beliefs that a particular person or group of people will approve and support a particular behaviour. Subjective norms are determined by the perceived social pressure of other people from the environment that an individual behaves in a certain way and that the same person will behave accordingly to the motivation of people from the environment. The previous studies have shown that the influence of subjective norms on the formation of future behavioural intentions is generally weaker than the influence of the attitude (Ham *et al.*, 2015, p. 740). Štimac *et al.* (2017) investigated the influence of subjective norms on students' intention to behave unethically. Subjective norms were divided into two categories: the influence of the family on unethical behaviour and the influence of friends on unethical behaviour. In both cases, there was a statistically positive correlation with the intention of unethical behaviour (subjective norms-family:  $r=.385$ ,  $p=.000$ ; subjective norms-friends:  $r=.364$ ,  $p=.000$ ).

Ajzen (1991) expanded the theory of planned behaviour with a predictor of perceived behaviour control. Lin and Chen (2010) believe that observed behaviour control is related to the easiness or difficulty of certain behaviour and that it has a significant effect, with the assumption that it reflects through past experiences along with expected obstacles. McCabe *et al.* (2002) stated in their paper that if a particular behaviour is considered challenging, or if there are certain obstacles to its execution and effectiveness, then the perceived behaviour control becomes an important predictor for behaviour prediction. Štimac (2018) researched the correlation between perceived behavioural control and students' intention to behave unethically, where results in the paper showed a positive statistical correlation between the two aforementioned variables ( $r=.419$ ,  $p=.000$ ).

The growth and development of Croatian higher education were without a long-term strategy, especially after the introduction of the Bologna system. Otherwise, any new system should be preceded by research, but the introduction of the Bologna system was not based on quality (system excellence) but on quantity (increase the number of students, courses, and teachers). "Courses that teaching about differences in interests and preferences of political, economic and ideological values are excluded from the syllabuses" (Filipić, 2014, p. 36, according to Medić, 2012, pp. 1-2). "Topics on moral and social responsibility are no longer current. Instead of encouraging critical thinking, the central mission of higher education is to acquire the skills and knowledge needed to compete in a competitive market" (Filipić, 2014, p. 36, according to Giroux & Searls-Giroux, 2004, p. 234).

The question is how happy are students and other stakeholders in higher education, and whether it affects their potentially unethical behaviour. Some research (Filipić, 2014, pp. 216-218) has shown that most first-year students are the least fortunate (Happiness index is 2.79; 2005/2006). The main reasons for this are the introduction of the Bologna process, intensification of the study process, fear of obligations, *etc.* On the other hand, the Happiness index declined in the last year of study, since they also have a fear of the labor market.

#### 4. Research methodology

As stated earlier, the aim of this paper was to determine which factor(s) have the most influence on students' intention to behave unethically and to find out whether there is a statistically significant difference between the aforementioned variables of theory of planned behaviour (personal attitudes, subjective norms, perceived behaviour control) and students' intention to behave unethically. In addition, the second aim of the paper was to cluster respondents, *i.e.* students regarding their socio-demographic data and individual predictors of the theory of planned behaviour.

The study was conducted on a sample of 622 undergraduate and graduate students. The 622 listed students make up a total of 29% of active students at the Faculty. Table 1 shows the description of the sample, *i.e.* the socio-demographic data of the respondents.

Table 1. *Sample description*

		N	%
Gender	M	225	36.2
	F	389	62.5
Year of study	1 <sup>st</sup>	123	19.8
	2 <sup>nd</sup>	92	14.8
	3 <sup>rd</sup>	161	25.9
	4 <sup>th</sup>	118	19.0
	5 <sup>th</sup>	127	20.4
Place of residence	Village	195	31.4
	Suburb	64	10.3
	Town/city	357	57.4
Student status	Non-paying	516	83.00
	Fully paying	100	16.1
Course	Financial management	143	23.0
	Marketing	102	16.4
	Management	104	16.7
	Entrepreneurial management and entrepreneurship	84	13.5
	Business informatics	64	10.3
Class attendance	0%	1	0.2
	0-25%	11	1.8
	26-50%	36	5.8
	51-75%	151	24.3
	76-100%	419	67.4
Study success (average grade)	2.0-3.0	123	19.8
	3.1-4.0	323	51.9
	Over 4.1	132	21.2

Source: Author's work

The data was collected using an offline method of the survey via a questionnaire in which respondents were familiar with the topic and the aim of the study. The author adopted measurement scales from Stone *et al.* (2009) for the attitude, perceived behaviour control, intention and behaviour and from and Harding *et al.* (2007) for intention, subjective norms and perceived behaviour control.

The questionnaire consisted of three parts. The first part examined attitude, subjective norms, perceived control over behaviour and intentions regarding unethical behaviour in higher education; the second part of the study wanted to know to what extent, when and why respondents (students) cheat, and the last part of the questionnaire was about the socio-demographic characteristics of the respondents. Every scale used in the questionnaire was created taking five-degree Likert scale measurement into account where the respondents had the opportunity to express to which degree they agree, or do not agree, with a particular statement in the questionnaire.

The information obtained was analysed using the statistical software package SPSS version 18.0. Statistical techniques of univariate analysis (frequency distribution, central tendency measures), multivariate analysis (reliability analysis, cluster analysis, correlation analysis and linear regression) and analysis of variance (ANOVA) were used.

#### 4.1. Research results

The results showed disturbing aspects of unethical student behaviour, as following (Štimac *et al.*, 2019, p. 122):

- “62.4% of the study participants were cheating in a secondary school as well;
- 23.5% of the participants in the study are cheating on their exams/preliminary exams (the most common reason is helping a friend or getting a better grade);
- 25.7% of the participants in the study had someone else write their seminar paper for them at least once and 3.4% had their master’s thesis written by someone else. The most common reasons are the lack of time to write the seminar/master’s thesis or their lack of interest for the topic (for seminar papers), and
- 17% of the study participants wrote a seminar paper for someone else at least once and 3.9% wrote a master’s thesis for someone else. The most common reason is the desire to help a friend”.

Multivariate analysis (cluster analysis) was conducted in the paper, which compares units of observation based on their correlation and sorts them into homogeneous groups. The cluster analysis was performed using a two-stage clustering procedure. At the first stage, a procedure similar to the clustering algorithm, k- mean value, and at the second stage modification of hierarchical clustering is carried out (Puška & Beganović, 2016, p. 6). Several socio-demographic variables were included in the cluster analysis, and only statistically significant interrelated variables are presented below. Cluster analysis and ANOVA were used to obtain the following results.<sup>i</sup>

1. Regarding the study year, there were two statistically significant correlations (**PBC**  $F=3.564$ ,  $p=.007$ ; **B**  $F=5.600$ ,  $p=.000$ ). The average silhouette is 1.0 which shows good silhouette measurement of cohesion and separation. The results showed how the first and last (fifth) year of the study believes it's not easy to cheat and behave accordingly. It can be concluded for the first year of study that they are new to the system and have a certain fear of what will happen if they behave unethically, while the fifth year of the study does not engage in unethical cheating-related activities as they are already almost finished with their studies and are more or less familiar with all professors and assessment methods. The second and fourth years of the study have the opposite opinion and are more likely to cheat, copy, plagiarise, *etc.*, while the third year of the study cheats and does not cheat in average.
2. Regarding the place from where the students come from, two statistically significant correlations emerged (**SN**  $F=3.072$ ,  $p=.047$ ; **PBC**  $F=3.337$ ,  $p=.036$ ). The average silhouette is 1.0 which shows good silhouette measurement of cohesion and separation. The results showed that there are three clusters:
  - a. The first cluster encompasses 58% of respondents coming from the city. Students who neither agree or disagree with the perceived difficulty or easiness of performing

- unwanted, unethical behaviour, and have no opinion on the impact of the environment on unethical behaviour are in this cluster.
- b. The second cluster encompasses 31.7% of respondents coming from the village. Students coming from the village have the least support from the environment related to unethical behaviour in higher education, and also believe that it is not easy to cheat, and they do not have the control and necessary skills to cheat.
  - c. The third cluster encompasses 10.3% of respondents coming from suburbs. In this cluster, students feel that they have the support from their environment when it comes to unethical behaviour, but also feel they lack the skills and control in cheating.
3. Regarding the regularity of class attendance in college, there were four statistically significant correlations (**A**  $F=10.902$ ,  $p=.000$ ; **SN**  $F=7.307$ ,  $p=.001$ ; **PBC**  $F=4.946$ ,  $p=.007$ ; **B**  $F=13.309$ ,  $p=.000$ ). The average silhouette is 1.0 which shows good silhouette measurement of cohesion and separation. The results showed that there are three clusters:
- a. The first cluster's size is 67.8% and includes students attending more than 75% of classes. Students feel that it is wrong, and also that it is not easy to cheat, they do not have the support from their environment to cheat so they do not even try to cheat. The reason for this is likely due to that they attend classes so that they do not have any additional need for unethical behaviour.
  - b. The second cluster's size is 24.4% and includes students attending 51-75% of classes. This cluster believes that it is normal to cheat, and they have the support in that which leads them to behave that way, even though they believe that it is necessary to have the necessary skills and control over cheating.
  - c. The third cluster's size is 7.8% and includes students attending 26-50% of classes. This cluster is in complete opposition to the first cluster, and students here behave unethically, they believe that it is all right, and have support from the environment.
4. Regarding the average grade rating, three clusters have emerged which are statistically significant with the following variables: (**A**  $F=5.660$ ;  $p=.004$ ; **SN**  $F=4.989$ ;  $p=.007$ ; **B**  $F=4.351$ ,  $p=.013$ ). The average silhouette is 1.0 which shows good silhouette measurement of cohesion and separation. The results showed the following:
- a. The first cluster encompasses 55.9% of the students with the grade point average between 3.1-4. Said students are average and the grades are average, i.e. they do not agree or disagree on how much the environment has an influence on them, what is their attitude, and whether they behave unethically.
  - b. The second cluster encompasses 22.8% of the students with the grade point average between 2-3. Students with the lowest grade average have the environment's support to behave unethically, and they act accordingly. Their attitude does not show the significant direction towards positive or negative thinking and it is considered that they behave unethically due to that the grades do not matter to them.
  - c. The third cluster encompasses 21.3% of the students with the grade point average above 4.1. Students with the highest grade average believe that it is wrong to cheat, the environment doesn't affect them, but they also do not have environment's support to behave unethically, which proves that they do not move in that kind of circles, and also that they do not behave unethically.
5. Regarding the previous cheating experience, in high school. In this case, two clusters have emerged which are statistically significant regarding the grouped variables. (**A**  $F=42.226$ ,  $p=.000$ ; **SN**  $F=67.393$ ;  $p=.001$ , **PBC**  $F=35.443$ ;  $p=.007$ ; **B**  $F=59.398$ ,  $p=.000$ ). The average silhouette is 1.0 which shows good silhouette measurement of cohesion and separation. The results showed what was expected. Two clusters were obtained, where the first cluster encompasses 36.3% of the students, and students who didn't cheat in high school and also believe that it is wrong as it is not easy and do not even participate in such unethical actions are in this cluster. The second cluster encompasses 63.7% of the students, and students who

cheated in high school and continued to cheat in higher education, and believe that this is normal are in this cluster.

Before examining mutual correlation and performing regression analysis, it is necessary to examine the Cronbach alpha coefficients ( $\alpha$ ) of all observed variables. Items used to measure the constructs and all items were measured on a five-point Likert-type scale. The following is an interpretation of the items used: attitudes toward cheating consist of eight items ( $\alpha=0.781$ ), subjective norms consist of nine items ( $\alpha=0.688$ ), perceived behaviour control consists of six items ( $\alpha=0.789$ ), behaviour consists of nine items ( $\alpha=0.819$ ) and intention consist of eleven items ( $\alpha=0.888$ ). Cronbach alpha coefficient is between 0.688 and 0.888. Only subjective norms have a questionable consistency. Other variables have an acceptable and good consistency which confirms good reliability and stability of the measurement instrument<sup>ii</sup>.

Given that the Cronbach alpha coefficient is acceptable, a method of correlation between observed predictors (attitude, subjective norms, perceived behaviour control) and intention to engage in unethical behaviour was conducted. In addition to that, a correlation between intention to behave unethically and student's real behaviour was studied. The results are shown in the following figure.

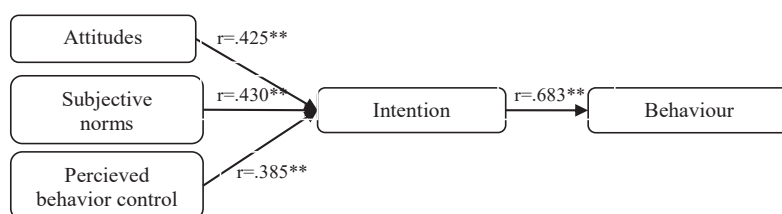


Figure 1. *Correlation between predictors*

Note: \*\* Correlation is significant at the 0.01 level

Source: Author's work

Figure 1 shows the correlation between three observed variables (attitude, subjective norms and perceived behaviour control) towards unethical behaviour and their future intentions towards unethical behaviour. The results showed that there is a statistically positive correlation between the observed variables. Between the perceived behaviour control and intention, there is a moderate positive relationship ( $r=.385$ ,  $p=.000$ ), while among the three relations: attitude and intention ( $r=.425$ ,  $p=.000$ ), subjective norms and intention ( $r=.430$ ,  $p=.000$ ) and intention and behaviour ( $r=.683$ ,  $p=.000$ ) there is a strong positive relationship (Statistics How To, 2019). As previously conducted correlation analysis, which showed how statistically there is a positive significant correlation between the observed variables, regression analysis was also carried out, as shown in Table 2. Regression analysis is used in order to determine the correlation between the observed variables, i.e. the effect of the dependent variables on the independent variable. The influence of individual predictors on the intentions of unethical behaviour was determined by regression. The model explains the total of 29% of the variance in the intentions toward unethical behaviour.

Table 2. *Linear regression model*

Predictor variables	$\beta$	t-value	Significance (p)	Model summary
Attitudes	.257	6.088	.000	R = 0.540 R <sup>2</sup> = 0.291 F = 71.078
Subjective norms	.223	5.083	.000	
Perceived behavior control	.224	5.541	.000	
a. Dependent variable: intentions toward unethical behaviour				

Source: Author's research

## 5. Discussion

We can determine by correlation analysis that all three hypotheses have been confirmed and that each of the observed predictors (students' personal views, subjective norms, and perceived behaviour control) has a positive impact on the future students' intention to behave unethically. The study also found that more and more students cheat at the exams and use other's services when writing a seminar paper or master's thesis. The biggest reason for that is a topic in which they are not interested in, they don't have time to write it, or simply because they do not want it. Most respondents behave unethically in the early stages of their education and continue in higher education. The study has also shown that students who cheated in high school continued to do the same in higher education. Furthermore, the results showed that both the first and fifth, respectively, the last year of the study, engage in unethical actions. On the other hand, the second and fourth years cheat the most during their studies. Students coming from the village have the least support from the environment related to unethical behaviour in higher education, and also believe that it is not easy to cheat, and they do not have the control and necessary skills to cheat. Students who regularly attend classes, and have high-grade average, do not have the need for unethical behaviour, whilst those who are least present in classes and have lower grades tend to be unethical and believe it is normal to cheat and have the support of the environment.

## 6. Conclusion and further research

Higher education institutions face serious challenges given the new demands placed on higher education by the state and regulatory bodies, and on the other hand, the users of services have increasingly high expectations regarding the competition. In addition to that, modern technology, which is increasingly moving forward and meeting the needs of the market, facilitates learning methods and processes, but also makes it easier for users to behave unethically. The problem lies in the fact that higher education institutions still do not have sufficiently strict regulatory measures that regulate the issue of unethically, and there are no certain "penalties" that would reduce or prevent the same. Also, given that most respondents have behaved unethically since high school and how they realized their system could do nothing, the question arises about their further unethical behaviour when they enter the job market. For students, it is no more a goal to learn contents of the courses, than to pass the exam, without critical thinking. It is necessary that institutions of higher education differentiate themselves from other institutions of higher education in such a way as to prevent said unethical behaviour through certain "punishments". This will prevent further unethical behaviour, change the influence of subjective norms from the environment, *i.e.* people from the environment will influence the person to behave ethically. In addition, personal attitude perceived behavioural control will have less of an impact on future intentions of unethical behaviour if one consciously knows what sanctions when behaving unethically. In accordance with that, other stakeholders in higher education (staff, professors) should be consistent and apply measures that will reduce this. Study's limitations lie in a fact that the study was conducted in only one institution and it is ungrateful to generalize the results of the same. Future studies would be focused on expanding the study to other higher education institutions as well as private higher education institutions. Also, it could observe is there a link between student happiness and their unethical behaviour. For this purpose, could be explored Happiness index at all years of study and to see the reasons for its growth/decline. Regardless of the above, there is definitely a problem that has not yet been resolved at a level that would reduce or prevent unethical behaviour.

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<sup>i</sup> Note: A = attitudes, SN = subjective norms, PBC = perceived behaviour control, B = behaviour

<sup>ii</sup> George & Mallery (2003) provide the following rule of thumb:  $\_ > .9$  – Excellent,  $\_ > .8$  – Good,  $\_ > .7$  – Acceptable,  $\_ > .6$  – Questionable,  $\_ > .5$  – Poor, and  $\_ < .5$  – Unacceptable

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## RESEARCH OF CONSUMER PREFERENCES AND CONSUMER SATISFACTION LEVEL IN THE BANKING SECTOR

### ISTRAŽIVANJE PREFERENCIJA POTROŠAČA I NIVO ZADOVOLJSTVA POTROŠAČA U BANKARSKOM SEKTORU

#### Abstract

*Consumer behavior and its final buying decision are influenced by various factors, consumer preferences, preferences, habits, lifestyle, current situation, previous experience, etc. The task of the seller and the manufacturer is to acquaint consumer habits and preferences and to discover consumer desires and needs, and furthermore to offer the product/service in accordance with the consumer needs, which guarantees their business success. That means, they also need to customize the existing products/services to consumers. Due to a big competition on the market nowadays, companies must invest a lot of effort to explore specific needs and desires and gain customer confidence in order to keep existing and attract new customers. The main purpose of this research paper is to explore consumer behavioral psychology in the banking sector, to explain the factors that influence the bank's final selection, to conclude the key consumers' preferences and to evaluate the criteria according to which consumers estimate banking services. Based on the objectives of the research, the basic hypothesis in the work was also determined: Consumer perceptions and attitudes on the quality of banking services have a significant influence on the level of satisfaction and thus on the success of banking operations. The consequences of customer dissatisfaction with the quality of banking services are: income reduction, loss of reputation, loss of customers and loss of competitive ability. The problem of research is defined as the degree of service quality and satisfaction in the banking sector. The research was realized with the aim of understanding the key features and analysis of consumer behavioral psychology in the banking sector. A structured questionnaire with a formal list of questions was used. The sample consisted of 231 (n=231) randomly selected consumers/banking users. The survey included the users of several banks represented in the Una-Sana Canton.*

**Keywords:** consumer satisfaction, banking sector, marketing services

**JEL:** M30, M31

#### Sažetak

*Na ponašanje potrošača i njegove konačne odluke o kupovini utječu različiti faktori, potrošačke sklonosti, navike, način života, trenutna situacija, prethodno iskustvo itd. Zadatak prodavatelja i proizvođača je upoznati potrošačke navike i sklonosti te otkriti želje potrošača. i potrebe, a nadalje ponuditi proizvod/uslugu u skladu s potrebama potrošača, što jamči njihov poslovni uspjeh. To znači da oni, također, moraju prilagoditi postojeće proizvode i usluge potrošačima. Zbog velike konkurencije na tržištu, tvrtke danas trebaju uložiti puno napora kako bi istražile*

*specifične potrebe i želje i stekle povjerenje kupaca, kako bi zadržale postojeće i privukle nove kupce. Glavna svrha ovog istraživačkog rada je istražiti psihologiju ponašanja potrošača u bankarskom sektoru, objasniti faktore koji utječu na konačni izbor banke, zaključiti ključne preferencije potrošača i procijeniti kriterije prema kojima potrošači procjenjuju bankarske usluge. Percepcija i stavovi potrošača o kvaliteti bankarskih usluga imaju značajan utjecaj na nivo zadovoljstva, a samim tim i na uspjeh bankarskog poslovanja. Posljedice nezadovoljstva klijenata kvalitetom bankarskih usluga su: smanjenje prihoda, gubitak ugleda, gubitak klijenata i gubitak konkurentske sposobnosti. Problem istraživanja definiran je kao stepen kvalitete usluga i zadovoljstva u bankarskom sektoru. Istraživanje je provedeno s ciljem razumijevanja ključnih karakteristika i analize psihologije ponašanja potrošača u bankarskom sektoru. Upotrijebljen je strukturirani upitnik s formalnim popisom pitanja. Uzorak se sastojao od 231 (n=231) nasumično izabranih potrošača/korisnika banaka. Istraživanjem su obuhvaćeni korisnici nekoliko banaka zastupljenih u Unsko-sanskom kantonu.*

**Ključne riječi:** zadovoljstvo potrošača, bankarski sektor, marketinške usluge

**JEL:** M30, M31

## 1. Introduction

Nowadays, the area of consumer behavior is one of the current areas of marketing where a lot of research is being done. Each consumer is an individual whose needs are specific, as well as factors that influence his/her purchasing decision. This paper focuses on the behavior of service users in the banking sector, and analyzes consumer preferences when reading about various factors that affect the quality of banking service and the degree of customer satisfaction in the banking sector. The importance of this topic is increasing day by day, as the specificity of the service in the banking sector is certainly different from the services in another sector. This is the reason why this paper permeates the results of research of consumers/users behavior of banking services, who have made their accounts at different banks. It is an interesting way how they choose a bank and how potential customers of a bank make the decision to cooperate with the bank. Every customer wants to get the best possible service in other sectors as well as in the banking sector. Users of certain banks can relatively quickly create their opinions about the service offered by the bank, about the efficiency and expertise of the staff working at the bank, about easy or complicated access to a bank account, *etc.* Indeed, banks are rapidly evolving and modernizing their tools day by day and facilitating access to customer data. The aim of this paper is to present the reaction and attitudes of the users of banking services to the services provided, their satisfaction or dissatisfaction with the work of the bank.

## 2. Theoretical background

Consumer behavior in the service sector really has its own peculiarities, which are again differentiated when it comes to providing services in the banking sector. The increasing importance of services in the world market in recent times imposes the obligation to offer even higher quality, speed and simplicity in this segment. It is not uncommon that in practice differentiation is achieved precisely because of services and their specificity. this also leads to a trend of rapid development of marketing in the service sector with particular emphasis on banking marketing. Consumers in the service sector are a particularly sensitive category, so it is necessary to tailor the service as closely as possible to the specific requirements and needs of consumers. Some of the basic tasks of marketing in the banking sector include increasing customer confidence, improving customer relationships, informing about services, informing about benefits - streamlining the service delivery process and shortening the time to get a service.

Consumer behavior is the process of obtaining and consuming products, services and ideas from the consumer unit. It also includes after-sales processes that include valuation and post-purchase behavior.

(Kesic, 1999, p. 13). The field of consumer behavior covers a lot of ground: it is a study of the processes involved when individuals or groups select, purchase, use or dispense products, services, ideas or experiences to satisfy needs and desires (Solomon *et al.*, 2006, p. 6.). Accurate, timely and continuous monitoring of the buying process, identifying factors in the process, and distinguishing between specific types of purchasing decisions are essential to the success of any business (Tihi, Cicic & Brkic, 2006, p. 155).

Based on consumer behavior research, we collect information about consumers, their desires and needs, and afterwards, we are able to adjust the product program and assortment to maximize our sales and profits. Consumer behavior research consists of various and systematic techniques used by marketers to determine what internal and external factors influence consumer decisions and the exchange process in the market (Marišić, 2008, pp. 12-43).

According to Kotler *et al.* (2006, p. 625), service is any activity or benefit offered by one party to another that is fundamentally intangible and does not result in ownership of something. Its production may but may not be related to any physical product. Services include all economic activities that result in an intangible form that is consumed where it is produced and satisfies the consumer (Stojanovic, 2018, p. 30). In an age of increasing product commodification, service quality is one of the most promising sources of differentiation and distinction. Giving good service is the essence of practising a customer orientation (Kotler, 2003, p. 167).

Services have their own specific characteristics that set them apart in relation to specific physical products. Kotler discusses the five main features of services when designing marketing programs (Kotler *et al.*, 2006, pp. 626-633): intangibility, indivisibility, changeability, transience and lack of ownership. The intangibility of services means that services are not easily exposed and cannot be seen. Taste, hear or smell before they are bought. Indivisibility of services means that services cannot be separated from their providers, whether they are human or machinery providers. Service variability means that the quality of services depends on who provides them, as well as when, where, and how they are provided. Service throughput means that services cannot be stored for later sale or use. Lack of ownership means that service products do not have any form of ownership. The customer often has access to the service for a limited time only.

The most important influence in the banking sector on the level of customer satisfaction with banking services is the employees of banks that provide services to clients. On the other hand, there are numerous products in the banking business (electronic cards, ATMs, *etc.*) where employees do not have a significant influence on the degree of satisfaction with their use. The main advantage of service companies over their competitors is reflected in gaining customer trust and creating a loyal customer group. According to Bae, Kang and Lim (2002) Client trust is distinct as having confidence in the mechanisms of systems of which one holds only partial information. As clients are becoming more conscious of banks familiarity, also they sustain trust in the confidence that the bank will develop different quality principles to continue that familiarity (Bae, Kang & Lim, 2002, pp. 181-214).

Dixit (2004, p. 15) concludes that for successful marketing and to make it more effective, identify the customer needs by way of designing new products to suit the customers. The staff should be well-equipped with adequate knowledge to fulfil the customer's needs. We should adopt long-term strategies to convert the entire organization into a customer-oriented one.

Grbac (2014) emphasizes the importance of building loyalty with consumers. In the process of generating satisfaction, an organization should strive to increase consumer satisfaction with each new interaction

with consumers. When consumers see that an organization has adjusted its offering by taking into consideration their suggestions for product improvement, their satisfaction is even greater, approaching the level at which loyalty is created. Hence, by developing consumer satisfaction an organization can gain loyal consumers (Grbac, 2014, p. 47). Figure 1 shows clients perception of service delivery process in banks.

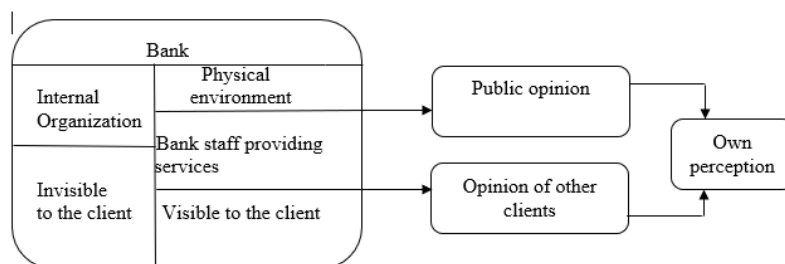


Figure 1. *Clients' view of the service delivery process in the bank*

Source: Vujnović-Gligorić, s. a.

In today's business world of banks, the number of competitors is increasing significantly. High quality and speed of service providing are becoming crucial factors for attracting and retaining customers in this segment. Marketing strategy is a powerful tool for banks to achieve their goals. Of particular importance in the banking sector is online marketing, whose opportunities in the banking sector are significant. When it comes to service marketing, it is important to emphasize that many authors point out that there is a significant difference between internal and interactive marketing.

Kotler (2006) explains the difference between internal and interactive marketing. Internal marketing is marketing conducted by a service company by training and effectively motivating its customer-contact employees, and all support staff, to work as a team to satisfy the customer. Interactive marketing is marketing conducted by a service company, which understands that the perceived quality of service depends largely on the quality of the interaction between buyers and sellers (Kotler *et al.*, 2006, p. 635).

Current marketing is focused on “giving the customer what they want”. To be effective, the assumption is that the client knows what he wants. New competitive strategies, in contrast to this approach, are created on the assumption that the client, at least initially does not know what he wants, and therefore seeks information. In line with empirical research, leaving the client with his own initiative of seeking information and interpretation, there is a “compromise effect”, where mid-positioned products are selected in the choice between undifferentiated products (“does quality matter more?”). This is due to the minimization of the selection error and the initial lack of preferences, whereby the client initially considers himself average. Since the marketing concept is not primarily aimed at maximizing a user's individual satisfaction (thus reducing the satisfaction of another user), the ultimate goal of the organization is to create marketing relationships that can effectively balance the levels of satisfaction of different users (Kotler, 1996, p. 611).

Technology today is claimed to be a ‘leveller’ and not a differentiator’. After the ‘wow’ feelings die down, technology would become a must for most clients. Banking products can be easily copied and replicated by competitors unlike manufactured products. It is also not a viable model for marketers to compete on price. The solution, therefore, would lie in effective application of marketing strategies (Gurumurthy, 2004, p. 23). Bijakšić Martinović (2014) states that today's modern market is an arena

where only the best can succeed. These are those who have a competitive product/service, whose place in the market is not volatile, whose production costs are cost-effective, who have a product/service worthy of customer satisfaction, because it satisfies their needs and desires, for which they are “returned” (Bijakšić Martinović, 2014, p. 22).

### 3. Methodology

The aim of the research was to determine the attitudes, perceptions, as well as the degree of satisfaction of the banking service users, and the factors that influence it. The research was conducted by applying a structured questionnaire consisting of 11 open-ended and closed-ended questions and Likert scale questions. The direct method was used - the respondents completed the questionnaire on the premises of the banks. A random sampling method was used. The sample consisted of bank customers with different demographic characteristics (n = 231). Using Ishikawa diagrams dependent and independent variables are defined. The dependent variable states that the quality of banking services affects consumer satisfaction. The independent variables are the following:

- *staff knowledge*, defined through items of lack of knowledge and incompetence;
- *employee behavior*, defined through items unkind, unprofessional;
- *communication with clients*, defined as unkind and unprofessional;
- *availability of information*, defined through items insufficient, weak and inadequate;
- *inefficiency of banking services*, defined through motivation and expertise;
- *management*, defined through organizational structure and organizational culture.

### 4. Results and discussion

The results of the research will be presented below. In the introductory part of the questionnaire, respondents were asked standard questions to determine the structure of the sample, ie. questions about the age of the respondents, working status, level of education of the respondents (Tables 1 and Table 2).

Table 1. *Sample structure - age*

Total number of respondents				Age of respondents											
M	%	F	%	18 to 24	%	25 to 34	%	35 to 44	%	45 to 54	%	55 to 64	%	65+	%
126	55	105	45	9	4	93	40	53	23	28	12	13	6	35	15

Source: Authors' own work

A total number of respondents, that were interviewed during the survey is 231. 126 respondents of the total number of respondents represented the male population or 55%, and 105 female population, or 45%. If the respondents were further segmented by age group, the largest group would be persons from 25-34 years of age (93 respondents or 40%), and then from 35-44 (53 respondents or 23%), which is quite expected because these are precisely business people. Afterwards, followed by persons aged 65 and over (35 respondents or 15%), these are pensioners, then, persons aged 45-55 (28 respondents or 12%), from 55-64 (13 respondents (6%) and finally 18-24-year-old respondents (9 respondents or 4%), these are students who have an account open because they are receiving a scholarship or living away from home so their parents would send them money.

Table 2. *Sample structure - work status and educational level*

<i>Work status of the respondent</i>								<i>The educational level of respondent</i>					
<i>Unemployed</i>		<i>Employed</i>		<i>Student</i>		<i>Retired</i>		<i>Skilled worker</i>		<i>High school</i>		<i>University degree</i>	
N	%	N	%	N	%	N	%	N	%	N	%	N	%
13	6	164	71	9	4	45	19	43	19	137	59	51	22

Source: Authors' own work

Most respondents are employed, 164 respondents or 71% of the total, which is quite expected because employers are compensating their employees for their work. The salary is paid through a current account, and employees must open the account at the bank. 45 or 19% of respondents are retirees, who receive their earned pensions through a current account at the bank, 13 or 6% of respondents are unemployed, and 9 or 4% are students who have an account open because they receive a scholarship or live away from their homes, so their parents send them money monthly. 137 or 59% of respondents have secondary education, 51 or 22% have university degrees and 43 or 19% have primary education.

Table 3. *Number of users of services of different banks*

<i>The name of the bank</i>	<i>Total number of bank users</i>		<i>The average length of respondents' loyalty to the bank</i>
	<i>N</i>	<i>%</i>	
Raiffeisen bank	68	29	3 years
UniCredit bank	68	29	6 years
KIB	53	23	2 years
Sparkasse	29	13	1 years
Sberbank	13	6	1 years

Source: Authors' own work

The research was conducted in the five following banks: Raiffeisen Bank, UniCredit Bank, KIB, Sparkasse and Sberbank. The survey was completed by 68 or 29% of respondents from UniCredit Bank and Raiffeisen Bank, 53 or 23% of respondents from KIB, 29 or 13% from Sparkasse and 13 or 6% from Sberbank. The next question the respondents answered is: How long have you been a customer of your chosen bank. The answers are summarized by calculating the arithmetic mean of all the answers. In the Una-Sana Canton, a competitive battle is between Raiffeisen Bank and UniCredit Bank, so through this research part the focus is on these two banks. Namely, UniCredit Bank has long-term clients when calculating the arithmetic mean. we have come to the conclusion that UniCredit bank has been loyal clients for 6 years.

Table 4. *Why did you choose this particular bank?*

<i>The name of the bank</i>	<i>Courtesy of the staff</i>		<i>Service quality</i>		<i>Lower banking fees</i>		<i>Access to the bank</i>		<i>Versatile offer</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
Raiffeisen bank	16	23	21	31	0	0	2	3	29	43
UniCredit bank	13	19	9	13	30	44	6	9	10	15
KIB	20	38	10	17	20	38	2	3	1	2
Sparkasse	1	4	22	76	3	10	0	0	3	10
Sberbank	1	8	0	0	10	77	2	15	0	0

Source: Authors' own work

Raiffeisen Bank customers choose this bank because of the diverse range of banking products (29 respondents or 43%), then because of the quality of services (21 respondents or 31%), kindness of staff

(16 respondents or 23%), access to the bank (2 respondents or 3%). They also stated that they receive certain benefits if they have been by the same bank for many years, for example lower interest rates when applying for a credit. UniCredit clients choose this bank mainly because of lower bank fees (30 respondents or 44%), then because of the courtesy of the staff (13 respondents or 19%), the diverse offer (10 respondents or 15%), the quality of services (9 respondents or 13%) and access bank (6 respondents or 9%). KIB clients are business people who have chosen this bank for the reason that, according to their conclusion, it is the most favorable bank that encourages businessmen and offers them low interest rates. 40 respondents or 75% choose this bank because of the friendly staff and lower bank fees, 10 respondents or 17% because of the quality of services, 2 respondents or 3% because of the access to the bank and finally because of the diverse offer 1 respondent or 2%. Sparkasse Bank customers usually choose this bank because of the quality of banking services, as many as 22 respondents or 76%, then 3 respondents or 10% because of lower banking fees, 3 respondents or 10% because of a diverse offer and 1 respondent or 4% because of the kindness of staff. Sberbank clients choose because of lower bank fees 10 respondents or 77%, 2 respondents or 15% because of access to the bank, 1 respondent or 8% because of the kindness of the staff. We can conclude that the users of the service have chosen the bank on the basis of different criteria, among which are a diverse range of banking products, quality of services, lower banking fees and support to businessmen. It is clearly visible that the clients make the selection and final selection of the bank according to their requirements.

Table 5. What do you consider to be the biggest drawbacks of this bank?

The name of the bank	Frequent crowds		The unkindness and slowness of the banking staff		There is a lack of parking space near the bank		Poor banking services	
	N	%	N	%	N	%	N	%
Raiffeisen bank	32	47	23	34	11	16	2	3
UniCredit bank	28	41	17	25	21	31	2	3
KIB	0	0	0	0	6	11	47	89
Sparkasse	1	3	7	24	1	3	20	70
Sberbank	1	8	1	8	1	8	10	76

Source: Authors' own work

According to the research, the biggest drawbacks (Table 5) of Raiffeisen Bank are frequent crowds (32 respondents or 47%), then lack of parking spaces (11 respondents or 16%), unkindness and slowness of banking staff (23 respondents or 34%), and poor supply of banking services (2 respondents or 3%). UniCredit Bank's clients find the biggest drawback of this bank is frequent crowds (28 respondents or 41%), lack of parking places near the bank (21 respondents or 31%), unkindness and slowness of banking staff (17 respondents or 25%), and poor supply of banking services (2 respondents or 3%). The results of KIB Bank are interesting for the reason that as many as 47 respondents or 89% consider the lack of banking services to be the biggest disadvantage of this bank, 6 respondents or 11% consider the lack of parking places near the bank to be a shortcoming. Sparkasse's clients find the bank's biggest drawback to be a poor supply of banking services (20 respondents or 70%), unkindness and slowness of banking staff (7 respondents or 24%), frequent crowds (1 interviewee or 3%), and a lack of parking spaces near the bank (1 respondent or 3%). By the Sberbank, the situation is similar as by the Sparkasse. The major drawback of this bank, as the survey shows, is the poor supply of banking services (10 respondents or 76%), followed by frequent crowds, unkindness and slowness of banking staff and lack of parking places near the bank.

After a certain period of time, the clients of the banks create their views on the bank's operations. When it comes to questions about the biggest deficiencies of the bank, clients most often point out the limited supply of banking services and crowds in the queue. This further leads to the conclusion that the bank's

management must work on the implementation of new products/services and on solving long queues in order to make the users of the service satisfied.

Table 6. *Bank customer satisfaction with the kindness of the staff*

The name of the bank	I am completely satisfied		I am satisfied		I am neither satisfied nor dissatisfied		I am not satisfied		I am dissatisfied	
	N	%	N	%	N	%	N	%	N	%
Raiffeisen bank	3	4	10	15	2	3	17	25	36	53
UniCredit bank	23	34	30	44	2	3	12	18	1	1
KIB	47	89	5	9	0	0	0	0	1	2
Sparkasse	0	0	6	21	20	69	3	10	0	0
Sberbank	0	0	3	23	9	69	1	8	0	0

Source: Authors' own work

In the question above, the respondents had to choose the appropriate degree of satisfaction with the categories: kindness of employed staff in banks (1- completely satisfied with 5 - not satisfied at all), then speed and efficiency of the work, staff expertise, quality of information offered, manner and speed of communication with clients. According to the Raiffeisen Bank survey results, only 3 respondents or 4% are completely satisfied, 10 respondents or 15% are satisfied, 2 respondents or 3% are neither satisfied nor dissatisfied, 17 respondents or 25% are dissatisfied and 36 respondents or 53% are completely dissatisfied. Regarding UniCredit Bank, the results are as follows: 23 respondents or 34% are completely satisfied with the courtesy of the staff, 30 respondents or 44% are satisfied, 2 respondents or 3% are neither satisfied nor dissatisfied, 12 respondents or 18% are dissatisfied and 1 or 1% are completely dissatisfied. At KIB, the results are different than at the previous two banks. Namely, as many as 47 or 89% of clients of this bank are completely satisfied with the courtesy of the staff of this bank, 5 respondents or 9% are satisfied, and only 1 respondent or 2% are completely dissatisfied. The situation with Sparkasse and Sberbank is partly similar. As many as 69% of their clients have no opinion, they are neither satisfied nor dissatisfied with the courtesy of this bank, which is very bad because it means that the clients have no loyalty to that bank. It is clear here that KIB and UniCredit Bank have trained the workforce that the key to usury is customer-friendliness. Other banks need to put in the effort to improve their current state of affairs, as a higher level of courtesy can retain current clients and attract new ones.

Table 7. *Review of research results for claims 1-4*

<i>The satisfaction of the bank's client with the speed and efficiency of the operations performed by the bank's employees</i>										
The name of the bank	I am completely satisfied		I am satisfied		I am neither satisfied nor dissatisfied		I am not satisfied		I am dissatisfied	
	N	%	N	%	N	%	N	%	N	%
Raiffeisen bank	24	35	39	57	5	8	0	0	0	0
UniCredit bank	42	62	23	34	1	1	2	3	0	0
KIB	40	75	11	21	2	4	0	0	0	0
Sparkasse	1	2	4	14	12	42	12	42	0	0
Sberbank	10	77	1	8	2	15	0	0	0	0
<i>The satisfaction of a bank customer with expertise on offered banking products and services by bank employees</i>										
Raiffeisen bank	23	34	29	43	2	3	10	15	4	5
UniCredit bank	29	43	29	43	1	1	5	8	4	5
KIB	46	87	6	11	0	0	1	2	0	0
Sparkasse	0	0	12	41	0	0	16	55	1	4
Sberbank	0	0	3	23	10	77	0	0	0	0
<i>The satisfaction of the bank's clients with the clear and precise information they receive from the bank's employees</i>										

Raiffeisen bank	3	4	20	29	5	7	25	37	15	23
UniCredit bank	5	6	15	23	10	15	19	28	19	28
KIB	23	43	20	38	0	0	10	19	0	0
Sparkasse	0	0	13	45	9	31	5	17	2	7
Sberbank	0	0	9	69	0	0	4	31	0	0
<i>The satisfaction of the bank's clients with the notification of products and services via call center, e-mail and the Internet</i>										
Raiffeisen bank	13	19	36	53	0	0	19	28	0	0
UniCredit bank	6	9	42	62	8	12	11	16	1	1
KIB	0	0	5	9	0	0	40	75	8	16
Sparkasse	0	0	15	52	3	10	9	31	2	7
Sberbank	1	8	6	46	3	23	2	15	1	8

Source: Authors' own work

The survey results further tell us that the majority of respondents are satisfied with the speed and efficiency of the work of the bank's employees, where Sberbank obtained the best results with 77% and the worst results obtained Sparkasse with 42% of dissatisfied customers. Although Raiffeisen Bank and UniCredit Bank invest a lot in their employees, the clients of these banks did not recognize this and the results did not show that. Specifically, 87% of KIB respondents are satisfied with the expertise in banking products and services offered by bank employees, while 55% of Sparkasse respondents are dissatisfied with the above mentioned. 81% of KIB respondents were satisfied with the clarity and accuracy of the information they receive from the bank's employees, while 60% of Raiffeisen Bank's respondents and 56% of UniCredit Bank's respondents were not satisfied with this service at the bank. Accuracy and clarity of the data are of great importance because every client wants to have accurate and transparent insight into the data and information. the banking staff must explain any ambiguity that may exist with the client regarding the products and services they offer. only this way will maintain customer loyalty. The most satisfied respondents with the notification of products and services *via* call center, *e-mail* and the Internet are clients of Raiffeisen Bank 72% and UniCredit Bank 71%, while 91% of KIB respondents are not satisfied with this service. Considering that people have less and less time to physically appear at the bank every time they need some information, the bank's management must put an accent on constant updates via the Internet, *e-mail*, *etc*. In the current hectic lifestyle, customers will be able to reduce such time by notifying them by going to the bank's first branch.

Table 8. Review of research results for claims 5-9

<i>The satisfaction of the bank's clients with keeping data and confidentiality of information</i>										
<i>The name of the bank</i>	<i>I am completely satisfied</i>		<i>I am satisfied</i>		<i>I am neither satisfied not dissatisfied</i>		<i>I am not satisfied</i>		<i>I am dissatisfied</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
Raiffeisen bank	32	47	36	53	0	0	0	0	0	0
UniCredit bank	29	42	39	58	0	0	0	0	0	0
KIB	25	47	25	47	3	6	0	0	0	0
Sparkasse	10	34	16	55	3	10	0	0	0	0
Sberbank	0	0	3	23	10	77	0	0	0	0
<i>Bank customer satisfaction with ATM (an automated teller machine) availability</i>										
Raiffeisen bank	60	88	8	12	0	0	0	0	0	0
UniCredit bank	53	78	15	22	0	0	0	0	0	0
KIB	0	0	0	0	0	0	0	0	53	100
Sparkasse	0	0	16	55	9	31	3	10	1	4
Sberbank	1	8	6	46	1	8	2	15	3	23
<i>The satisfaction of the bank's customers with the correctness of the ATM</i>										
Raiffeisen bank	51	75	13	18	2	3	1	2	1	2
UniCredit bank	60	88	4	6	4	6	0	0	0	0

KIB	0	0	0	0	0	0	0	0	53	100
Sparkasse	1	3	19	66	5	17	2	7	2	7
Sberbank	1	8	2	15	5	39	2	15	3	23
<i>Bank customer satisfaction with access to services</i>										
Raiffeisen bank	34	50	34	50	0	0	0	0	0	0
UniCredit bank	28	41	34	50	0	0	5	7	1	2
KIB	13	24	30	56	5	10	5	10	0	0
Sparkasse	3	10	6	21	5	18	10	33	5	18
Sberbank	0	0	3	23	5	38	3	23	2	16
<i>The satisfaction of the bank's customers with easy access to the web site</i>										
Raiffeisen bank	68	100	0	0	0	0	0	0	0	0
UniCredit bank	34	50	32	47	2	3	0	0	0	0
KIB	0	0	3	6	5	9	25	47	20	38
Sparkasse	2	7	7	24	1	4	10	34	9	31
Sberbank	1	7	8	62	1	7	1	7	2	17

Source: Authors' own work

All respondents are mostly satisfied with the data retention and confidentiality of information in banks, except for Sberbank clients, where 77% of respondents stated that they were neither satisfied nor dissatisfied. This topic is very sensitive and it is most important for every client that the protection of their data is at the highest level. 100% of KIB respondents are not at all satisfied with the availability of ATMs, while the most satisfied with this service are UniCredit Bank clients (100%) and Raiffeisen Bank clients (100%). The location of the bank plays a big role here. Many banks do not have enough parking space, so customers have to look for parking somewhere else and have to walk the rest of the day, which definitely takes more time. 100% of respondents are not at all satisfied with the correctness of the KIB ATM, this is withdrawn because KIB bank does not have an ATM network available. Also, the most satisfied clients are the clients of Raiffeisen and UniCredit banks (around 95%). Here is specific, that in smaller towns there are not enough ATMs, and clients are forced to drive more miles to reach their bank's ATMs. This can cause customer dissatisfaction as they need to look for an ATM in an emergency. The most satisfied clients with access to banking services are clients of Raiffeisen Bank (100%), while Sberbank clients are dissatisfied with this service (39%), and 38% of Sberbank clients are neither satisfied nor dissatisfied with this service. Customers want to make it easier for them to access services, they want a high quality of online banking. Using online banking, they can make all the transactions they want sitting at home. Raiffeisen Bank invests a lot in its marketing activities and in its promotion through social networks, as shown by research. All Raiffeisen Bank respondents (68) are fully satisfied with the easy access to the website. On the other hand, 85% of the KIB Bank respondents are not satisfied with this service.

#### 4. Conclusion

Summarizing the overall research results of this paper, we conclude that the level of consumer satisfaction with the quality of banking services is not at an enviable level. The key to the success of a modern, contemporary bank should be customer orientation. The banking sector is prone to changes and some banks are unfortunately unable to adapt to clients. Increasingly, they are based on the principles of the Internet and e-commerce, but banks still do not understand that they need to orient themselves, or perhaps they do, but they do not have the space to adapt to it. Every bank, every business has to fight for its customers, or rather to fight to stay in the competitive race. Banks should also rely on marketing activities. Today, marketing is the basis for a quality economy. It enables banks to know in advance the needs of their clients, creates an adequate product for them, informs them with appropriate forms of promotion, and enable quality distribution to reach potential clients.

With the development of competition in the banking sector, a lot has changed. There is no longer a monopoly as a market structure, which is better for clients. But it is an additional problem for banks, which have to stand out in order to achieve their competitive advantage, whether with marketing activities, lower costs, availability or something else. In the past, banks have not had as much influence as they have today. Today, every other person has an account open at one of the banks. Banks have developed a variety of services and are trying to offer each customer what they need. We can safely say that banks have simplified and made life easier for some people. Modern banking trends should be reflected in the loyalty and longevity of the client. Every bank should turn to keep their existing customer base, but they need to get new clients every day. Most banks prioritize new clients and in an effort to impress new clients, they often neglect old clients and, in the worst case, lose them. For example, if a bank is making some promotional offers for new clients, something must be done for existing clients. That way, we let our existing clients know that we are thinking about them.

The future of marketing in the banking sector is certainly online marketing, and the assumption is that the importance of this method of promoting banking services will grow even more in the upcoming period. Online marketing will certainly become more dominant than other forms of promotion.

From the conducted research we can conclude that online banking is not sufficiently developed and that banks need to work on simplicity and modernization of the application. This will greatly facilitate the work of the banking staff as customers will be able to do a lot through online banking. Also interesting is the fact that even banks that have developed online banking have not presented well enough how to use this service, so that their clients remain untrained. This raises questions about improving marketing performance, where the good promotion of online banking should be emphasized and training should be provided for clients to understand how to use the application on their mobile device.

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## EFFECTS OF FOREIGN DIRECT INVESTMENTS ON BUSINESS PERFORMANCE OF ENTERPRISES IN FEDERATION OF BOSNIA AND HERZEGOVINA

### EFEKTI STRANIH DIREKTNIH INVESTICIJA NA POSLOVNE PERFORMANSE PREDUZEĆA U FEDERACIJI BOSNE I HERCEGOVINE

#### Abstract

*The aim of this study is to perform an evaluation of effects of foreign direct investments (FDI) on business performance of recipient enterprises. The study population includes enterprises from FBiH that originated from realization of foreign direct investments in the scope larger than BAM 10 million over the period 2009-2012. The evaluation of FDI effects has been conducting in a six-year period after the investment (2013-2018). The study was conducted through comparison of eight different financial indicators in 30 enterprises from FBiH, which have foreign capital in their structure. The comparison was conducted with same financial indicators expressed as averages of economic activities groups (AEAG), to which those enterprises belong. Testing set hypotheses was conducted through Wilcoxon Signed Rank Test which represents an adequate non-parameter statistical method of comparison of two dependent samples. The study results show that the following hypotheses have been proven, with 5% risk: enterprises with FDI statistically significantly realize higher values of intangible assets, business assets, business income, income from selling effect on foreign markets, higher profit from business activities, as well as higher average number of employees based on work hours, in comparison to AEAG in which they belong. However, the following hypothesis is rejected: enterprises with FDI realize a lower loss from business activities than the average of economic activities groups in which they belong. Also, hypothesis that enterprises with FDI realize higher sales income on foreign markets requires conduction of additional test to prove it. The study results offer insight into effects that FDI have on certain financial indicators in FBiH enterprises.*

**Keywords:** foreign direct investments, analysis of business performance, micro aspect of FDI

**JEL:** L10, M40, M30, M16

#### Sažetak

*Cilj istraživanja u radu je izvršiti evaluaciju efekata stranih direktnih investicija (SDI) na poslovne performanse kompanija recipijenata. Istraživačku populaciju čine kompanije iz FBiH koje su nastale realizacijom stranih direktnih investicija u obimu većem od 10 miliona KM u periodu 2009-2012. godina. Evaluacija efekata SDI je vršena u šestogodišnjem periodu nakon ulaganja (2013-2018.). Istraživanje je sprovedeno komparacijom osam različitih finansijskih indikatora kod 39 preduzeća iz FBiH koje u svojoj strukturi imaju učešće inostranog kapitala. Komparacija je vršena s istim finansijskim indikatorima izraženih kao prosjeci privrednih grupa djelatnosti (PPGD), kojima pripadaju preduzeća. Testiranje postavljenih hipoteza je izvršeno Wilcoxonov-im testom rangova koji predstavlja adekvatnu neparametrijsku statističku metodu poređenja dva zavisna uzorka. Rezultati istraživanja upućuju da su, uz rizik od 5%, dokazane hipoteze: da preduzeća sa SDI statistički signifikantno ostvaruju veće vrijednosti nematerijalnih*

*stalnih sredstava, poslovne aktive, poslovnih prihoda, prihoda od prodaje učinaka na stranom tržištu, veći dobitak od poslovnih aktivnosti, kao i veći prosječan broj zaposlenih na bazi sati rada, u poređenju na PPGD kojima pripadaju. Međutim, odbacuje se hipoteza da kompanije sa SDI ostvaruju manji gubitak od poslovnih aktivnosti od prosjeka privrednih grupa djelatnosti u koje spadaju. Također, hipoteza da preduzeća sa SDI ostvaruju više prihode od prodaje robe na inostranom tržištu, zahtjeva provođenje dodatnih dokaznih testova. Rezultati istraživanja pružaju uvid u efekte koje SDI imaju na pojedine finansijske pokazatelje kompanija iz FBiH.*

**Ključne riječi:** strane direktne investicije, analiza poslovnih performansi, mikro aspekt SDI

**JEL:** L10, M40, M30, M16

## 1. Introduction

Foreign direct investments represent, in its broadest sense, investments into certain assets in financial and material form, as well as investments through the concession of intangible rights, that is, intellectual property, such as patents, technology, know-how, and similar, in foreign countries. Foreign direct investments as a form of internationalization of business contribute to the collection of foreign capital, and also intangible know-how which is necessary for economic growth and development of both, a country and an enterprise. Numerous scientific studies confirm the positive effects of FDI on the economic growth of the recipient countries, with a special emphasis on Bosnia and Herzegovina (BiH) and Western Balkan countries (Domazet, 2016; Rapaić, 2016; Vujić, 2015; Popović & Savić, 2014; Bogdan, 2009). On the other side, numerous scientific studies have also been conducted also, which provide a critical review of the business ambience in BiH in the function of attracting FDI (Mihajlović, 2018; Čivić, Muratović & Petrović, 2017; Sinanagić, Čivić & Kamarić, 2013), as they have been conducted on other neighbouring countries as well (Stanković, 2017). All these studies research macroeconomic indicators of conditions to attract FDI, and the effects of FDI on the national economy. There are also macroeconomic studies that research an inadequate level and unfavourable structure of FDI in Bosnia and Herzegovina, especially since the occurrence of the global financial crisis (Domazet, 2016). There are only a few scientific studies regarding the effect of FDI on business performances of the recipient enterprises. Generally, there is a small number of studies that research evaluation of FDI at the micro-level, that is, at the level of enterprises, economic field and/or activity. Therefore, our study has been directed towards that path.

## 2. Overview of previous studies

Rajnoha *et al.* (2018) emphasize in their paper that “enterprises with the foreign participation of property achieve better performance, most typically with ROE above 10%. The better performance, as well as distinctive feature of intangibles and research and development investments, are typically in foreign-owned firms”. The studies showed that, through FDI, the company may gain competitive advantage, improve its profitability and achieve managerial efficiency while adjusting HRM practices and innovation to be aligned with the strategic goals (Charalampidou, Magoutas & Chountalas, 2018). According to the research (Akulava, 2008.) explains: The results obtained using Ukrainian enterprise-level dataset show that the foreign enterprises perform better than the domestic ones in primary and secondary sectors of the Ukrainian economy. Both horizontal and vertical spillovers affect the enterprises’ performance and do vary by sectors. Liquid FDI components have a positive and significant effect; regarding illiquid FDI components, their impact is mostly zero.

Škudar (2004) emphasizes that enterprises which originated through the realization of FDI have higher growth in value of capital, assets, export and income in comparison to domestic companies. On the other side, Šohinger, Galinec and Škudar (2006) have determined existence of limitations of positive effects of FDI on recipient enterprises due to the increase in their productivity, while they also found that there is a lack in rising the competition of national economy of recipient countries, as well as the effect of overflow onto other sectors of the country in which foreign direct

investments have been realized. Jovančević (2007), and Jovančević and Šimurina (2008), in their studies, confirm the positive effects of FDI on the growth of GDP in Croatia and other transition countries in Europe. However, Jošić (2008), in his paper work, has emphasized that Croatian export is inelastic to changes of the influx of FDI, which is opposite to prior studies of Škudar.

Studies that analyze effects of FDI on enterprise performance indicators in the Republic of Croatia were conducted by Marić (2008), who observed the effects of influx of FDI onto productivity of enterprises in industrial activities. The research results have shown that FDI have positive effects on the productivity of Croatian enterprises. Enterprises, which have a complete or partial share of foreign capital, and are in the industrial activity, are for one third more productive on average than the domestic enterprises in the same sector.

Data received from the Central Bank of BiH, from the August of 2019, show that the total influx of FDI, on 31.12.2018, was BAM 14.296 million in BiH (FIPA, 2019). According to the United Nations (2019) annual report on global FDI, BiH is at the second place by value of FDI amongst the countries of South-East Europe. According to Global Location Trends (2019), BiH is at the sixth position in the world by the number of created jobs within FDI projects per one million residents, and it is the third in the world by its investments directed towards export. Even though, there are only a few studies conducted on the topic of FDI effects on performances of BiH enterprises, Muratović (2016), suggested in the paper work, focuses on effects that FDI had on market performances of BiH enterprises. The research results have shown that mutual investments, more than other modalities (fusion, acquisition, green-field investments), contribute to the improvement of certain market performances of BiH enterprises. It has also been determined that FDI have led to the improvement in the following market performances of BiH enterprises: market growth, market share, profitability, sales scope, market portfolio, and consumer satisfaction. It is interesting to emphasize the fact that only the manufacturing sector has improved all observed market performances.

### 3. Research goals and hypotheses

The aim of this study is to conduct an evaluation of the effects of realized FDI in FBiH on business performances of recipient enterprises with regard to AEAG. Economic activity groups to which FDI recipient enterprises belong are determined according to 2 analytical codes of the statistical classification of activities (for example, 10.52 – Production of ice cream and other frozen mixtures). Through choosing a given analytical level of activity classification, we have enabled comparison of each individual enterprise with FDI with its direct competitors. With the purpose of realization of the study aim, we have set eight (8) research hypotheses:

*H<sub>1</sub>*: Value of intangible assets in FDI enterprises is higher than the average value of intangible assets in economic activity groups to which they belong.

*H<sub>2</sub>*: Value of business assets in FDI enterprises is higher than the average value of business assets in economic activity groups to which they belong.

*H<sub>3</sub>*: Value of business income in FDI enterprises is higher than the value of business income in economic activity groups to which they belong.

*H<sub>4</sub>*: FDI enterprises realize higher income from selling goods (merchandise) on foreign markets than the average in economic activity groups to which they belong.

*H<sub>5</sub>*: FDI enterprises realize higher income from selling products and services on foreign markets than the average in economic activity groups to which they belong.

*H<sub>6</sub>*: FDI enterprises realize a higher profit from business activities than the average in economic activity groups to which they belong.

*H<sub>7</sub>*: FDI enterprises realize a smaller loss from business activities than the average in economic activity groups to which they belong.

*H<sub>8</sub>*: FDI enterprises have a higher number of employees than the average in economic activity groups they to which they belong.

#### 4. Research methodology

Conducted analyses in this paper include statistical comparisons of different financial indicators in FDI enterprises with the same financial indicators expressed as PPFD to which FDI enterprises belong. We had two sets of data available. One data set contained eight variables from different financial indicators of FDI enterprises: value of intangible assets, value of business assets, value of business income, income from selling goods (merchandise) on foreign markets, income from selling products and services on foreign markets, profit from business activities, loss from business activities and average number of employees based on work hours. The other data set contained the same variables but as averages from economic activity groups to which these FDI enterprises belong. All variables have been expressed for six different annual periods, from 2013 to 2018. For the needs of the analysis, we have taken all six-time dimensions in both data sets, and brought it down to one dimension through the calculation of arithmetic mean of variables, that is:  $(2013 + 2014 + 2015 + 2016 + 2017 + 2018) / 6$ .

Prior to testing research hypotheses, data has been confirmed from the aspect of satisfaction of statistical assumptions of certain testing methods of dependent samples, before all, the classification of variable values. Distribution of observed variables significantly deviated from the normal classification, mostly with an emphasized right (positive) asymmetry. Due to the mentioned reason, we have decided to use the Wilcoxon Signed Ranks Test as a non-parameter statistical method to compare the two dependent samples. Wilcoxon Signed Ranks Test is a non-parameter method for testing statistical hypotheses, which is used to compare two dependent samples, matching samples or re-measurements on one sample in order to evaluate if their average ranks in a population are different. This test is used as an alternative to the parameter Student t-test of dependent variables when parameter statistical assumptions have not been satisfied, as it is in our case here.

The list of enterprises which originated from the realization of FDI in the value of over ten million in the period from 2009 and 2012 was provided by the Ministry of Foreign Trade and Economic Relations. The total population without financial institutions included 50 enterprises from the sector of manufacturing, trade and services. The sample was made up of 78% of the population. On the other side, sources of financial data for enterprises in the sample, as well as for matching averages of economic activity groups, for the observed period from 2013 to 2018, were provided by the Federal state agency FIA Sarajevo, which collects and processes financial reports of all legal entities with their headquarters located in FBiH.

#### 5. Research results and discussion

One half of FDI enterprises, that is 50% of them (median), in the period from 2013 to 2018, had an average value of intangible assets up to BAM 193,526 (Table 1), while in enterprises which belong to matching economic activity groups, the average value amounted to BAM 31,279 (Table 2). The results pointed to the fact that the transfer of Know-how reflected through accounting recordings of intangible assets that fulfilled recognition criteria in accordance to IAS 38.

When we observe the average value of business assets through the same time period, it reached, in 75% of FDI enterprises, an average up to BAM 159,701,490, while in enterprises in matching economic activity groups that average total was up to BAM 8,454,734 (Tables 1 and 2).

The value of business income in 75% of FDI enterprises are in average higher up to BAM 113,270,756, in comparison to the average of economic activity groups to which they belong. This result is such also due to significantly higher realized income from export of effects (merchandise, products and services), and also of goods in FDI enterprises (see values in Tables 1 and 2).

Table 1. *Descriptive statistical values of average variables in enterprises with foreign direct investments (FDI) (period from 2013 to 2018)*

Averages (2013-2018)	n	Mean	Percentiles		
			25th	50th (Median)	75th
Value of intangible assets in FDI enterprises	26	2,094,607	36,623	193,526	1,239,446
Value of business assets in FDI enterprises	37	98,799,003	26,241,783	56,443,891	159,701,490
Values of business income in FDI enterprises	33	99,398,332	6,327,903	36,542,704	117,848,662
Income from sales merchandise on foreign markets in FDI enterprises	4	11,656,950	3,828,632	9,902,488	21,239,730
Income from sales products and services on foreign markets in FDI enterprises	15	69,590,411	1,011,901	15,977,631	102,167,705
Profit from business activities in FDI enterprises	13	10,663,212	4,387,241	6,455,917	13,299,566
Loss from business activities in FDI enterprises	12	2,142,468	341,283	571,495	764,637
Average number of employees based on work hours in FDI enterprises	35	256	23	78	286

Note: n - number of enterprises, mean - arithmetic mean (average), 25th-75<sup>th</sup> - percentile values

Source: Authors' research

Table 2. *Descriptive statistical values of average of economic activity groups to which FDI enterprises belong (period 2013 to 2018)*

Averages (2013-2018)	N	Mean	Percentiles		
			25th	50th (Median)	75th
Value of intangible assets in EAG	39	123,742	16,062	31,279	56,583
Value of business assets in EAG	39	7,842,367	3,992,928	4,471,447	8,454,734
Values of business income in EAG	39	5,072,758	1,174,730	3,176,914	4,577,906
Income from sales merchandise on foreign markets in EAG	37	55,973	3,332	38,988	112,077
Income from sales products and services on foreign markets in EAG	39	2,214,704	27,766	81,770	2,468,198
Profit from business activities in EAG	39	358,161	79,542	185,170	632,669
Loss from business activities in EAG	39	132,329	34,193	64,745	82,321
Average number of employees based on work hours in EAG	39	27	10	13	29

Note: n - number of enterprises, Mean - arithmetic mean (average), 25th-75<sup>th</sup> - percentile values

Source: Authors' research

Profit from business activities in 75% of FDI enterprises amounted to BAM 13,299,566, in comparison to matching economic activity groups, where the average amounted to BAM 632,669. If we observe the average value of profit from business activities, in FDI enterprises it amounted to BAM 10,663,212, while in matching economic activity groups, it amounted to BAM 358,161 (Tables 1 and 2). On the other side, in the research sample, a significant percentage of harmful and exploitative FDI was recorded. In business subjects that are recipients of such FDI, we recorded a significantly higher value of losses from business activities (BAM 2,142,468 in comparison to the average of legal entities without FDI BAM 132,329).

The results of testing research hypotheses are presented in Table 3. The realized results of the Wilcoxon Signed Rank Test lead to a conclusion to confirm hypotheses, with the risk of 5%, that enterprises with foreign direct investments statistically significantly realize higher values of intangible assets ( $H_1$ ), higher values of business assets ( $H_2$ ), business income ( $H_3$ ), higher income from sales products and services on foreign markets ( $H_5$ ), higher profit from business activities ( $H_6$ ), as well as higher average number of employees based on work hours ( $H_8$ ), in comparison to averages in economic activity groups to which they belong. However, we reject the hypothesis that enterprises with FDI realize a lower loss from business activities in comparison to averages of economic activity groups to which they belong ( $H_7$ ). When observing the variable of income from sales merchandise on foreign markets, a larger number of enterprises was not available in order to have more concrete evidence to confirm the hypothesis ( $H_4$ ).

Table 3. *Statistics of comparison of observed values of FDI enterprise versus AEAG Wilcoxon Signed Rank Test*

FDI vs. AEAG	Negative Ranks		Positive Ranks		Z	p
	n	Mean Rank	n	Mean Rank		
Value of intangible assets (FDI vs. EAG)	19	16.63	7	5.00	-3.568	0.000*
Value of business assets (FDI vs. EAG)	36	19.50	1	1.00	-5.288	0.000*
Values of business income (FDI vs. EAG)	29	18.97	4	2.75	-4.815	0.000*
Income from sales merchandise on foreign markets (FDI vs. EAG)	4	2.50	0	0.00	-1.826	0.068
Income from sales products and services on foreign markets (FDI vs. EAG)	13	8.77	2	3.00	-3.067	0.002*
Profit from business activities (FDI vs. EAG)	13	7.00	0	0.00	-3.180	0.001*
Loss from business activities (FDI vs. EAG)	12	6.50	0	0.00	-3.059	0.002*
Average number of employees based on work hours (FDI vs. EAG)	31	19.65	4	5.25	-4.815	0.000*

Note: Negative Ranks: FDI enterprises that have higher observed values than AEAG, Positive Ranks: FDI enterprises that have lower observed values than AEAG, Mean Rank: average rank of observed values in a group, n: number of enterprises, Z: Z statistic value, p\*: probability to reject zero hypothesis with a 5% (0.05) risk, FDI: enterprises with foreign direct investments, AEAG: averages of economic activity groups

Source: Authors' research

Figure 1. presents the percentage of FDI enterprises that have higher or lower observed values in comparison to averages of economic activity groups to which they belong.

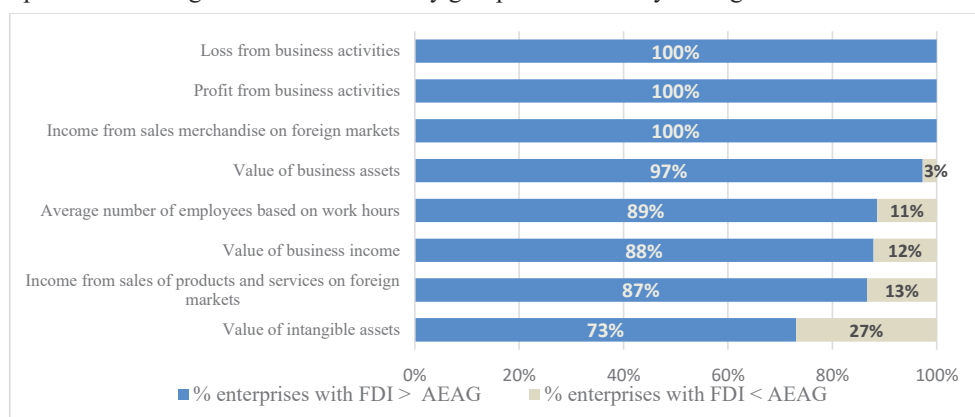


Figure 1. *Share of FDI enterprises that have higher or lower observed values in comparison to AEAG*

Source: Authors' research

All enterprises had a higher loss from business activities, higher profit from business activities, as well as higher income from sales of goods on foreign markets that the average values in economic activity groups to which they belong.

It is interesting to notice that 20.51% of FDI enterprises, in the observed period, shifted from the zone of loss to the zone of profit from business activities. On the other side, 10.25% of FDI enterprises became unprofitable enterprises from being profitable ones. In the sample, there were 30.77% of enterprises that realized loss from business activities throughout the whole observed period. From 39 enterprises in the sample, one FDI enterprise has filed for bankruptcy and went under at the end of 2016. The maximum value of profit from business activities in the sample amounts to BAM 44,896,960, while the highest value of realized loss from business activities amounts to BAM 41,065,281. The maximum number of employees based on work hours, in the observed sample, is 4,125, while the minimum number is 1.

## 6. Conclusions

The research results on effects of FDI on business performances of recipient enterprises in FBiH, compared to averages of economic activity groups, have resulted in confirming the hypotheses that enterprises with foreign direct investments statistically significantly realize higher values of intangible assets ( $H_1$ ), higher values of business assets ( $H_2$ ), business income ( $H_3$ ), higher income from sales products and services on foreign markets ( $H_5$ ), higher profit from business activities ( $H_6$ ), as well as higher average number of employees based on work hours ( $H_8$ ), in comparison to averages of economic activity groups to which they belong. We reject the hypothesis that FDI enterprises realize lower losses from business activities than the averages in economic activity groups to which they belong ( $H_7$ ). When observing the variable of income from sales of merchandise on foreign markets, the research sample is not adequately represented in order to confirm the hypothesis  $H_4$ .

Considering that there are indications that FDI enterprises from different economic activities realize significant differences in the observed business performances, we find that it would be favourable to research the relationship between the realized FDI indicators in the primary, secondary and tertiary sector in the future. Also, in this research, we have observed the relationship of business performances of FDI enterprises and averages of economic activity groups, and it would be also favourable to research the deviations in business performances at the activity level with the extension of the researched population and sample. Also, a recommendation for future studies would be to include the whole BiH, in the territory sense, that is, conduct an evaluation of business performances of enterprises receiving FDI, in both, FBiH and in RS as well. The reason as to why this research would have great significance is in the fact that there are large deviations in average indicators of business performances in the same activities in these two different entities in BiH.

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## FOREIGN DIRECT INVESTMENT IN BOSNIA AND HERZEGOVINA - STATUS AND PERSPECTIVES

### STRANE DIREKTNE INVESTICIJE U BOSNI I HERCEGOVINI - STANJE I PERSPEKTIVE

#### Abstract

*Despite all the invested efforts, implemented foreign direct investment in Bosnia and Herzegovina (BiH) is not at the expected level. On the other hand, surrounding countries, which are direct competition to BiH when it comes to attracting foreign investors, achieve better results. The aim of this research is to analyse the economic and legal framework for the implementation of foreign investment in BiH, to determine achieved results in attracting foreign direct investment and to identify restrictions of more intensive inflow of foreign investment. One of the assumptions of integration of BiH into the internal European market is the fulfilment of the conditions specified in the Stabilisation and Association Agreement, which implies the implementation of economic reforms with the aim of strengthening economy, business environment and economic policies, and creating a favourable climate for private investment, both foreign and domestic. The contribution of the paper is reflected in the critical analysis of the legal and institutional framework for attracting foreign direct investment, the assessment of the achieved results and recommendations for the creation of proactive performance towards foreign investors.*

**Keywords:** foreign direct investment, effects of inflow of foreign direct investments, investment climate in Bosnia and Herzegovina, legal framework, institutional approach

**JEL:** M31, M39, K2, K3

#### Sažetak

*Nivo realiziranih stranih direktnih investicija u Bosni i Hercegovini, pored svih uloženi napor, nije na očekivanom i zadovoljavajućem nivou. Naprotiv, zemlje okruženja, koje predstavljaju direktnu konkurenciju Bosni i Hercegovini u privlačenju stranih investitora, ostvaruju bolje rezultate. Cilj istraživanja u ovom radu jeste analizirati ekonomsko-pravni okvir za realizaciju stranih investicija u Bosni i Hercegovini, utvrditi ostvarene rezultate u privlačenju stranih direktnih investicija te identificirati ograničenja intenzivnijeg priliva stranih investicija. Jedna od pretpostavki integracije Bosne i Hercegovine u unutarne europsko tržište jeste ispunjavanje uvjeta iz Sporazuma o stabilizaciji i pridruživanju, što podrazumijeva provođenje ekonomske reforme s ciljem jačanja privrede, poslovnog okruženja i ekonomskih politika, te stvaranje povoljne klime za privatne investicije, strane ali i domaće. Doprinos rada se ogleda u kritičkoj analizi pravnog i institucionalnog okvira za privlačenje stranih direktnih investicija, ocjeni ostvarenih rezultata i preporukama za kreiranje proaktivnog nastupa prema stranim investitorima.*

**Ključne riječi:** strane direktne investicije, efekti priliva stranih direktnih investicija, investicijski ambijent u Bosni i Hercegovini, pravni okvir

**JEL:** M31, M39, K2, K3

## 1. Introduction

Foreign Direct Investment (FDI), as a form of capital transfer, plays a significant role in generating global economic flows and encouraging development of economies of both, transitional and developing countries. Attracting FDI has for a long time been a subject of observation and critical analysis by many authors. Regardless of the criticism often referred to the policies aimed at encouraging the development of national economies through more intensive attraction of FDI, governments of many countries are undertaking efforts to stimulate foreign investors to invest in their countries, providing them with various benefits which are very often not available to domestic investors.

Through the implementation of FDI, the competitiveness of domestic companies can be significantly improved, precisely through the transfer of modern technologies and proven management and marketing knowledge, as these are development resources that are significantly more lacking in transition economies and developing economies. For illustration purposes, at the end of January 2017 (The Central Bank of BiH, 2017), the amount of deposits in banks in Bosnia and Herzegovina (BiH) was BAM 17.91 billion, which is 8.9% y-o-y. Resident deposits reached the amount of BAM 10.7 billion (59.8% of the total deposits), which represents an increase of 8.1% compared to the same month of the previous year. Corporate deposits (company deposits) were BAM 4.11 billion (22.9% of the total deposits), while public sector deposits were BAM 1.68 billion (9.4% of the total deposits). Company deposits and citizen deposits represent a large potential of financial investment; however, investment does not. We can assume that, among other things, the two reasons for such a situation are: (1) lack of managerial and marketing knowledge in companies, which would enable more intensive export activity and (2) constant growth of private savings and uneven distribution of income reflect in the reduction of the overall demand in the end-use market, which consequently slows down the economic reproductive cycle.

Therefore, the issue of creating FDI attracting policies should be approached very carefully in order to identify the providers of *investment capital* whose business goals are compatible with the economic development goals of the country, on the one hand, and to allocate the total investment capital (domestic and foreign) in a way that will enable maximizing macroeconomic effects. The assumption for this, among other things, lies in the strategy of economic development of the country and the strategy of attracting FDI. The research problem presented in this paper consists of the identification of the determinants for attracting FDI in BiH. The research issues that need to contribute to solving the research problem are the following:

- What defines the economic and legal framework for the implementation of foreign investments in BiH?
- What are the achieved results in attracting FDI in BiH?
- What are the restrictions for increased inflow of FDI in BiH?

The data used in this paper came from secondary and primary sources. Secondary sources were the records of government institutions in BiH, reference books and the laws and by-laws which regulate issues of FDI in BiH. The primary data were collected by a survey using a questionnaire. The respondents were foreign investors who invested in BiH in the amount of more than BAM 20 million. The primary data were collected during 2017 and 2018. Using the methods of analysis, comparisons and synthesis, we presented the theoretical-empirical aspects related to: the importance of FDI, the

achieved results in the flow of FDI and perspectives in terms of developing the policy of promoting investment potential of BiH to foreign investors.

## 2. Theoretical aspects of the impact of FDI on the development of the economy recipients

If we observe flows of international capital, we notice that FDI has in recent years represented a significant source of financing economic development of the majority of countries, especially the transition and developing ones. In the period from 2000 to 2010, primary forms of capital movement of developed countries were portfolio investment and international loan capital, while developing countries and transition countries based their economic development mostly on FDI which, during this period, covered 53% of the total capital flows. Bearing in mind that FDI has in recent years represented a significant source of financing for most countries, it is necessary to point out its role and importance for the development of the economy of a certain country (Czinkota, Rokainen & Donate, 2004, p. 142). Motives which drive the partners for the implementation of FDI are numerous. They can all be divided into investors' motives and recipients' motives. Key motives for investors are market motives, related motives, and efficiency-related motives (Cavusgil, Knight & Reisenberger, 2012, p. 400). On the other hand, the basic motives for the recipients of foreign capital are related to the desire to provide: missing financial funds, foreign funds, and the technical-technological, organizational and marketing knowledge.

The importance of FDI as a form of international movement of capital is reflected in positive effects they have on the economic development of the recipient country. The advantage of FDI in relation to other forms of capital flows is reflected primarily in additional resources such as technology, managerial and organizational knowledge, access to foreign markets, *etc.* Also, FDI enhances economic development of the recipient country through improvement of the factors of economic growth and prosperity of the country as follows (Stefanović, 2008, p. 134):

- by transferring capital (which directly increases its potentials of growth);
- by transferring new technologies and business practices;
- by stimulating investment of the recipient countries capital;
- by improving the quality of human resources through the training of the local workforce;
- by providing access to international markets of labour and capital;
- by supporting and expanding exports of industrial products, and
- by increasing the efficiency of the national economy, directly and indirectly (by lowering production cost and encouraging competition on the domestic market of labour and inputs).

Hadžović (2002) observes potential benefits that the recipient country can achieve by implementing FDI from *the macro and micro* aspects. From the perspective of macro aspect, benefits of FDI are primarily reflected in: improvement in the trade and payment balance of the country, faster and more efficient integration of the domestic economy into world markets, improvement of supply on the domestic market, increase in the number of employed people, *etc.* When observed from the *micro* aspect, recipient companies achieve the following benefits: they come to modern technology faster and cheaper, create conditions for expansion of business cooperation with foreign partners and on third markets, introduce contemporary organization of work, and acquire more contemporary knowledge in the field of market research (Hadžović, 2002, p. 57).

However, it is not a rare case that foreign business partners often transfer outdated technology in the recipient country, which cause negative effects of the FDI inflow. In addition to this, negative effects of FDI can be reflected in the reduction of employment. Namely, FDI can cause distortions of the labour market, in terms of reducing the amount of the so called "good" and increasing the amount of the so called "bad" jobs, which can be reflected in the reduction in employment. The entry of transnational companies on the domestic market can cause the reduction of sales of domestic companies, which can have a negative impact on the degree of utilization of their production capacity

but also on the possibility of using economy of scales, which can result in a decline in productivity of domestic companies and their competitiveness. Local authorities can also cause negative consequences by providing huge benefits for FDI. Approved benefits can result in uneven return on foreign and domestic capital, which on the one hand has a negative effect on the competitive ability of domestic companies, and on the other hand, allows transnational companies a profitable business and a better market position without a significant transfer of new technologies.

Looking at the negative effects of FDI, we noticed that many proponents of alternative approaches to the development of the country address the risk of FDI and urge caution regarding the negative effects foreign investment may have on the economic development of the country. Their warnings are focused on the following (Ovčina, 2009, p. 32):

- risk of exploitation of domestic workforce by foreign employers;
- excessive profits that “foreigners” will make at the expense of exploiting the national economy;
- risk of all profits being transferred abroad instead of staying in the country;
- risks foreign investors fixing the prices with their branches abroad;
- excessive dependence of the national economy on foreign investors (especially foreign banks), making the national economy loses the ability of independent decision-making in the sphere of economic policy;
- the fact that foreign investors only come for making profit without caring about the development of the economy of the receiving country;
- risk of foreign investors not paying attention to environmental protection, and the recipient country serving them as a test site for the application of outdated and harmful technology.

There is no doubt that all the above-mentioned risks can really be present with foreign investment, and in this regard none of them should be underestimated. Therefore, it is up to the recipients to assess potential benefits and costs they will have at the microeconomic level before deciding on FDI implementation. Such an approach could give a real assessment of advantages and disadvantages of FDI for each partner individually. In doing so, it should not be overlooked that all the negative phenomena related to foreign investments can be successfully suppressed and limited if there is an awareness of their nature and if it is known that these risks can potentially be eliminated. This can be achieved through the influence of the competent authorities, as well as through negotiations and appropriate contractual provisions.

### 3. The legal framework for attraction and implementation of FDI in BiH

#### 3.1. The characteristics of the investment legislation

The legal and regulatory framework of FDI in BiH follows international trends and practices in this field. Bearing in mind that BiH is still a country in transition, the need for FDI is greater, both from the perspective of economic entities as well as from the country itself, which is why the legal regime of FDI is one of the prerequisites for attracting, implementing and promoting foreign investment. In addition to general economic interests, countries have special political reasons to encourage export or import of capital (Trifković & Omanović, 2001, p. 118). Investment legislation in BiH starts from the *Law on the Policy of Foreign Direct Investment in Bosnia and Herzegovina* (hereinafter referred to as the Law) as umbrella legislation, and then it branches to the entity laws. Of course, one cannot avoid other legal acts in the field of economic, tax, labour and other legal areas, which regulate many of the issues important for foreign investors. In addition to the positive regulations, a very significant source of law are international investment agreements which have advantage in application in relation to the domestic investment legislation. BiH has so far concluded 42 bilateral investment agreements on promotion and protection of investments. The Law is the framework document governing the basic policies and principles of participation of foreign investors in the economy, while the entity laws regulate the rights, obligations and privileges of foreign investors, forms of foreign investment,

procedures of approval of foreign investment, and the authorities in charge of the approval of foreign investment. The Law is in line with international principles and practices in this field, and it does not fall behind the laws of surrounding countries, and beyond. The question is why the legal framework is detected as a segment on the list of barriers to higher FDI inflow in BiH, when it provides an open and liberal approach to FDI? In support of the quality solution of investment legislation, it can be pointed out that the amendments to the Law have been made using the RIA methodology created by the World Bank. Each amendment to the Law was aimed at simplifying restrictions to foreign investors and simplifying the process of FDI registration, which has been largely achieved.

### 3.2. *The position of foreign investors – rights and restrictions*

Liberal foreign investment policy is implemented through standard mechanisms in international trade law and investment law, and one of the most significant such mechanism is the principle of national treatment, which, in relation to other principles, determines the legal position of foreign investment at the recipient country (Divljak, 2015, p. 1038). National treatment means that foreign investors have the same rights and obligations as BiH residents. Broadly seen, the field of application of national treatment of foreign investors includes three segments: admission of investment, implementation of investment, and the use of legal remedy (Divljak, 2015, pp. 1045-1046).

The legal framework that regulates the policy of FDI in BiH is not different from the legal framework of other competitor countries. It is based on general principles that derive largely from public international law, such as *pacta sunt servanda*, obligation to respect the legal order of the recipient country, non-interference in internal political relations, obligation to indemnify a foreign investor in case of legal and political action taken by the recipient country, free transfer of FDI funds FDI(whether imported or subsequently acquired), national treatment of FDI, principle of the most privileged nation, dispute resolution, and choice of applicable law. The positive legal framework recognises the following rights to foreign investors: free establishment of companies and market operations, minimum restrictions regarding investment and reinvestment of profit in different economic sectors, the right to open accounts at commercial banks, free conversion of currency, free transfer of profit generated by investing, acquisition of ownership in real estate under the condition of reciprocity, free employment of foreign workers, and protection of administrative and legal measures of restrictions and confiscation of property. However, chronic problems in the field of FDI are not linked to investment legislation, but to other laws directly or indirectly connected to FDI and the (non)functioning of the judiciary and administration. This is the obstacle we constantly face and fail to overcome and which damages BiH's reputation with potential investors and it makes this country less attractive than its competitor countries. In domestic and international reports, the unfavourable assessment of the business environment in BiH is constantly there. The most common reasons are administrative barriers, evident in the obligation to obtain a large number of permits and approvals (*e.g.* electricity, urban, construction, environmental, utility permissions, *etc.*), issued by different levels of government among which there is no synchronization, and long-term and complex procedures, with the addition of inexperienced staff. Furthermore, as one of the main obstacles of doing business stands out legal uncertainty which is reflected in frequent and incompatible changes to regulations at various levels of government accompanied by the problem of inefficient and unreliable justice system (Doing Business, 2019, p. 116). There is also a problem of the complexity of tax regulations, as well as unpredictability and volatility of tax policy. Another item in a series of complaints is related to the FDI procedure, as the absence of the so-called one-stop shop system of establishment, business registration and electronic registration of a business entity distort the image of business environment. Other problems refer to the lack of support for innovation and new technologies, archaic regulations in the field of ecology and product quality control (lack of accredited laboratories for many industries), but also many other obstacles (FIPA, 2019).

All of the above confirms that the legal framework does not consist solely of investment legislation in line with modern principles and practices, but rather of different regulations at different levels of government (BiH, entity, cantonal and local self-government units), which should all be applied to the implementation of FDI.

#### 4. The volume of foreign investments in BiH

From 2010 to 2018 BAM 5.10 billion was invested in BiH through FDI (Figure1). The largest inflow of FDI was recorded in 2014 reaching BAM 811 million and in 2018 it reached BAM 783 million. During the years of the global economic crisis, the level of FDI flows in BiH was significantly reduced. Unfortunately, the volume of FDI inflow in the years after the crisis was not significantly increased. If we look at the data from 2018, it is evident that FDI in BiH increased up to BAM 2 million (+0.26%) when compared to the previous year. However, in the period under review, BiH achieved the biggest FDI inflow in 2014 reaching BAM 811 million, which was by BAM 404 million (99.26%) more compared to 2013. Bearing in mind that our country was placed second among the countries of Southeast Europe (SEE) when it comes to FDI inflow, it is expected that the trend of increasing FDI inflow into our country will continue in the future.

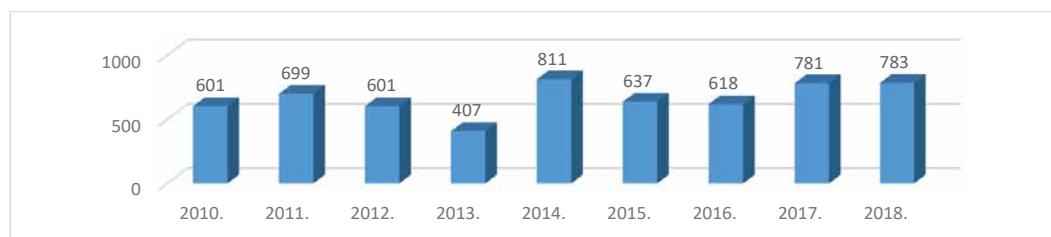


Figure 1. FDI inflow in BiH from 2010 until 2018 (in millions of BAM)

Source: FIPA, 2019

In the period under review, Austrian companies were the ones that invested the most in BiH, with their investment reaching BAM 2.66 billion, which accounted for 20% of the total foreign investment made in BiH (Figure2). They are followed by the companies from Serbia and Croatia that invested approximately equal amounts. There were relatively few countries whose investors opted for a higher volume of investment into BiH. The top 10 countries from which foreign investors came had a share of 89% in the total foreign investment in our country in the period under review. According to the total investment made from 1994 to 2018, the country with the highest investment in BiH was Austria with BAM 2.66 billion, followed by Croatia, Serbia, and Slovenia.

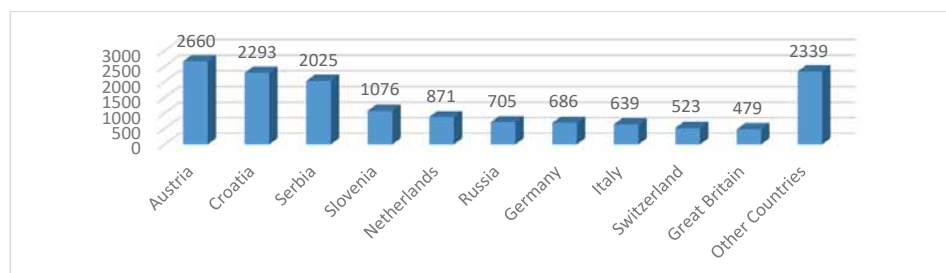


Figure 2. The most important countries - investors in BiH until 2018 inclusive.

Source: FIPA, 2019

By observing the sectoral structure of FDI flow (Figure3) until 2018 inclusive, most of FDI was in manufacturing (34%), banking (25%) and telecommunications (12%). All other sectors were represented with 29% of the total FDI in BiH in the period under review.

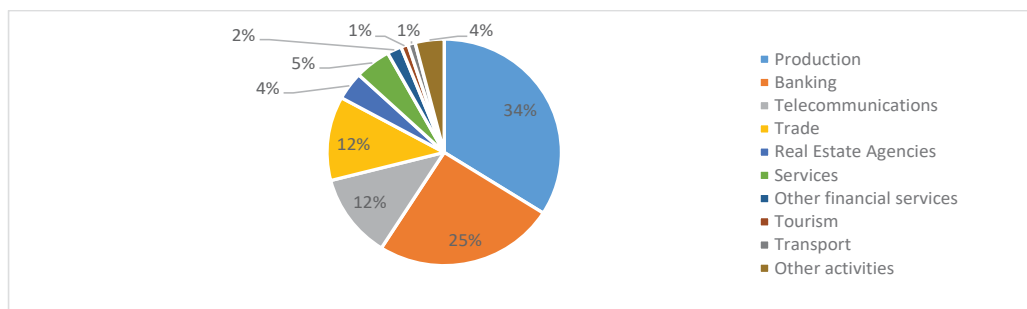


Figure 3. *Sector structure of FDI in BiH until 2018 inclusive*

Source: FIPA, 2019

From the aspect of FDI structure, it is encouraging that 1/3 of the investment took place in the manufacturing sector. Investment in the banking sector provided indirect incentives to domestic businesses entities and generated demand on the end-use market through intensive lending to the household sector. On the other hand, foreign capital invested in the banking sector significantly contributed to the stability of the banking system, as it eliminated domestic political influence in the reallocation of investment capital.

However, the volume of FDI is not encouraging, especially bearing in mind the fact that during the last three to four years the world economy recorded positive economic trends. The absence of a larger volume of FDI might mean a failure to use one of the sources of growth and development of the BiH economy, especially in the field of export competitiveness development. In addition, it is estimated that the absence of a significant inflow of FDI is not compensated by a significant increase in domestic investment, which could potentially suggest that the domestic economy is stagnant (especially in the export of competitiveness and structural development, due to the lack of development of manufacturing industries based on high technology) regardless of positive indicators of GDP growth.

## 5. Restrictions and perspectives of FDI increase in BiH

In order to be able to talk about activities at encouraging foreign investors to invest in BiH, one should first identify the determinants of their decision-making about (non)choosing our country as an investment destination. Therefore, the following part of the paper brings, based on the primary research, the systematization of (de)motivating factors for foreign investors and the analysis of experiences foreign investors had while investing into our country. The studies conducted by the United Nations Conference on Trade and Development (UNCTAD) in 2007 and 2008 divided all the factors that determine FDI inflow in the SEE countries into positive and negatives. The most significant factors that positively affect the inflow of foreign capital in the SEE countries are: (1) size and growth of markets, (2) access to international markets through economic integration, (3) availability of natural resources, (4) qualified labour force, (5) existence of free zones and (6) incentives that encourage the implementation of FDI provided by the government of these countries. The most significant negative factors that represent a restriction for the inflow of foreign capital in the SEE countries are: (1) unstable policy of the government and government bureaucracy, (2) difficult access to finance, (3) high level of corruption, (4) high tax rates, and (5) a high crime rate.

According to the results of the primary research conducted in 2017 and 2018 (Figure 4), it can be concluded that the main motives of foreign investors for the investment in BiH were: desire for

entering the BiH market, provision of qualified and trained labour force and the use of existing knowledge and technology in order to expand the offer of their companies. These motives were pointed out by all the respondents (foreign investors with an investment greater than BAM20 million). The desire for performance on regional markets was the motive for 93.75% of the respondents. Available and inexpensive production inputs accessed by BiH companies and available natural resources of BiH were the motive for investment by 81.25% of the respondents. It was interesting to find out that the incentive measures given by the state for the purpose of attracting FDI were the motive for investment in our country for the smallest number of the respondents (68.75%). This may indicate that the country does not provide incentive measures attractive enough to attract foreign investors, or that government incentive measures are not important to investors, because they are guided by other criteria, first and foremost, by market criteria.

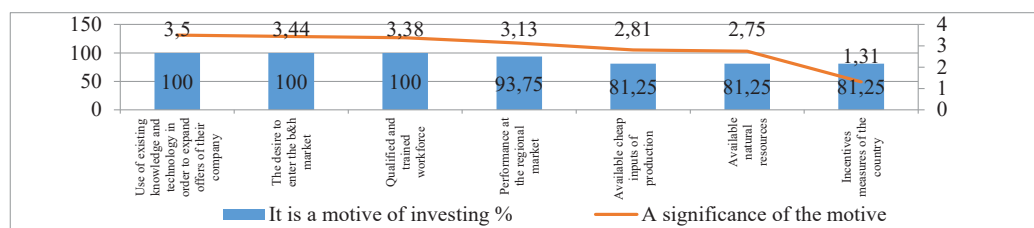


Figure 4. *The motives of foreign investors for investment in BiH and the significance of individual motive*

Source: Authors' research

Of course, the decision to investment in a country is not based on one motive, it is influenced by a number of factors. Therefore, this research aimed to determine the significance of individual motives for the decision of the respondents to invest in BiH (Figure4). The three motives highlighted by all the respondents also had the highest average significance scores for the respondents (3.5 to 3.38 on a 1 to 5 scale). Country's incentive measures were rated as least significant for investors with an average rating of 1.31. When it comes to the factors that in the opinion of the respondents (foreign investors), mostly discourage their colleagues (other investors) from investing in our country, they are as follows:

- political instability of the country;
- complex administrative system,;
- complex and uneven legal regulations (divided jurisdiction in terms of issuing required permits),
- tax policy;
- labour legislation;
- underdeveloped infrastructure;
- lack of support of the local community, and
- high level of corruption at all government levels.

The business environment in BiH represents a significant obstacle when it comes to the realization of foreign investments in BiH. The results of the primary survey show that corruption is the leading element of business environment which reflects negatively on the realization of business processes in BiH. The respondents assigned an average rating of 4.00 to this element (Figure 5). The next element that hinders business activities of the respondents is political instability. Based on the primary survey, the assigned average rating for this element was 3.94. Bearing in mind that foreign investment requires, among other things, political stability, bad political situation in BiH reflects on the inflow of FDI and implementation of business processes of enterprises. The next significant element for investors is related to the instability of the economic system, which was assigned by the rating of 3.88. In addition to political and economic instability that inhibit the growth and development of

enterprises from BiH, the obstacles to their further progress were identified as weak reliability of statistical data, underdevelopment of BiH market, complex legal regulations, *etc.*

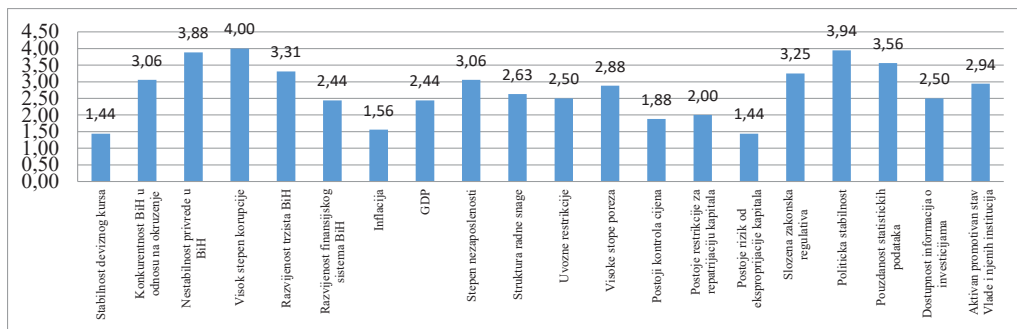


Figure 5. Assessment of the impact of business environment elements on the development of business among the respondents

Source: Authors' research

We conducted a factor analysis among the respondents in order to determine the key elements of business environment that inhibit business development. After we determined that the data were suitable for factor analysis (Table 1), analysing the main components of 20 basic variables their number was reduced to three (Table 2) with the characteristic values greater than one, whereby it explains the total of 50.825% variance.

Table 1. *KMO coefficient and Bartlett's test*

<i>KMO measures the sampling of adequacy</i>		0.613
Bartlett's test	Estimated value of the $X^2$ - test	766.599
	Degree of freedom	190
	The level of significance	0.000

Source: Authors' design

Table 2. *Analysis of the main components*

Components	An initial values of factors			Allocated sums of the leading factors			Rotating sums of the leading factors
	Total	Variance %	Cumulative %	Total	Variance %	Cumulative %	Total
1	6.036	30.182	30.182	6.036	30.182	30.182	5.058
2	2.206	11.031	41.212	2.206	11.031	41.212	4.385
3	1.923	9.613	50.825	1.923	9.613	50.825	2.319
4	1.495	7.474	58.299				
5	1.489	7.443	65.743				
6	1.285	6.426	72.169				
7	1.121	5.603	77.772				
8	1.014	5.071	82.843				

Source: Authors' design based on statistical processing

After the factor rotation and the application of direct oblimin oblique rotation, we stated that the first factor included the following criteria: price control with a weighting coefficient of 0.875; inflation with a weighting coefficient of 0.870; expropriation of assets with a weighting coefficient of 0.795; profit repatriation with a weighting coefficient of 0.744; exchange rate with a weighting coefficient

of 0.601; reliability of data with a weighting coefficient of 0.586; development of a financial system with a weighting coefficient of 0.541; degree of instability with a weighting coefficient of 0.472.

The second factor included the criteria: instability of the BiH economy with a weighting coefficient of 0.842; BiH competitiveness in relation to the environment with a weighting coefficient of 0.776; availability of investor information with a weighting coefficient of 0.727; active attitude of the government and its institutions with a weighting coefficient of 0.667; development of the BiH market with a weighting coefficient of 0.622; import restrictions with a weighting coefficient of 0.579 and GDP with a weighting coefficient of 0.424.

The third factor included the following criteria: high tax rates with a weighting coefficient of 0.749; complex legislation with a weighting coefficient of 0.534; high level of corruption with a weighting coefficient of 0.525, and structure of labour force with a weighting coefficient of 0.383.

According to the report of Doing Business (2019) BiH is placed 89<sup>th</sup> out of 190 countries when it comes to the quality of business environment. If we compare this position with the 86<sup>th</sup> position occupied by BiH in 2018, it can be concluded that BiH fell by three places when it comes to improving business environment. Also, our country registered a negative assessment when it comes to the intensity of movement towards the improvement of business environment. Namely, the BiH had a lower position on investment destination market (destination for investment) compared to its direct competitors, *i.e.* the countries of the region (Figure 6). The competition in improving the business climate is illustrated by the fact that BiH was ranked 39 places behind Montenegro, while it fell behind Montenegro by only 8.91 points in the assessment of ease of doing business. When compared to Serbia and Croatia, our country was ranked lower by 41 and 31 places respectively 9.67 and 7.58 points in terms of the ease of doing business. Therefore, if our country wants to improve its position on the list of countries with attractive business environment, a lot of effort has to be done in a short time period, because in the investment world, time is a very important resource.

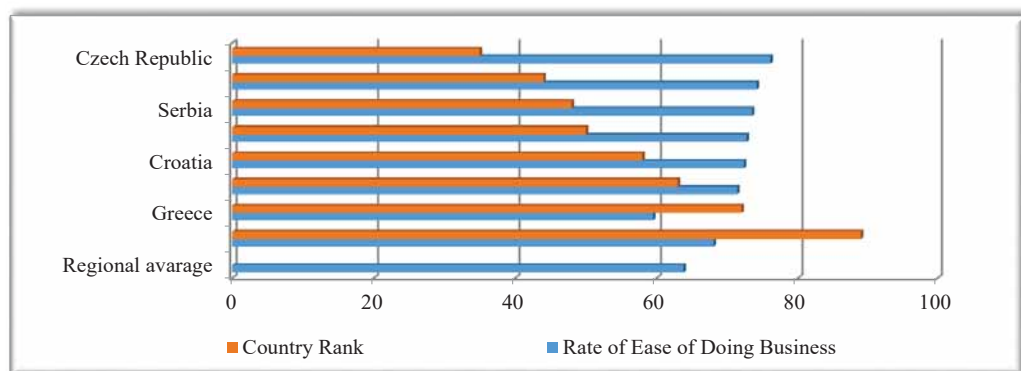


Figure 6. Comparison of BiH and other countries on the ease of doing business

Source: Authors' design based on data from (Doing Business, 2019)

BiH could learn a useful lesson in attracting foreign capital from the experiences of Macedonia and Albania. In Macedonia, with the help of institutions such as "one-stop-shop", a company can be registered in four hours with costs up to 50 Euros. The situation is similar in Albania (European Bank for Reconstruction and Development, 2008).

## 6. Conclusion and recommendations

Based on the presented theoretical aspects of FDI, i.e. numerous studies aimed at determining the impact of FDI on the economic development of recipients, it can be concluded that FDI can be a significant source of economic growth and development. FDI has its positive and negative impacts. If the plan-led approach secures the FDI inflow into: production that will substitute import, sectors that are export-oriented or into new sectors where domestic investors are not significantly present, FDI will generate significant benefits at both microeconomic and macroeconomic levels. Otherwise, if spontaneous efforts are made to attract FDI, the consequences may further weaken domestic investors. Recommendations for the promotion of FDI is to identify the sectors of particular importance for the economic development of the country and, through incentives, motivate foreign investors to invest in these sectors. If incentives are given to foreign investors regardless of the sectors in which they invest, they will invest in the sectors that provide the greatest rate of return on investment and maximize the effects instead of pursuing a win-win effect. The next important limitation is the slow economic growth of the country and stagnation of the end-use market that cannot encourage/absorb even domestic investment. Since the financial investment capital of domestic investors is not negligible, one way of export affirmation is to invest abroad instead of exporting goods to foreign markets. This is a higher level of export affirmation and some BiH companies have shown that they have the capacity to do so. BiH has achieved partial success in attracting FDI, although it has an extremely liberalized market. However, this is not enough because liberalization is only one of the factors important to investors. The volume of implemented FDI in BiH is not at a high level and we cannot be satisfied with the results. However, partial success can be sought in the structure of FDI because 1/3 of the investment was made in the manufacturing sector. In addition, investment in the banking sector (in the amount of 26% of the total foreign investment in our country) have contributed to the stability of the banking system as a key precondition for the functioning of the economy.

According to the results of the primary survey, there are a number of features of the economic and legal framework that discourage/restrict foreign investors: political instability of the country, complex administrative system, complex and fragmented legal regulations (shared competencies in issuing necessary permits), tax policy, labour legislation, underdeveloped infrastructure, lack of local community support and high corruption rates at all levels of government. The regulations governing FDI in our country can be judged as having quality and being in line with international standards, and they give the necessary assurance to investors that they can successfully operate in our country. However, a big problem is the lack of confidence (well-founded or not) in the domestic legal system. That is why it is very important to create a planned approach to improve BiH's position in the reports published by *Doing Business*, *Transparency International* and other international organizations, as these are significant sources of information that guide investors in making decisions to invest in a particular country or not. This can only be achieved through systematic work to address the barriers that de-stimulate foreign investors. One option is to create incentives for more intensive use of domestic investment potentials (primarily the financial ones) in order to stimulate structural economic development with the focus on the development of high technology-based industries. That would motivate young and highly educated labour force to stay in BiH.

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**DIGITAL ECONOMICS /  
DIGITALNA EKONOMIJA**



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## CONTEMPORARY APPROACHES TO MEASURING DIGITAL ECONOMY

### SAVREMENI PRISTUPI MJERENJU DIGITALNE EKONOMIJE

#### Abstract

*The paper compares the three most common approaches for measuring the digital economy which include the Digital Density Index, the Digital Economy, and Society Index and the Digital Society Index. The analysis of the key determinants for measuring the digital economy is based on determinants compatibility which is further grouped as compatible and incompatible determinants. A determinants analysis of the presented digital economy metrics describes the level of compatibility as well as the level of incompatibility. Also, this paper aims to analyze digital economy measurement approaches, which have been used by different stakeholders in the economy and society and what we can learn to enhance existing digital economy measurement approaches.*

**Keywords:** digital economy, Digital Density Index, Digital Economy and Society Index, Digital Society Index

**JEL:** D8, L86

#### Sažetak

*U radu su upoređuju tri najčešća pristupa za mjerenje digitalne ekonomije koje obuhvataju Indeks digitalne kompaktnosti, Indeks digitalne ekonomije i društva i Indeks digitalnog društva. Analiza ključnih determinanti za mjerenje digitalne ekonomije zasniva se na kompatibilnosti determinanti koje su dalje grupisane kao kompatibilne i nekompatibilne odrednice. Analiza determinanti predstavljenih metrika digitalne ekonomije opisuje nivo kompatibilnosti kao i nivo nekompatibilnosti. Također, ovaj rad ima za cilj da analizira pristupe za mjerenje digitalne ekonomije koje koriste različiti učesnici u ekonomiji i društvu te šta možemo naučiti iz toga kako bi unaprijedili postojeće pristupe za mjerenje digitalne ekonomije.*

**Ključne riječi:** digitalna ekonomija, Indeks digitalne kompaktnosti, Indeks digitalne ekonomije i društva, Indeks digitalnog društva

**JEL:** D8, L86

#### 1. Introduction

There are many definitions of the "digital economy" in contemporary literature that have emerged from Tapscott's definition of the digital economy to several sources that are avoiding a specific definition. For example, European Parliament identifies the digital economy as a "complex

structure” while some researchers defining that the digital economy is “less as a concept and more as a way of acting” (Elmasry *et al.*, 2016). However, most sources provide specific definitions that are simple and define the digital economy as an “economy based on digital technologies” (European Commission, 2013).

Many companies have discovered that traditional financial key performance indicators (KPIs) are no longer effective at measuring the success of a digital business. Enterprises unable to measure the success of their digital initiatives should be turning to digital metrics that provide insights beyond the information on a company’s 10-K statements (World Economic Forum, 2016). Digital leaders stand out from their competitors in two ways: how they put digital to work, especially in engaging with clients and suppliers, and how intensively their employees use digital tools in every aspect of their daily activities (Gandhi, Khanna & Ramaswamy, 2016). Given the increase of digitally enabled economic activity and thus the growing economic importance, measuring the digital economy is a crucial process that requires high-quality data. Data quality problems are particularly pronounced in developing countries where some of the data do not exist or are unreliable. Given that the measurement of the digital economy mostly involves a large number of indicators, the problem arises of choosing the optimal metric concerning the cost of data collection and processing, i.e. the available budget for measurement. The research decision should be based on the selection of digitalization measurements with optimal statistical potential.

Measuring the digital economy brings a challenge that also relates to the specific industry or business entity. Companies traditionally measure their business performance based on net income, earnings per share and other financial indicators. On the other hand, measuring digital indicators is very difficult to define, as businesses in different sectors have different ways of quantifying their digital initiatives. Digital economy measurements must also be directed at all stakeholders in organizations and companies to analyze the measured parameters and based on which management can make optimal decisions. The implementation of digital solutions imposes evolving and adaptive metrics to gauge the digital economy's tangible and non-tangible benefits.

Measuring digital economy is extremely complex with many old and new challenges for all statistical aspects such as measuring macroeconomic productivity growth rates, gross domestic product, etc. Measuring the digital economy is a challenge due to the phenomenon of “invisibility” of many digitally-enabled economic activities that do not appear as an output. As such, intermediary services emerge between businesses or between consumers for whom it is difficult or even impossible to calculate price or added value. Also, these transactions are virtual, difficult to track in the context of cross-border digital commerce and digital consumers who may also appear as creators of a service or content.

The digital economy is strongly linked to data management and analytics, acting as a tool to provide relevant information for new digital processes as well as a control mechanism manifested through the measurement of results. The lack of a generally harmonized definition of “digitalization” or “digital” sector and the lack of industry and product classification for Internet platforms and ancillary services are barriers to measuring the digital economy (International Monetary Fund, 2018). Therefore, it is necessary to continuously develop the different approaches used to measure the activities of the digital economy to evaluate tangible and intangible benefits and to ensure correct and accurate measurement.

## 2. Digital Density Index

Oxford Economics and Accenture jointly developed the Digital Density Index (DDI), which measures the impact of digital technologies on economic growth (Macchi, Berthon & Robinson, 2015). The ultimate goal of DDI is to direct further investment to both public and business communities to stimulate economic development. The DDI contains 50 indicators grouped into 4 equally weighted areas of economic activity that include 18 groups of metrics (Kotarba, 2017). Benchmarking results can be used to study best practices that use high-performance digital economies.

Digital Density Index indicators range from the volume of online transactions performed, the level of automated interaction between companies, the use of technology to streamline processes such as Cloud to the ubiquity of technology skills in business, the use of digital platforms in accessing capital and talent. and the level of acceptance of new business models by the government and the business sector.

The Digital Density Index is a comprehensive metric that answers the question of what is crucial to digitally-targeted economic productivity. The highly ranked score of the Digital Compactness Index reflects the broader and deeper adoption of digital technologies, digital skills, processes and regulatory frameworks that aim to realize the set economic potential.

Digital Density Index surveys aim to determine how digital penetration affects economic activities with a focus on productivity, competitiveness, and GDP. Digital Density Index indicators can also help governments and business leaders think differently about how digital technology is transforming businesses and economies and leverage new growth opportunities (Accenture, 2015).

Table 1. *Digital Density Index*

Determinants	Description	Indicators
<b>Making markets</b>	Increasing digitalization of existing markets and creation of new digital markets. Recognition that existing markets are becoming increasingly digital and new markets are being created through digital means.	<ul style="list-style-type: none"> <li>Customer activity cycle</li> <li>Digitally contestable markets</li> <li>Interfirm collaboration</li> </ul>
<b>Sourcing inputs</b>	Use of digital technologies to source and/or use factors of production. Degree to which digital technologies change the lifecycle of sourcing these factors for the business.	<ul style="list-style-type: none"> <li>Plant, property, equipment</li> <li>Labor</li> <li>Finance (capital, liquidity)</li> </ul>
<b>Running enterprises</b>	Business use of digital technologies and activities to execute key business functions.	<ul style="list-style-type: none"> <li>Technology process</li> <li>Strategy process</li> <li>Human capital/talent</li> <li>Business model</li> <li>Innovation</li> <li>Research and development (R&amp;D) spending</li> </ul>

<b>Fostering enablers</b>	Changes in institutional and socioeconomic environments to facilitate digitalization.	<ul style="list-style-type: none"> <li>▪ Organizational flexibility</li> <li>▪ Connectivity</li> <li>▪ Attitudes in society</li> <li>▪ Government spending</li> <li>▪ Ease of business</li> <li>▪ Long-term regulatory outlook</li> </ul>
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Source: Macchi, Berthon & Robinson, 2015

### 3. Digital Economy and Society Index

The Digital Economy and Society Index (DESI) is a composite index published every year by the European Commission since 2014, measuring the progress of EU countries towards a digital economy and society. It brings together a set of relevant indicators on Europe's current digital policy mix. The Digital Economy and Society Index is a composite index that includes five primary dimensions (sub-indices), 12 sub-dimensions with a total of 31 indicators. DESI reflects the factors of high impact on the competitiveness of local economies in a global (or internal EU) context. The European Commission annually publishes the Digital Economy and Society Index (DESI), which measures the progress of EU countries towards the dimensions of the digital economy and society. DESI brings together a set of relevant indicators on the current European digital policy framework (European Commission, 2017). The Digital Economy and Society Index was first introduced in 2015, which mainly contained 2014 data. The Digital Economy and Society Index for 2018 mainly refers to data from 2017.

The Digital Economy and Society Index provides four main types of analysis:

- General performance assessment: to obtain a general characterization of the performance of individual Member States by observing their overall index score and the scores of the main index dimensions.
- Zooming-in: to pinpoint the areas where Member State performance could be improved by analyzing the scores of the index's sub-dimensions and individual indicators.
- Follow-up: to assess whether there is progress over time.
- Comparative analysis: to cluster the Member States according to their index scores, comparing countries in similar stages of digital development to flag the need for improvement in relevant policy areas.

The DESI was developed following the guidelines and recommendations in the OECD's "Handbook on constructing composite indicators: methodology and user guide". The data included in the index were mostly collected by the European Commission services (DG CNECT, Eurostat) and by ad-hoc studies launched by the Commission services (DESI, 2018).

Table 2. *Digital Economy and Society Index*

Determinants	Description	Indicators
<b>Connectivity</b>	The deployment of broadband infrastructure and its quality. Access to fast broadband-enabled services is a necessary condition for competitiveness.	1a Fixed Broadband 1a1 Fixed Broadband Coverage 1a2 Fixed Broadband Take-up  1b Mobile Broadband 1b1 4G coverage 1b2 Mobile Broadband Take-up  1c Fast Broadband 1c1 Fast Broadband Coverage 1c2 Fast Broadband take-up  1d Ultrafast Broadband 1d1 Ultrafast Broadband Coverage 1d2 Ultrafast Broadband take-up  1e Broadband Price Index 1e1 Broadband Price Index
<b>Human capital</b>	Skills needed to take advantage of the possibilities offered by a digital society. Such skills go from basic user skills that enable individuals to interact online and consume digital goods and services to advanced skills that empower the workforce to take advantage of technology for enhanced productivity and economic growth.	2a Basic Skills and Usage 2a1 Internet Users 2a2 At Least Basic Digital Skills  2b Advanced skills and Development 2b1 ICT Specialists 2b2 STEM Graduates
<b>Use of Internet</b>	Variety of activities performed by citizens already online. Such activities range from consumption of online content to modern communication activities or online shopping and banking.	3a Content 3a1 News 3a2 Music, Videos and Games 3a3 Video on Demand  3b Communication 3b1 Video Calls 3b2 Social Networks  3c Transactions 3c1 Banking 3c2 Shopping
<b>Integration of information technology</b>	Digitization of businesses and their exploitation of the online sales channel. By adopting digital technology, businesses can enhance efficiency, reduce costs, and better engage customers, collaborators, and business partners. Furthermore, the Internet as a sales outlet offers access to wider markets and potential for growth.	4a Business digitisation 4a1 Electronic Information Sharing 4a2 RFID 4a3 Social Media 4a4 eInvoices 4a5 Cloud  4b E-commerce 4b1 SMEs Selling Online 4b2 E-commerce Turnover

		4b3 Selling Online Cross-border
<b>Digital public services</b>	Digitization of public services, focusing on eGovernment. Modernization and digitization of public services can lead to efficiency gains for the public administration, citizens, and businesses alike as well as to the delivery of better services for the citizen	5a eGovernment 5a1 eGovernment Users 5a2 Pre-filled Forms 5a3 Online Service Completion 5a4 eGovernment Services for Businesses 5a5 Open Data  5b eHealth 5b1 eHealth Services

Source: European Commission, 2017

#### 4. Digital Society Index

The Digital Society Index was created through the collaboration of Oxford Economics with the Dentsu Aegis network. The Digital Society Index is based on the digital economic measurement system established by the Organization for Economic Co-operation and Development. The Digital Society Index includes indicators traditionally used to monitor the information society (European Commission, 2016). The Digital Society Index analyzes the metrics of selections of advanced economies that make the transition to the digital economy through three key dimensions: dynamism, inclusion and trust. The creators of these metrics believe that these dimensions are key elements for a sustainable and healthy digital economy that not only creates rapid growth from its digital sectors but also enables that growth to be extended to society as a whole creating an environment of trust.

The Digital Society Index assumes that digital society represents the creation, distribution, use, integration and manipulation of information as a significant economic, political and cultural activity. The main drivers of the digital society are digital information and communication technologies, which have resulted in the explosion of information and a major impact on all aspects of social organizations, including the economy, education, health, government and democracy (Hilbert, 2015).

The Digital Society Index is very focused on establishing the real world image of digitalization as well as identifying potential barriers to digitization. Overcoming such and similar obstacles requires the actions of both policymakers and the business environment, which ultimately ensures that digitalization provides economic growth and personal prosperity (Dentsu Aegis Network, 2018).

Table 3. *Digital Society Index*

	<b>Determinants</b>	<b>Indicators</b>
<b>Dynamism</b>	<b>Strong ICT sector</b>	Size of ICT sector
		Growth of ICT sector
		Spend on R&D
	<b>Elite cadre of digital specialists</b>	Quality of technology universities
		Pool of STEM graduates
		Incidence of ICT specialists
	<b>Focus on frontier</b>	Commitment to Open Data

	<b>technologies</b>	Quality of ICT regulation
		Academic endeavours in computer science
<b>Inclusion</b>	<b>Widespread digitalization</b>	Digital spend outside ICT sector
		Accumulation of ICT assets
		Balanced and healthy use of technology
		Thriving online market place
	<b>Opportunities for digital work</b>	Use of ICT in education
		General quality of education
		Frequency of digital skills training
		General digital skill level
		Effective use of digital skills
		Relevance of digital education
		Impact of ICT on women and girls
	<b>Access to digital services</b>	Fixed internet coverage
		Mobile internet coverage
		Internet speeds
		E-Participation Index
		Devices owned per person
		Internet Affordability
		Policies to promote free and low cost internet access
		Satisfaction with internet speed
		Satisfaction with internet coverage
		Satisfaction with the internet affordability
		Equality of internet access (including by age, gender)
		Secure internet servers
		Cybersecurity readiness
<b>Trust</b>	<b>Security</b>	Effective legal protection from cybercrime
		Trust in businesses keeping customers' data secure
		Trust in government keeping citizens' personal data secure
	<b>Privacy</b>	Data protection readiness of businesses
		Personal data protection laws
		Trust in businesses' ability to protect privacy of customers
		Trust in government's ability to protect privacy of citizens
		Transparency over the use of personal data by businesses
		Transparency over the use of personal data by government
	<b>Future outlook</b>	Future expectations for ICT sector
		Forecasted ICT spend
		Innovation index
		Sentiment regarding net impact of technology on society
		Sentiment regarding technology's potential to create future opportunities
		Sentiment regarding technology's potential to solve problems

Source: Digital Society Index, 2017

## 5. Discussion

When looking at the three most significant approaches for measuring the digital economy, which in this paper covers the measurement of the Digital Density Index, the Digital Economy and Society Index and the Digital Society Index, it is evident that there is some compatibility as well as significant differences. The paper presents and analyzes the key determinants for measuring the activities of the digital economy as well as being grouped by compatibility, as compatible and non-compatible determinants (Table 4).

Table 4. *Overview of compatible and non-compatible measurement determinants of the Digital Economy*

Index	DESI	Digital Society Index	Digital Density Index
Compatible determinants	Connectivity	Access to digital services	
	Use of Internet		
	Human capital	Opportunities for digital work	
		Elite cadre of digital specialists	Running Enterprises
	Integration of information technology	Widespread digitalization	Making markets
			Sourcing inputs
			Fostering enablers
Non-Compatible determinants	Digital public services	Strong ICT sector	
		Security	
		Privacy	
		Future outlook	
		Focus on frontier technologies	

Source: Authors' research

“Connectivity“ and “use of Internet“ as dimensions of the DESI Index are compatible with the “access to digital services“ dimension from the Digital Society Index. The measurement of the digital economy should be technology-oriented (Internet) with a strong focus on the end consumers (clients) as a final effect of digitalization. Effective combination and profiling of relevant behavioral indicators, such as frequency of use, customer engagement, and the number of users, can significantly affect a product or service market adoption.

The “human capital“ dimension has a significant focus on the human factor and advanced skills that empower the workforce to use technology to increase productivity. Human capital, which is a dimension of the DESI Index is also represented in the Digital Society Index as “elite cadre of digital experts“, and “running enterprises“ determinant from Digital Density Index. We can also add to this group “opportunities for digital work“ from the Digital Society Index which focuses on education and digital skills.

Economy dimensions are the most common compatibility determinants. The “integration of digital technology“ from the DESI Index, in highly compatible with dimensions making markets“, “running enterprises“, “sourcing inputs“, and “fostering enablers“ from the Digital Compactness

Index. Listed dimensions emphasize that by adopting digital technologies and encouraging the simplicity of business, companies can increase efficiency, reduce costs and better engage clients and business partners.

Incompatible dimensions, which are an integral part of the Digital Society Index, which do not exist in any other digital economy measurement approach, represent a “strong ICT sector“, a “focus on frontier technologies“, “security“, „privacy“ and „future outlook“. DESI Index „digital public services“ is incompatible with other digital economy measurement approaches as its focus is on eGovernment and eHealth.

## 6. Conclusion

The analysis of commonly used approaches to measuring the activities of the digital economy provides several conclusions that can be very useful for further research as well as for all stakeholders involved in digitization in private and public organizations.

When looking at the Digital Density Index and the Digital Economy and Society Index, it is evident that the Digital Density Index is a strong market / economic oriented, while DESI also includes a look at economic and social factors such as human capital and ICT use by the population. DESI provides important differentiation by analyzing eGovernment as a distinct category, enabling efficiency measurement of the public investment in digitization.

The Digital Density Index is targeted as a tool for leaders who are key decision-makers to pinpoint how and where to invest in the best use of digital technologies while gaining competitive advantage and economic growth while constantly measuring progress. Consequently, the Digital Density Index can be a very important guide for private and public companies as well as governments in understanding, measuring and managing digital strategies that drive economic growth and competitiveness.

The Digital Society Index is unique as it is only one that covers dimensions such as security, privacy, and the future outlook. Considering that lately, security is a very important topic in the digital economy, indicators such as effective legal protection against cybercrime, trust in companies that store customer data and trust in government that stores personal data of citizens is one of the key benefits of measuring the Digital Index society. The same applies to privacy in the context of the existence of laws, adequate protection, trust and transparency in the use of data in business and the protection of citizens' privacy by government.

When comparing the Digital Society Index and the Digital Economy and Society Index, we can confirm with great precision that both indexes have equally expressed metrics and digital economies and social metrics. In addition to common indicators, each measurement system has its own defined additional differential focus areas. The key difference between the two metrics mentioned is that the DESI Index is primarily used for measurement in the European Union while the Digital Society Index metrics reflect results on a global scale.

The Digital Economy and Society Index is a leading approach for assessing the digital economy, which is predominantly used to measure digital progress in the European Union. The results of the Digital Economy and Society Index, measured through a set of relevant indicators, are an extremely useful tool to help the EU Member States identify areas requiring priority activities and investments

and serve as key decisions in the field of European digital policy. A major comparative advantage of the DESI Index is that it takes into account the various aspects of digitization that are adequately weighted, which in principle is one of the biggest measurement problems of any global index. Understanding the importance of measuring the digital economy and society by all stakeholders is a key digital development issue for a particular country, region or union.

Looking at the progress and pace of digital development, measuring digital economy activities will obviously always be "a few steps behind" the rapid development of digital technology. It is indisputable that significant theoretical and practical efforts have been made to develop digitalization measurements. Considerable effort is required to standardize and harmonize the definition of the digitalization measurement approach, with constant measurement alignment and benchmarking. Therefore, continuous work is needed to develop digital performance metrics that will give a clear picture of the situation of a particular business case.

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## ANALYSING THE CRITICAL FACTORS INFLUENCING TRUST IN BOSNIAN AND HERZEGOVINIAN E-GOVERNMENT FROM CITIZEN PERSPECTIVE

### ANALIZA KLJUČNIH FAKTORA KOJI UTIČU NA POVJERENJE U BOSANSKOHERCEGOVAČKU E-UPRAVU OD STRANE GRAĐANA

#### Abstract

*Having its origin in public administration, trust is a significant concept in digital government research, influencing the relationships between citizens and governments. Although e-government readiness in most countries is at a high level, the adoption of e-government services is still considered tentative. A critical review of the literature suggests that this may be linked to citizens' trust in government and e-government. Citizen confidence in the competence of the government and the reliability of the technology used to implement e-government initiatives is imperative to the wide-spread adoption of e-government. Thus, this paper aims to provide a critical and systematic review of the current literature on citizens' trust in e-government, with a particular focus on empirical testing of the most critical factors influencing citizens' trust in respect of the adoption of e-government in Bosnia and Herzegovina. Paper proposed an e-government trust model which consists of the following trust determinants: trust in data storage, trust in e-government services, trust in information, trust in e-government transactions, trust in e-government authorities and trust in e-government system. The survey was conducted on a sample of 553 citizens of Bosnia and Herzegovina, and SPSS was used for data processing. The survey results indicate that determinants trust in data storage, trust in information and trust in the system in BiH have a significant impact on e-government services adoption, while the following determinants are identified through literature review to have a significant influence on e-government services adoption: perception of the use of e-government services, compatibility, ease of use, usefulness of e-government services, satisfaction with services, loyalty, etc. The main conclusion of this paper can be that successful implementation of e-government services greatly depends on citizen trust in e-government services. The model developed in this study can also be used in other similar e-government projects with the aim of testing the variable intention to use through the trust determinants in order to ensure the success of the project implementation.*

**Keywords:** trust, e-government, citizen, adoption, public administration

**JEL:** D73, H11, H73

## Sažetak

Potičući još od prvih začetaka javne uprave, povjerenje predstavlja značajan koncept i u istraživanjima e-uprave, utičući na odnose između građana i javnih uprava. Može se reći da je e-spremnost većine država na zavidnom nivou, dok je prihvatanje usluga e-uprave još uvijek na nezadovoljavajućem nivou. Analizirajući literaturu vidljiva je veza ovog problema sa povjerenjem građana u javnu upravu i e-upravu. Povjerenje građana u kompetentnost javnih uprava i sigurnost novih tehnologija korištenih u implementaciji koncepta e-uprave predstavlja uslov većeg prihvatanja usluga e-uprave. Stoga, cilj ove studije jeste da na kritičan i sistematičan način prikaže dosadašnja istraživanja o povjerenju građana u e-upravu, sa fokusom na empirijsko testiranje najznačajnijih faktora koji utiču na povjerenje građana u kontekstu povjerenja u e-upravu u Bosni i Hercegovini. U studiji je predložen model povjerenja u e-upravu koji se sastoji od slijedećih determinanti povjerenja: povjerenje u skladištenje podataka, povjerenje u usluge e-uprave, povjerenje u informacije, povjerenje u transakcije e-uprave, povjerenje u organe e-uprave i povjerenje u sistem. Istraživanje je provedeno na uzorku od 553 građanina Bosne i Hercegovine, a SPSS je korišten za obradu podataka. Rezultati istraživanja ukazuju da u BiH determinante povjerenje u skladištenje podataka, povjerenje u informacije i povjerenje u sistem imaju značajan uticaj na namjeru korištenja usluga e-uprave, dok su kroz analizu literature identifikovane slijedeće determinante koje značajno utiču na prihvatanje usluga e-uprave, i to: percepcija prema korištenju usluga e-uprave, kompatibilnost, lakoća upotrebe, korisnost usluga e-uprave, zadovoljstvo uslugama, lojalnost, i dr. Glavni zaključak ovog rada može glasiti da uspješna implementacija usluga e-uprave uveliko zavisi od povjerenja građana u usluge e-uprave. Model razvijen u ovoj studiji se može koristiti i u ostalim sličnim projektima e-uprava s ciljem testiranja varijable namjere korištenja putem determinanti povjerenja kako bi se osigurao uspjeh implementacije projekta.

**Ključne riječi:** povjerenje, e-uprava, građani, prihvatanje, javna uprava

**JEL:** D73, H11, H73

## 1. Introduction

Governments are struggling with their relationships with the public. Building public trust for effective e-government outcomes is another fundamental step towards achieving the Sustainable Development Goals. This will depend primarily on implementation of sound public policy that reflects people's priorities on institutional performance and on the equal access to quality public services. For effective service delivery, e-government applications should be designed to meet needs and should promote people's active participation in identifying those, and most importantly, to implement trustworthy plans and projects at all levels (Almukhlifi, Deng & Kam, 2017). The role of local authorities in sustainable development will be ever more important to reaching the most vulnerable. Therefore, working locally with all communities through innovative participatory mechanisms is a must. An increase in citizens' expectations for effective, equitable and citizen-centric services, demands a shift from inward, disjointed and process-oriented organizational structures to highly collaborative frameworks for seamless delivery of services and enhanced development impact.

Rose *et al.* (2015), Lips, Gil-Garcia and Sorrentino (2012), and Bannister and Connolly (2011) defined the e-government as usage of information and communication technology (ICT) in the meaning to provide effective delivery of information to citizens, businesses and other government agencies so as government's services. Shareef *et al.* (2016) stated that e-government and ICT's are highlighted as a key components of improving connections between government and citizens. Some scientists, such as Alzahrani, Al-Karaghoul, and Weerakkody (2017) stated that the effective and successful acceptance and adoption of electronic government ensures certain advantages for businesses, other governments levels and agencies and citizens. Regardless these positive results, e-government has not yet reached it

is full potential. Al-Busaidy and Weerakkody (2009) argue that the citizens in many countries still do not trust using online e-government services, which impact the e-government adoption and acceptance.

Almukhlifi, Deng, and Kam (2017), Rana *et al.* (2016) and Dwivedi *et al.*, (2006) stated that e-government is a key mechanism for enhancing governments effectiveness and efficiency, service delivery quality and citizens engagement and participation. Janssen *et al.* (2018) and Sandeep and Ravishankar (2014) argue that e-government is becoming helpful as a tool for establishment of trustworthy institutions and restoring citizen's trust in government. Cho and Poister (2013) found that regarding to significance of trust in the public administration area there is no that much empirical research on determinants of e-government and trust.

Some scholars, such as Al-Hujran *et al.* (2015) and Khasawneh and Abu-Shanab (2013) quotes that regardless the advantages of e-government services, there is still certain level of rejection of e-government services by the citizens, businesses and other government agencies. Thus, determinants of trust are the one of the most significant aspects in the process of successful implementation of e-government strategies. In order to achieve successful adoption and acceptance of e-government services governments need to understand and incorporate critical factors influencing trust of citizens and other governments' agencies in e-government strategies (Colesca, 2009; Carter & Belanger, 2005). Carter and Belanger (2005) recommend further research into the specific components of trust in e-government. Although, Yang and Anguelov (2013) provide comprehensive preliminary discussions of factors contributing to the trustworthiness of public services, public sector literature has not yet holistically considered the factors affecting citizens' perceptions of e-government trustworthiness.

Therefore, the aim of this paper was to conduct empirical research in order to determine the critical factors influencing citizens' trust in e-government services in Bosnia and Herzegovina from citizens' perspective. By doing so, this work will attempt to answer the following research question: which trust factors affect citizens' in order to accept and adopt e-government services?, which trust factors affect citizens behavioral intention in order to adopt e-government services in Bosnia and Herzegovina? The research endeavors to make a cross-disciplinary contribution through application of knowledge from public sector, e-government, and information systems literature. We limit the scope of e-government to government-to-citizen e-government transactional and interactional services in accordance with other researchers.

The paper is structured as follows: Section 1 is a introduction to the topic. Section 2 provides a background of the concept of trust. In Section 3, a methodology of the review is explained. Section 4 presents the findings of the research and results discussion. The final section refers to conclusions, with a presentation of the limitations and contributions of the research.

## 2. Literature review (Overview of the proposed model)

KMPO (2018) stated that in the KPMG International Disrupt and grow 2017 Global CEO Outlook survey, 61 percent of nearly 1,300 chief executives said that building trust among customers and other external stakeholders is a "top three" priority for their organization. Almost three-quarters said their organization is now placing a greater importance on trust, values and culture in order to sustain their long-term future. Trust inspires employees, enables global markets to function, reduces uncertainty, and builds resilience. Janssen *et al.* (2018) as well as Yang and Anguelov (2013) argue that trust and trustworthiness are fundamentally distinct but closely related concepts. Cho and Lee (2011) discuss the differences between trust and trustworthiness at length, determining that trustworthiness centres around

the characteristics of a trustee whereas trust concerns a trustor's psychological state. Therefore, Grimmelikhuijsen and Meijer (2014) and Yang and Anguelov (2013) proved that trust is an individual's perception of the trustworthiness owned or displayed by another. Papadopoulou, Nikolaidou, and Martakos (2010) confirm that trust is highly complex and context-specific phenomenon and that the complexity of trust increases when attached to technology. Zahid and Haji Din (2019) stated that the literature suggests it is evident that the concept of trust is manifold and can be addressed with respect to different targets, including, the e-government system, the e-government services, the government organization and institution based trust. Risk associated with e-government services can be attributed to two sources, information sent electronically and information stored electronically (Horst, Kuttischreuter & Gutteling, 2007). As such, it can be suggested that trust in e-government also includes trust in stored data and trust in transaction. Zahid and Haji Din (2019) stated that the establishment of trust becomes a critical factor in adoption of e-government services. Also, Blakemore and Lloyd (2007) highlights that trust in e-government is characterized as a critical factor in legitimating the investment in electronic government services. These researchers stated that trust also has influence on creating the conditions for widespread usage of e-government services.

Grimmelikhuijsen and Meijer (2014) and Yang and Anguelov (2013) defined trust as an individual's perception of the trustworthiness owned or displayed by another. They also argue that responsiveness is important part of interaction between two parties in order to develop trust. However, many researchers have difficulty defining this concept because of the multidimensional nature of trust.

Focusing on citizens as the trustors, public sector research has explored the effect of e-government adoption and/or satisfaction on citizens' trust in government (*e.g.* Xie *et al.*, 2017; Hong, 2013; Morgeson, VanAmburg & Mithas, 2011), the effect of transparency on citizens' perceptions of trustworthiness (Janssen *et al.*, 2018; Grimmelikhuijsen and Meijer, 2014), and the role of organizational politics and ethics as predictors of citizens' trust in governance (Vigoda-Gadot, 2007).

Teo, Srivastava, and Jiang (2009) mentioned that in contrast to the context of e-commerce, there are unlikely to be competing e-government services, making trust even more vital to prevent citizens reverting to traditional offline interactions with government. European Commission (2019), Cho and Lee (2011) argue that focusing on the trustworthiness rather than on trust is more practically useful in order to guide public managers' trust-building activities. Yang and Anguelov (2013) stated that trustworthiness can be directly controlled or influenced by public sector managers and decision makers. Trustworthiness of e-government is based on characteristics of e-government that may generate citizens' trust (Janssen *et al.*, 2018). In addition to trust in government, Belanger and Carter (2008) propose that initial trust in e-government is composed of trust of the Internet as the enabling technology of e-government services and find that both of these constructs significantly affect intention to use e-government services. However, when modelled as predictors of trust in e-government website, trust in technology was only found to be a significant predictor for active users (Teo, Srivastava & Jiang, 2009), evidencing a contextual effect of trust of the Internet. Transparency has been found to increase citizens' trust in local government as well as being a predictor of trust and satisfaction (Park & Blenkinsopp 2011). Perceived risk is related to the uncertain outcome of behaviour (Lee & Rao 2009). Evidence of the relationship between perceived risk and trust in e-government remains largely convoluted. Belanger and Carter (2008) found trust of the government, but not trust of the Internet, to have a significant negative effect on perceived risk of e-government services, and that perceived risk had a negative effect on intention to use e-government. Lee and Rao (2009) found that website quality has a significant effect on citizens' confidence in the competence of an e-government service provider. Among respondents with e-government experience, it has been found that the quality of previous

online government transactions plays an important role in shaping trust in government (Beldad *et al.* 2012).

Abu-Shanab (2017) founded that in the e-government context, research supported the role of trust, where some research considered it the major predictor of technology adoption. Previous research asserted the influence of trust in e-government on a stronger relationship with citizens (Zeleti, 2011). The previously mentioned studies used trust as a major predictor of intention to use e-government. Still, other research used trust construct as a predictor of risk (Yaghoubi, Beiglo & Zare, 2011), or a predictor with information and service quality (Khayun, Ractham & Firpo, 2012). Trust was also used as a predictor of use function in the context of e-government services (Ranaweera, 2016). On the other hand, trust construct failed to predict the adoption of e-government in few studies (Morgeson, VanAmburg & Mithas, 2011). Finally, trust significant role was supported in the Jordanian context and more toward a predictor of the adoption constructs (Abu-Shanab, 2014; Mofleh & Wanus, 2013).

Horst, Kuttischreuter, and Gutteling (2007) stated that trust in stored data refers to the extent that a citizen can trust the data collected and stored are effectively protected from potential threats. Taking into account the value and significance of the type of data stored in an e-government system, trust in stored data can be an important aspect of trust in e-government and adoption of e-government services (KMPG, 2018).

Trust in the internet is required for e-government, as it represents the technology through which e-transactions are executed, and those transactions entail a considerable risk which can be deemed as equal or even higher compared to that faced in e-commerce (Carter & Belanger, 2005; Horst, Kuttischreuter & Gutteling, 2007). Therefore, trust in transaction refers to trust in the security and protection of data while in transit during transaction, mainly in terms of data integrity and confidentiality.

Trust in the government services is an important antecedent of citizens intention to use e-government services, and it is related with public trust (United Nations, 2018). Trust in e-government services is determinant of perceived usefulness of e-government services (Horst, Kuttischreuter & Gutteling, 2007). Citizens should trust that an e-government system will offer services that are required and that a requested service will be delivered. To be trusted, a service should also be perceived as useful and easy to use.

Trust in information reflects the extent to which the information obtained in an online environment can be trusted (Chopra & Wallace, 2003). Kim, Ferrin, and Rao (2008) highlights that this type of trust has been found as an antecedent of trust in e-commerce.

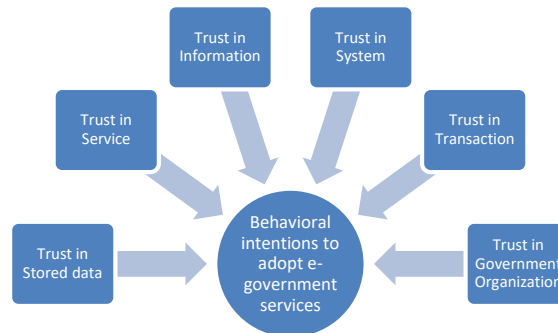


Figure 1. *Conceptual model*

Source: Authors' research

Chopra and Wallace (2003) presented that trust in the information system is recognized as an important trust domain within electronic environments. Trust in the system (infrastructure) refers to the perception that the proper operation of the e-government system can't be compromised (Hung, Chang, & Yu, 2006). It implies that the system will exhibit availability, fault tolerance and that its security and correctness is guaranteed.

Carter and Belanger (2005) states that trust in e-government requires trust in the government organization providing e-services. They found a bilateral positive association with satisfaction with e-government, in which trust in government is a significant contributor to e-government satisfaction. Therefore, the government organization is an object of trust which should be taken into account for e-government services adoption (United Nations, 2018). Also, factors such as accountability may be just as important as concerns over the technical systems enabling e-government services.

Since the objects of trust in e-government can vary, it follows that there are various types of trust in e-government that can be identified. Based on the above, it is evident that the concept of trust is manifold and can be addressed with respect to different targets, including the e-government services, the e-government system, the e-government organization and institution based trust. In addition, the risk in e-government services can be attributed to two sources, information sent electronically and information stored electronically (Horst, Kuttschreuter & Gutteling, 2007). As such, it can be suggested that trust in e-government also includes trust in stored data and trust in transaction. So, this study adopted the results of research reported in the literature in relation to trust in e-government and proposed conceptual model, as showed in Figure 1. At the same time this model represents the hypotheses of this research.

### 3. Research framework

This study uses secondary and primary data. The secondary data refers to the data for social sciences including censuses, information collected by government departments, organizational records and data that were originally collected for other research purposes. The primary research of this study following a quantitative approach uses a survey to understand citizen perceptions regarding trust in e-government adoption in Bosnia and Herzegovina. Drawing on trust literature from various disciplines, we analyze the concept of trust in context of e-government adoption, identifying the types it involves with respect to the object of trust. On this basis and in line with current research on trust in e-government, we propose that trust can be conceptualized and addressed with respect to the following referents: store

data, transaction, service, system/infrastructure, government organization and institutional system. Each trust type is delineated into its dimensions, thus providing a set of requirements that should be met for the establishment of the respective trust type.

A measurement instrument (questionnaire) was created to empirically validate the proposed model. The items of the questionnaire were based on previous empirical studies. The questionnaire was structured into various sections with a total of 24 closed-format questions. The questionnaire utilized the five-point Likert scale (from strongly disagree to strongly agree) to measure different scale items. SPSS was used to analyze survey data in order to perform statistical analysis.

The survey was conducted on a sample of  $n = 600$  citizens of Bosnia and Herzegovina. The participation in the experiment was done on a voluntary basis and all the respondents were familiar with the specific website since a familiarization task was involved, and a total of 573 valid responses were returned. Out of this number, 20 had to be rejected as the respondents circled more than one answer to the question where only one answer should be given. This means that 553 questionnaires were used for further processing, which met all research requirements. The methods used in the research are deductive and inductive methods, methods of analysis and synthesis, comparative methods, statistical methods (descriptive statistics, regression and correlation analysis, factor analysis), and methods of polling. SPSS Statistics was used for statistical analysis of the collected data.

#### 4. Results and discussion

The survey questionnaire was distributed to a total of 600 citizens from February to April 2018. Out of 600 questionnaires distributed, 573 responses were received. Out of 573 completed and received, 20 questionnaires were discarded (because the respondents gave more than one answer to a question where only one answer was expected) and some questions were unanswered. This meant that, out of the final sample of 573 questionnaires, 553 usable responses were obtained and used for subsequent analysis. The total response rate obtained in this research was 95.5%. Out of these 553 respondents, the demographic background is the following: 60.6% were female respondents, while 39.4% were male respondents. In terms of age group, the results showed that the largest percentage of the respondents were in the age group of 30-44 (52.6%), followed by the age group of 45-54 constituting around (16.5%) of the total respondents. The age group >54 consisted of (14.5%), whilst the age group 25-29 comprised of (10.5%) of the total respondents. In contrast, the youngest (less than 18) and the 18-24 age groups together consisted of (5.9%) of the total respondents. In terms of educational background, the majority of the respondents (46.8%) hold high school education, (30.6%) hold degree and (22.6%) hold either elementary school certificates or masters and Ph.D. degrees. The results of testing the internet experience variable revealed that the majority of the respondents (72.2%) were found in the group of over 4 years of internet experience. This was followed by the internet experience group of 3-4 years, constituting (14.1%) of the total respondents, and finally, the internet experience group of 1-2 years, constituted (6.9%). In contrast, the groups with the least internet experience (no experience, 1-6 months and 7-12 months) together consisted of (6.8%) of the total respondents.

Factor loading show that all the items are loaded above (0.40), which is the minimum recommended value in IS research (Straub, Boudreau and Gefen, 2004). Moreover, cross-loading of the items was not found above (0.40). Factor analysis using the principle components with varimax rotation was used to evaluate construct validity. All of the items are loaded properly in the construct discriminant validity (loaded with at least 0.40, and no cross loaded of at least than .40) (Straub, Boudreau & Gefen, 2004; Dwivedi *et al.*, 2006; Carter, Schaupp & Evans, 2008), and the factor analysis results satisfied analysis.

This means that the collected data and the findings that were obtained from this instrument are valid and reliable. Findings from both the reliability test and the factor analysis confirm internal consistency of measures and construct validity.

Cronbach's coefficient alpha showed that the constructs achieved high reliability (from 0.68 to 0.92). This means the study instrument is reliable and the higher the Cronbach's ( $\alpha$ ) value of construct, the higher the reliability is of measuring the same construct (Dwivedi *et al.*, 2006). Also, the values of KMO are  $>.900$  which means that data's collected through the questionnaire are very significant, where the coefficient of significance  $p < 0.005$  represents a very high significance. The descriptive statistics values are quite high and the standard deviation is not greater than 1 except in four cases, which tells us about the representativeness of the arithmetic mean and homogeneity of the set.

A regression analysis was performed with behavioral intention as the dependent variable and trust in stored data, trust in service, trust in information, trust in system, trust in transaction and trust in government organization as the predictor variables. A binary correlation test was conducted to examine the association between trust in stored data, trust in service, trust in information, trust in system, trust in transaction and trust in government organization and behavioral intention to adopt e-government. The results of this test are shown in Table 1. The correlation is significant to all the factors: Trust in Stored Data (0.122), Trust in Service (0.347), Trust in Information (0.387), Trust in Transaction (0.253), Trust in Government Organization (0.332), and Trust in System (0.388).

Table 1. A binary correlation test

		Behavioral Intention			Behavioral Intention
Trust in Stored Data (SP)	Pirsonova korelacija	.122**	Trust in Information (PI)	Pirsonova korelacija	.387**
	p	.004		p	.000
	N	553		N	553
Trust in Service (PU)	Pirsonova korelacija	.347**	Trust in Transaction (PT)	Pirsonova korelacija	.253**
	p	.000		p	.000
	N	553		N	553
			Trust in Gov. Org. (PO)	Pirsonova korelacija	.332**
				p	.000
				N	553
			Trust in System (PS)	Pirsonova korelacija	.388**
				p	.000
				N	553

Source: Authors' research

Table 2. Regression analysis I: coefficients(a)

Model	Non-standardized Coefficients		Standardized Coefficients	t-test	Sig.
	B	Std. Error	Beta ( $\beta$ )		
(Constant)	2.647	0.535		4.951	0.000
Trust in Stored Data (SP)	-0.315	0.037	-0.402	-8.573	0.000
Trust in Service (PU)	0.027	0.051	0.027	0.526	0.599
Trust in Information (PI)	0.169	0.043	0.248	3.894	0.000
Trust in Transaction (PT)	-0.056	0.046	-0.064	-1.208	0.227
Trust in Gov. Org. (PO)	0.052	0.027	0.110	1.947	0.052
Trust in System (PS)	0.157	0.049	0.183	3.245	0.001

Source: Authors' research

Table 2 shows the values of dependent variables that include Trust in Stored Data ( $= -.402, p < .005$ ), Trust in Service ( $= .027, p > .005$ ), Trust in Information ( $= .248, p < .005$ ), Trust in Transaction ( $= -.064, p > .005$ ), Trust in Government Organization ( $= .110, p > .005$ ), Trust in System ( $= .183, p < .005$ ) and their influence on behavioral intention to adopt e-government. Negative value of Trust in Stored Data could be connected with insufficient level of information's or budget regarding data storage. Trust in services, trust in transaction and trust in government organization are not significant variables regarding e-government services adoption in Bosnia and Herzegovina. This result can be correlated with citizen perception on traditional government organization and services they provide as a unprofessional, not transparent, non-effective, not responsible, *etc.* Also, citizens has no trust and enough information's regarding data security and data transfer.

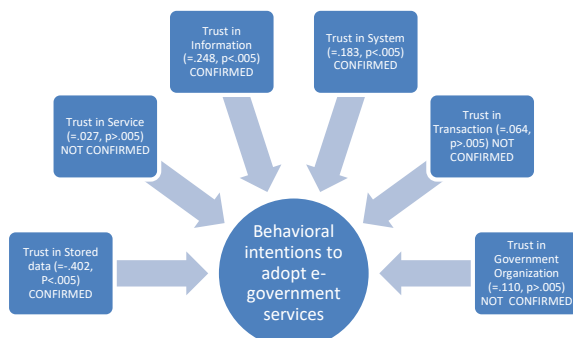


Figure 2. Validated conceptual model

Source: Authors' research

Figure 2 present the results of the aforementioned validation trust factors that affected e-government adoption in Bosnia and Herzegovina. Also, at the same time, they represent the results of hypotheses testing.

## 5. Conclusion

Understanding trust and the different types it involves is critical for both research and practice in the e-government context. Most research that considers the impact of e-government on citizens' trust in government remain at the macro-level and miss out on the deeper understanding of the interaction between the factors that directly or indirectly influence on trust in e-government services. Based on a comprehensive literature review, nineteen factors were found to be associated with trust in e-government services, identified as benevolence, integrity, trust in government, trust in technology, transparency, responsiveness, competence, accountability, privacy concerns, perceived security, perceived risk, system quality, service quality, satisfaction, political attitude, perceived ability to use, perceived prior knowledge, disposition to trust, and use. The review highlighted that the relationships between these factors was ill-understood and there was no single work addressing all these factors.

This paper contributes to current e-government literature in a number of ways. First, it proposes that the concept of trust in e-government service adoption is manifold and identifies six types of trust related and specific to certain targets. Therefore, it suggests that trust in electronic government can't be treated as a general or monolithic concept but should rather be addressed as a multidimensional one which involves different types of trust, each associated with a particular referent. As second contribution, the

paper indicates that technology, is a key enabler for trust in e-government, but is not sufficient alone. All types of trust in e-government, although to a varying degree, require a joint approach that combines technical solution and business or legal issues.

Third contribution of this work is connected with trust types and their influence on behavioral intention to use e-government services in Bosnia and Herzegovina. Regarding this research results it can be concluded that hypothesis regarding the types of trust such as Trust in Stored data, Trust in Information and Trust in System are confirmed and have significant influence on citizens adoption of e-government services in Bosnia and Herzegovina, while, Trust in Service, Trust in Transaction and Trust in Government Organization don't have statistically significant influence on behavioral intention. This is mainly regarding citizens perception of Bosnian and Herzegovinian Government which they consider unprofessional, non-effective, not transparent and birocratic, citizens don't have enough information's regarding e-government information security, *etc.*

However, like any other research, this study is not without limitations. First, the present model has not been statistically tested and validated on other e-government stakeholders, such as business sector, employees, NGO, *etc.* Second, this paper is limited only to six trust factors tested in regard to affect e-government services adoption. Future research should extend this work with empirical validation of the previously mentioned trust factors across different e-government services in various other contexts.

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## **IT CAPABILITY AND ORGANIZATIONAL BUSINESS PERFORMANCE: AN ANALYSIS OF KNOWLEDGE MANAGEMENT MEDIATION EFFECT**

### **IT SPOSOBNOST I ORGANIZACIJSKE POSLOVNE PERFORMANSE: ANALIZA MEDIJACIJSKE ULOGE UPRAVLJANJA ZNANJEM**

#### **Abstract**

*Understanding the relationship between information technology (IT) and organizational business performance is a subject of great interest to researchers and IT and management practitioners. Results from empirical studies have reported mixed findings. The well-known quote says: "you can see the computer age everywhere but in the productivity statistics". This has come to be known as the "IT productivity paradox". Therefore, this study seeks to enhance understanding of this relationship by introducing knowledge management as a mediator between IT capability and organizational business performance. The success of an organization is increasingly dependent on its ability to acquire and manage knowledge. In other words, the competitiveness of organizations relies less on traditional tangible factors, and knowledge now appears to be replacing these traditional factors. Hence, this paper investigates the mediating role of knowledge management in the relationship between information technology capability and organizational business performance. The study uses survey data from 408 managers and structural equation modeling to evaluate the conceptual model and hypotheses. The results show that knowledge management fully mediates the relationship between IT capability and organizational business performance. This means that organizational IT capability contributes to processes of knowledge acquisition, integration, and knowledge application, which further enhance business performance. This paper adds to the existing body of research in both management and IS literature emphasizing the indirect impact of IT capability on financial business performance through knowledge management processes. Besides, the findings provide a better understanding of the IT-related sources of knowledge management and their interplay toward business performance.*

**Keywords:** information technology, knowledge management, business performance, IT capability

**JEL:** M15

#### **Sažetak**

*Razumijevanje odnosa između informacijskih tehnologija (IT) i uspješnosti poslovanja organizacije predmet je velikog interesa istraživača, ali i IT i stručnjaka iz oblasti menadžmenta. Rezultati empirijskih studija međutim ne daju jasne odgovore o ovom odnosu. Dobro poznati citat kaže: „Kompijute možete vidjeti svuda, osim u*

*statistiki o produktivnosti“. Ovaj paradoks je postao poznat kao „paradoks IT produktivnosti“. S tim u vezi, ova studija ima za cilj poboljšati razumijevanje navedenog odnosa uvođenjem koncepta upravljanja znanjem kao medijatora između IT sposobnosti i organizacijskih poslovnih performansi. Uspjeh organizacije sve više ovisi o njenoj sposobnosti da stekne i upravlja znanjem. Drugim riječima, konkurentnost organizacija se manje oslanja na tradicionalne opipljive faktore, a sve više na znanje. Stoga ovaj rad istražuje posredničku ulogu upravljanja znanjem u odnosu između IT sposobnosti i organizacijskog poslovnog učinka. Studija koristi podatke ankete 408 menadžera i modeliranje strukturalnih jednažbi za procjenu konceptualnog modela i hipoteza. Rezultati pokazuju da upravljanje znanjem u potpunosti posreduje odnos između IT sposobnosti i organizacione poslovne uspješnosti. To podrazumijeva da organizacijska IT sposobnost doprinosi procesima sticanja znanja, integracije i primjene znanja, što nadalje poboljšava poslovne rezultate. Ovaj rad doprinosi postojećem korpusu znanja u oblasti menadžmenta i upravljanja informacionim tehnologijama, naglašavajući indirektni uticaj IT sposobnosti na finansijsko poslovanje kroz procese upravljanja znanjem. Osim toga, rezultati pružaju bolje razumijevanje IT baziranih izvora upravljanja znanjem i njihovu međusobnu povezanost s poslovnim performansama.*

**Ključne riječi:** informacione tehnologije, upravljanje znanjem, poslovne performanse, IT sposobnost.

**JEL:** M15

## 1. Introduction

Information technology (IT) is recognized as one of the biggest forces causing changes in business processes (Melián-González & Bulchand-Gidumal, 2016) in almost all industrial sectors. IT enables organizations to cope with an environment characterized by globalization, competition, and increasing customer expectations (Lu & Ramamurthy, 2011). IT is increasing the ability of businesses to survive in the highly competitive global market of the 21<sup>st</sup> century (Ping-Ju Wu, Straub & Liang, 2014). Hence, IT investments are significant, but these investments do not always guarantee a good return (Melián-González & Bulchand-Gidumal, 2016). Demonstrating the value of IT investment is fundamental to the contribution of information systems discipline (Ping-Ju Wu, Straub & Liang, 2014). Because of this, the study of IT values in organizations has flourished in the last decade (Crawford, Leonard & Jones, 2011). Previous research has focused on the question of whether IT investments can add significant value to an organization, while more recent research has shifted to the question of how and to what extent IT investments affect different organizational outcomes (Crawford, Leonard & Jones, 2011), from business performance (Luftman, Lyytinen, & Zvi, 2017) to enhancing other organizational resources (Pérez-Aróstegui, Bustinza-Sánchez & Barrales-Molina, 2014). Besides, early research treated IT as investment or physical equipment. However, today, IT capability or competence has taken a leading role in the examination of IT value (Crawford, Leonard & Jones, 2011). Hence, in this study, we analyse the relationship between IT capability and organizational business performance.

Considering that some studies have conceptualized IT as a useful tool only in combination with other resources or practices within the firm (Pérez-Aróstegui, Bustinza-Sánchez & Barrales-Molina, 2014), we have included knowledge in our analysis as another of the most significant organizational resources of the 21<sup>st</sup> century (Wu & Chen, 2014). Knowledge resources are replacing natural resources, capital, and labor as basic economic resources in the new economy (Wu & Chen, 2014). Knowledge management is a major factor in achieving long-term competitive advantage and is thought to facilitate greater performance and efficient responses to customer needs and requirements (Villar, Alegre, & Pla-Barber, 2014). The importance of knowledge management is reflected in the fact that these processes enable the transformation of one form of knowledge into another (Carneiro, 2000), which creates new knowledge (Chen & Fong, 2013), but also enables a more efficient knowledge application. While some researchers argue that organizations would not be able to deal with the constant changes in the business environment of the new economy without IT (Mithas, Ramasubbu & Sambamurthy, 2011), others

advocate knowledge as a necessary resource for adaptation and change (Liu, Chen & Tsai, 2004). Besides, many agree that the interplay of knowledge and technology is the key to a successful business (Pandey & Dutta, 2013). Hence, in this study, we analyze the interplay of IT capability and knowledge management, as well as their joint influence on organizational business performance.

Few studies have addressed the relationship between IT capability, KM, and performance. For example, Pérez-López and Alegre (2012) concluded that IT competence affects KM and that KM affects market performance. However, studies have mainly dealt with technology embeddedness in KM and KM infrastructure (Chuang, Liao & Lin, 2013). To the best of our knowledge, no study analyzed the interrelationships between IT and KM capabilities and business performance, as well as the mediating role of KM capability in the relationship between IT capability and business performance. Hence, the main contribution of this paper is to develop an empirical model of the relationships between IT capability, knowledge management capability, and organizational business performance. The integrated model provides an empirical confirmation for the influence of IT on business performances through enhancing knowledge management. The study also provides a guide for managers and other business practitioners by improving existing knowledge of the KM and IT relationship and their interplay toward business success.

The rest of the paper is structured as follows. Section 2 presents the concepts analyzed in this paper as well as their interrelations. In other words, this section provides the literature review, as well as hypotheses development. Third section presents the data collection method as well as the methodology and measurement models used, while fourth part deals with data analysis, testing of measurement models and hypotheses, and presentation of results. Paper concludes by discussing the results, theoretical and managerial implications of the findings, and the limitations of the study, as well as recommendations for future research.

## 2. Hypotheses development

In this paper we develop a conceptual model building on the resource-based view (RBV) to assess the interplay of IT capability and KM capability and their influence on business performance. This section defines the analyzed constructs, as well as their interrelationships.

IT capability is the ability of a firm to acquire, deploy, combine, and reconfigure IT resources to support and enhance business strategies and processes (Lu & Ramamurthy, 2011). In this paper, we conceptualize IT capability as a multidimensional construct consisting of IT knowledge, IT operations, and IT infrastructure (Pérez-Aróstegui, Bustinza-Sánchez & Barrales-Molina, 2014; Tippins & Sohi, 2003). IT knowledge refers to the extent to which an organization possesses technical knowledge of facilities such as computer systems (Tippins & Sohi, 2003). IT operations imply an organization's ability to understand and use the IT tools and processes required to manage customer and market information (Pérez-Aróstegui, Bustinza-Sánchez & Barrales-Molina, 2014). IT infrastructure includes various software, hardware, and common technology services for information management as well as special business applications used by this infrastructure (Pérez-Aróstegui, Bustinza-Sánchez & Barrales-Molina, 2014). Hence, IT capability can be seen as a set of information technologies that an organization possesses (IT infrastructure), awareness of the importance of a given technology and specific knowledge and skills for its use (IT knowledge) and, ultimately, defining business processes by requiring the use of information technology (IT operations). These three dimensions indicate the ability of organizations to understand and use the technologies needed to manage internal and external information (Pérez-López & Alegre, 2012). IT capability is one of the key capabilities of an

organization to understand the business value and maintain a competitive advantage (Lu & Ramamurthy, 2011). While there are different results when it comes to the impact of IT on business performance, most contemporary researchers agree that well-positioned IT investments can have significant implications for long-term performance (Crawford, Leonard & Jones, 2011). Hence, we suggest that IT capability positively influences organizational business performance.

*H1. IT capability is positively related to organizational business performance.*

Knowledge resources can be treated as unique and valuable resources that relate to a firm's competitive advantage based on the resource-based view (RBV) (Wu & Chen, 2014). Knowledge is the basis for achieving superior business performance (Pandey & Dutta, 2013), and without a successful KM, the potentials derived from knowledge will not be utilized. In other words, knowledge alone does not guarantee a competitive advantage due to the dynamic and rapid changes in the environment. Therefore, it is very important for an organization to have the ability to effectively manage knowledge. In this sense, the success of an organization depends increasingly on its ability to collect, produce, transfer, analyze and maintain knowledge (Apak, Tuncer, Atay & Naime, 2012). KM consists of a series of processes, from adoption to storage and use of knowledge. Hence, knowledge management is a formal, top-down, collective organizational process that enables employees to contribute and continually retrieve knowledge from knowledge bases or the knowledge repository (Qi & Chau, 2018). Knowledge management capability can be defined as the process of capturing, sharing and using knowledge (Aboelmaged, 2014). We conceptualize KM capability as a multidimensional concept that consists of the processes of acquiring, converting and applying knowledge (Liao & Wu, 2009). Knowledge acquisition represents processes that involve seeking and acquiring knowledge from an external environment and creating new knowledge based on existing knowledge within the organization (Chen & Fong, 2012). Knowledge conversion involves the processes of synthesis, refining, integration, combination, coordination, distribution and restructuring of knowledge (Sandhawalia & Dalcher, 2011). Knowledge application is the actual use of knowledge that can be used to adjust strategic direction, solve problems and improve efficiency (Wang, Klein & Jiang, 2007).

Some studies have shown that individual KM processes have a positive impact on business performance (Cohen & Olsen, 2014). In this regard, Ruiz-Mercader, Meroño-Cerdan, & Sabater-Sánchez (2006) found that codification and personalization have independent effects on multiple dimensions of organizational performance. Similarly, Wang Z. and Wang N. (2012) confirmed both explicit and tacit knowledge sharing practices enhance business performance. Besides, Tseng (2014) empirically confirm that KM capability has a positive influence on business performance. Hence, we propose that KM capability has a positive impact on the business performance of an organization as it enables the utilization of the potential of employees' knowledge.

*H2. Knowledge management is positively related to organizational business performance.*

Starting from the strategic thinking that IT influences different business activities processes (Pérez-Aróstegui, Bustinza-Sánchez & Barrales-Molina, 2014) in the value chain, (Chuang, Liao & Lin, 2013) proposed that it affects KM. Crawford, Leonard, and Jones (2011) state that, rather than focusing on the direct effects of IT investment on business performance, it should analyze how IT supports the creation, modification, and achievement of dynamic organizational capabilities. IT can facilitate KM businesses, such as databases, document management systems, search engines, groupware, decision support systems, intranets and data warehouse (Chuang, Liao & Lin, 2013). Pérez-López and Alegre (2012) empirically confirm that IT capability plays a critical role in knowledge management processes.

The rationale of the impact of IT on KM is that technology is a key driver of information transfer (Pandey & Dutta, 2013; Mao, Liu, Zhang & Deng, 2016). In other words, IT is the enabler of delivering information to users, creating knowledge bases, as well as making knowledge available to anyone at any time. Therefore, we hypothesize that IT capability has a positive impact on knowledge management processes.

*H3. IT capability is positively related to knowledge management.*

IT capability is important to the organization as it can drive the realization of rare, valuable and inelible resources (Barney & Clark, 2007), and it is through these resources that the true impact of IT on business performance can be understood (Crawford, Leonard & Jones, 2011). In this regard, Akram, Goraya, Malik, and Aljarallah (2018) found that knowledge management capability partially mediates the relationship between IT capability and business performance. Hence, we propose that IT capability indirectly influences organizational business performance through KM. An indirect effect occurs when the impact of one on another variable is mediated by one or more other variables (mediators) (Leth-Steensen & Gallitto, 2016).

*H4. Knowledge management mediates the relationship between IT capability and organizational business performance.*

In our study, KM capability plays the role of a mediator between IT capability and organizational business performance. Proposed conceptual model is presented in Figure 1.

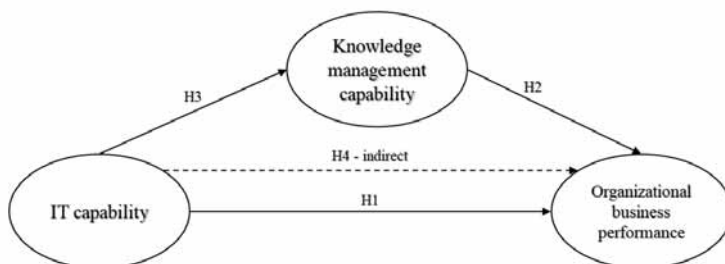


Figure 1. *The proposed conceptual model*

Source: Authors' research

### 3. Empirical research

A deductive research approach and a survey method for collecting primary data were used in this study. The target population of our study were companies in Bosnia and Herzegovina (BiH). The study used a sample of 2,966 companies selected from the database of the Foreign Trade Chamber of BiH. The invitation to participate in the research was sent to senior and middle managers via email, which stated that the survey was anonymous. The invitation letter contained a link to the online questionnaire. A total of 408 valid questionnaires were obtained after excluding those who had a higher percentage of missing data. Data were examined for nonresponse bias by comparing the characteristics of early and late study participants. The results of this comparison revealed that non-response bias does not pose a threat to the results obtained and their interpretation.

Measurement items were selected based on a literature review. The research instrument was validated by a panel of experts, two managers, and four members of the academic community in BiH. All the variables used in the study were operationalized using the Likert scale from 1 (absolutely disagree) to 7 (absolutely agree). The IT Capacity model is conceptualized as a second-order model with three first-order dimensions: IT knowledge, IT operations and IT infrastructure. The indicators were adopted from (Pérez-López & Alegre, 2012) and (Kmieciak, Michna & Meczynska, 2012). KM capability is conceptualized as a second-order reflective measurement model that of three dimensions: acquisition, conversion, and application of knowledge. Indicators that were adopted from (Liao & Wu, 2009). Finally, organizational business performance was measured through a subjective assessment of financial performance indicators, namely: profit, sales volume, return on investment and market share relative to competitors. Indicators are adopted from (Chen, Tsou & Huang, 2009).

#### 4. Data analysis

Data analysis was performed through several steps. First, the data examination was performed using SPSS 22.0 and following recommendations by Hair, Black, Babin, & Anderson (2014). Then, confirmatory factor analysis (CFA) is used to evaluate the reliability and validity of measurement models using Lisrel 8.8 (Diamantopoulos & Siguaw, 2000). All three measurement models fitted the data well, i.e., traditionally reported fit indices were in acceptable ranges ( $\chi^2/df < 3$ ; RMSEA  $< 0.1$ ; SRMR  $< 0.08$ ; CFI  $> 0.9$ ; NFI  $> 0.9$ ). Reliability was confirmed by checking the CR indicator required to be greater than 0.7 (see Table 1). Convergent validity was assessed by checking the factor loadings of each indicator (greater than 0.5) and determining that the average variance extracted (AVE) indicator was greater than 0.5. Finally, discriminant validity was assessed by confirming that the square root of the AVE indicator is greater than the correlation with the other dimensions (Fornell & Larcker, 1981) (see Table 1). Therefore, we first tested each measurement model individually, and then performed CFAs on all dimensions and confirmed satisfactory model fit ( $\chi^2/df = 690.991/303 = 2.28$ ; RMSEA = 0.0561; SRMR = 0.0579; CFI = 0.984; NFI = 0.972).

Table 1. *Reliability and validity assessment*

#	Dimensions	CR	AVE	1	2	3	4	5	6	7
1	IT knowledge	0.870	0.691	<b>0.831</b>						
2	IT operations	0.873	0.633	0.768	<b>0.796</b>					
3	IT infrastructure	0.844	0.645	0.595	0.665	<b>0.803</b>				
4	Acquisition	0.903	0.653	0.457	0.551	0.372	<b>0.808</b>			
5	Conversion	0.935	0.782	0.471	0.468	0.300	0.763	<b>0.884</b>		
6	Application	0.900	0.693	0.545	0.550	0.282	0.675	0.648	<b>0.833</b>	
7	Performance	0.889	0.671	0.254	0.261	0.183	0.361	0.261	0.226	<b>0.819</b>

Notes: Squared-root AVEs are shown on the diagonal in bold; CR = Composite reliability; AVE = Average Variance Extracted; Construct correlations are shown below the diagonal.

Source: Authors' research

Overall, the assessment of the measurement models reveals that all constructs are of satisfactory reliability and validity for the purposes of this research.

Hypothesis testing and path analysis were performed using the Structural Equation Modeling (SEM) technique, which allows simultaneous estimation of multiple interconnections using multi-item scales (Hair et al., 2014). Lisrel 8.8 software (Diamantopoulos & Siguaw, 2000) and the maximum likelihood estimation technique was used to test the research model.

Table 2. *Path analysis estimates*

<i>Hypotheses</i>	<i>Paths</i>	<i><math>\lambda</math></i>	<i>t – value</i>
H1:	IT capability → Organizational business performance	0.064	0.831
H2:	Knowledge management → Organizational business performance	0.338***	4.238
H3:	IT capability → Knowledge management	0.654***	9.351
H4:	ITC → KM → OBP	0.220***	4.054

$\chi^2/df=750.087/315=1.88$ ; RMSEA=0.0583; SRMR=0.0620; CFI=0.983; NFI=0.970

\*\*\* $p<0.01$ ; \*\* $p<0.05$ ; \* $p<0.1$

Source: Authors' research

The assessment of the structural model resulted in an acceptable model fit ( $\chi^2/df=750.087/315=1.88$ ; RMSEA=0.0583; SRMR=0.0620; CFI=0.983; NFI=0.970) (Hair et al., 2014). Table 3 shows the standardized path coefficients with significant levels. Hypotheses 2, 3, and 4 were confirmed. The results show that IT capability does not have a significant impact on organizational performance ( $\beta=0.064$ ,  $p>0.1$ ). However, the results show that IT capability is positively related to KM capability ( $\beta=0.654$ ,  $p<0.01$ ). In addition, KM capability has a positive impact on organizational business performance ( $\beta=0.338$ ,  $p<0.01$ ). Finally, our study confirms that KM capability mediates the relationship between IT capability and OBP ( $\beta=0.220$ ,  $p<0.01$ ).

In order to validate the results, we adopted the procedures proposed by Baron and Kenny (1986) for the test of mediation (see Table 3). According to Baron and Kenny (1986), three steps must be performed to prove the mediating effect. First, the independent variable must predict the dependent variable (model 1). Second, the independent variable must have a significant relationship with the mediator (model 2). Third, the mediator must have a significant influence on the dependent variable, but the effect of the independent variable on the dependent variable must disappear or decrease significantly after the mediator effect is included in the analysis (model 3). Furthermore, we conducted the Sobel test (Sobel, 1982) to validate that the mediating effect is significantly different from zero. The results of the Sobel test confirmed that KMC fully mediates the relationship between ITC and OBP ( $z=3.86$ ,  $p<0.01$ ). The full mediation effect is demonstrated when the independent variable does not affect the dependent variable due to mediator involvement (Qi & Chau, 2018). In other words, IT capability has no direct impact on OBP but affects indirectly through KMC.

Table 3. *A mediation analysis*

<i>Paths</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
ITC → OBP	0.283*** (4.969)		
ITC → KM		0.652*** (9.312)	
ITC → KM			0.653*** (9.351)
KM → OBP			0.338*** (4.238)
ITC → OBP			0.064 (0.831)

\*\*\* $p<0.01$ ; \*\* $p<0.05$ ; \* $p<0.1$

Source: Authors' research following (Baron & Kenny, 1986)

## 5. Conclusion

This paper builds on the RBV to shed light on the relationship between IT capability, KM capability and organizational business performance. The results revealed that IT capability does not have a direct

effect on organizational business performance. This result is in line with some previous studies that failed to confirm the impact of IT on business performance (Pérez-López & Alegre, 2012). However, the findings provide support for the indirect effect of IT on business performance over knowledge management. In other words, our study empirically validates the premise of researchers who propose that IT influences different business processes (Pérez-Aróstegui, Bustinza-Sánchez & Barrales-Molina, 2014) and instead to focus on the direct effects of IT on business performance, the value of IT should be sought in the way it supports other organizational resources (Crawford, Leonard & Jones, 2011). This is also one of the answers to the “IT productivity paradox”. Therefore, our results confirm that IT and KM capabilities are important drivers of business impact. Although IT does not directly contribute to the organization's performance, it does encourage the enhancement of KM capabilities, which further drive business performance. In other words, KM capabilities have the effect of IT capabilities on an organization's business performance. In this way, our study contributes to the view that knowledge and technology are a significant strategic resource for business in the 21<sup>st</sup> century.

This study provides several important implications for managers. First, the study's findings support the importance of information technology for knowledge management processes and indirectly for organizational business performance. In addition, particular emphasis is placed on knowledge management processes, and therefore managers must develop an awareness of the importance of continuous knowledge acquisition, sharing, and conversion of knowledge in the organization, as well as successful knowledge application in business processes. Our research shows that organizations that manage these processes achieve better performance through sales, profits, return on investment, and market participation. In addition, organizations that enhance aspects of IT capabilities, i.e. IT knowledge and IT infrastructure, as well as their use in performing business activities, manage knowledge more successfully. Accordingly, all organizations wishing to operate in the new economy successfully should continuously invest in IT and knowledge management processes and thus create rapid responses to changes in the business environment and create lasting competitive advantages.

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## DEVELOPMENT OF IT OUTSOURCING IN UKRAINE: A PROSPECT OF THE BRAIN DRAIN REDUCTION

### RAZVOJ IT OUTSOURCINGA U UKRAJINI: MOGUĆNOST SMANJENJA ODLIVA MOZGOVA

#### Abstract

*Ukraine is faced by a devastating problem of economically active population emigration, which has reduced the labor force in the country by 5-8% in the last two years and demonstrated negative impact on the potential Gross Domestic Product (GDP). Despite this, Ukraine is one of the leading software development centers in the Central and Eastern Europe and ranks fourth in the export of information technology (IT) products and services in the world nowadays. The IT industry is one of the four priority sectors for Ukraine's export strategy, it is one of the most perspective, dynamic and innovative branch of the Ukraine's economy. Professional expertise, cost effectiveness and high standard technical education make this industry attractive also in terms of employing Ukraine's own intellectual resources within the country. Article aims to characterize the state of affairs, potential and prospects for development of the Ukrainian IT outsourcing market as well as to analyze and evaluate it including comparison with foreign practice. Research methods used are as follows: desk research, inductive and deductive methods, abstract and logical method, system approach, analysis and synthesis, empirical methods, and statistical analysis. The essence of IT outsourcing, its types, aims and main advantages of use are revealed in the article. Features of IT outsourcing industry trends both in Ukraine and the world practice are researched. Competitive advantages of Ukraine in the world IT outsourcing market are identified. Challenges, obstacles, risks as well as potential and prospects of IT outsourcing development are determined and analyzed. Recommendations for the brain drain reduction due to the IT industry progress are offered and its impact on the potential GDP growth and economic development of Ukraine as a whole is provided.*

**Keywords:** IT outsourcing, brain drain, competitive advantage, development

**JEL:** L24, O15, M15, O30

#### Sažetak

*Ukrajina se suočava s poražavajućim problemom emigracije ekonomski aktivnog stanovništva, što je smanjilo radnu snagu zemlje za 5-8% u posljednje dvije godine te se negativno odrazilo na potencijalni bruto domaći proizvod (GDP). Uprkos ovome, Ukrajina je jedan od vodećih centara za razvoj softvera u centralnoj i istočnoj Evropi i četvrta rangirana zemlja u svijetu kada je u pitanju izvoz informatičkih proizvoda i usluga (IT). IT industrija je jedan od četiri prioriteta sektora izvozne strategije, jedna od najperspektivnijih, najdinamičnijih i najinovativnijih grana ukrajinske ekonomije. Profesionalna stručnost, ekonomičnost i visoka tehnička edukacija čine ovu industriju atraktivnom i u pogledu zapošljavanja vlastitih*

*intelektualnih resursa unutar zemlje. Članak ima za cilj okarakterisati stvarno stanje, potencijale i mogućnosti razvoja ukrajinskog IT outsourcing tržišta, kao i njegovu analizu i procjenu, uključujući usporedbu sa stranom praksom. Korištene su sljedeće istraživačke metode: sekundarno istraživanje, induktivna i deduktivna metoda, apstraktna i logička metoda, sistemski pristup, analiza i sinteza, empirijske metode i statistička analiza. U članku se otkriva bit IT outsourcinga, njegove vrste, ciljevi i glavne prednosti korištenja. Istražuju se karakteristike trendova IT outsourcing industrije u Ukrajini i svjetskoj praksi. Utvrđene su konkurentne prednosti Ukrajine na svjetskom tržištu outsourcinga. Utvrđeni su i analizirani izazovi, prepreke, rizici, kao i potencijali i izgledi razvoja IT outsourcinga. Date su preporuke za smanjenje odliva mozgova zbog napretka IT industrije, kao i njen uticaj na potencijalni rast GDP-a i ekonomski razvoj Ukrajine.*

**Ključne riječi:** IT outsourcing, odliv mozgova, komparativna prednost, razvoj

**JEL:** L24, O15, M15, O30

## 1. Introduction

As estimated by the United Nations (2019) by 2050, the number of population in Ukraine will decrease to 36 million (43.9 million – in 2019) and 50 years later it may be recorded at 28 million. Next to low fertility rates, migration plays a key role for the situation to happen. Every Ukrainian who leaves in search of a better life is contributing to the loss of one of the country's most valuable resources – human potential (Talmazan, 2019). The National Bank of Ukraine (NBU) representative Nikolaichuk (2018) said that for the latest 2 years migration has reduced Ukrainian workforce by 5-8% and the impact on potential GDP is quite high. Tendency for young people to leave abroad to study is also anxious. Despite this, Ukraine is one of the leading software development centers in the Central and Eastern Europe (CEE). Professional expertise, cost effectiveness and high standard technical education makes this branch attractive in terms of use of its own intellectual resources within the country in particular (Komsa & Hrebennyk, 2017).

The research on possibilities to lower Ukraine's drastic brain-drain due to ensuring appropriate institutional conditions for IT professionals is of great importance.

The aim of the article is to characterize the state of affairs and potential of formation of the Ukraine's IT market, as well as to analyze and evaluate the prospects for its development, including comparison with foreign practice.

## 2. Previous related research

Features of IT outsourcing development are studied in the works of foreign and Ukrainian scientists. Significant contribution to the development of the concept of outsourcing belongs to Heywood (2001) who presented the arguments for and against outsourcing.

Gottschalk and Solli-Saether (2006) focused their attention on the issues related to the strategy, structure, principles and methods of effective IT outsourcing management. Bravard and Morgan (2006) showed how to make efficient outsourcing-related decisions.

St. Amant (2009) covered business process outsourcing (BPO), government IT outsourcing, localization and offshoring, outsourced IT projects, trust in offshore outsourcing etc. Hirschheim, Heinzl, and Dibbern (2009) attempted to synthesize what is known about international systems outsourcing by studying its three parts (traditional IT outsourcing, IT offshoring, and BPO). Beulen, Ribbers, and Roos (2010) presented both research and practical examples to explore how relationships with external provider(s) have to be established and managed successfully. Willcocks, Lacity, and Sauer (2017) shared a report for the findings of 405 major research studies on

offshoring, offered analysis of emerging findings and practices for the future etc. The work by Aubert and Rivard (2016) is devoted to theoretical principles and modern trends of IT outsourcing.

Features of the IT outsourcing in Ukraine are studied by Ukrainian scholars Osadchuk, Yokhna (2010), Matvii (2013), Herasymchuk (2013), Meshko, Yefremova (2015), Litoshenko (2017), Iliencko, Moroz (2014), who researched the nature, types, advantages and disadvantages of outsourcing, analyzed the dynamics of the IT outsourcing market in Ukraine. Tyshchuk and Pavlova (2013) analyzed the potential and prospects of IT outsourcing in Ukraine. Tropitsyna (2014) revealed the stages and mechanism of using outsourcing services to improve the enterprise's efficiency, analyzed the market for outsourcing services in Ukraine. Koshkariyeva (2016) studied the distinctive features of outsourcing as a service and the purpose of its application. IT outsourcing in Ukraine as an activity was studied by Tonyuk (2016), who considered its trends and development forecasts. Sadchykova, Khomenko, and Gorobinska (2018) studied the essence of the "outsourcing" as a concept and highlighted the features of outsourcing in different types of economic activity. Dubovskiy (2018) modeled the country's labor potential in the field of IT outsourcing.

But in all those studies the IT-professionals emigration issues were not disclosed. This fact makes the proposed analysis to be distinguished among the others related to the IT outsourcing aspects.

### 3. Methodology of the research

Methods used to achieve the aim of the research are desk research, inductive, deductive, abstract, empirical and logical methods; system approach; analysis and synthesis; morphological and statistical analysis. Data for GDP, total goods and service exports and Information and Communications Technology (ICT) exports, budget tax revenues are provided by the State Statistics Service of Ukraine, NBU, PricewaterhouseCoopers (PwC), the World Bank, International Data Corporation (IDC), European Business Association (EBA), Eurostat, United Nations. Surveys of the Ukrainian IT professionals and a detailed overview of the country's IT market are provided by the largest Ukrainian developer community DOU.ua, IT Ukraine Association, Better Regulation Delivery Office (BRDO), N-iX, IDAP, ITCua, etc.

### 4. IT outsourcing: nature, types, advantages and disadvantages of use

Outsourcing refers to contracting third party entities to do specific business functions for the organisation (Patterson, 2019). Information technology outsourcing (IT Outsourcing) involves tech-based functions such as software and application development, network administration and web development, datacenter services, infrastructure technology outsourcing (enterprise resource planning, customer relationship management, supply chain management, e-commerce; enterprise asset management etc.). Types of outsourcing services: (a) onshore/homeshoring (outsourcing done within the borders of a country); (b) nearshore (outsourcing to a company in a neighboring country); (c) offshore/services overseas (outsourcing to a country far away as a rule because it is significantly cheaper (What Is Outsourcing?; Different Types of IT Outsourcing).

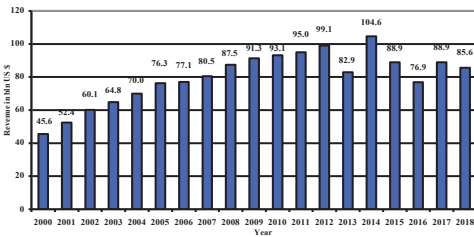
IT outsourcing advantages are: capacity optimization and ability to concentrate resources on core activities; lead time and cost reduction, profit incrementation; simplified organizational structure; possibilities of activity diversification due to the released production and intellectual potential; minimizing risks by transferring IT infrastructure to third parties; gaining financial flexibility; enabling competitive advantage etc. (Deloitte, 2018; Meshko & Yefremova, 2015).

The main disadvantages of IT outsourcing are: loss of complete control over the IT infrastructure servicing company; dependence on the outsourcer, especially in security matters; decrease in labor productivity of own personnel because of loss of motivation during changes (Hrebeshkova &

Stelmakh, 2011). IT outsourcing is not the only way to transform a business, although when properly managed, it can act as a catalyst for change.

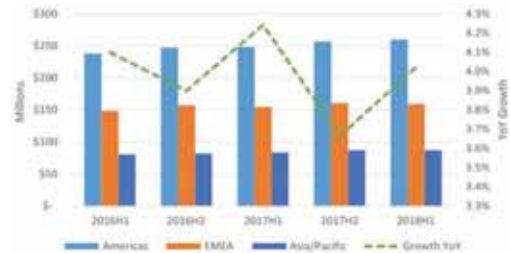
## 5. IT outsourcing in the global dimension

The global market size of outsourced services in 2000-2018 is shown in Figure 1a. According to the 2019 annual Global Services Location Index (GSLI), which measures the viability of countries as an offshore destination based on their financial attractiveness, people skills and availability, and business environment (The 2019 Kearney Global Services Location Index, 2019), top 10 leading countries in offshore business services worldwide in 2019 are India, China, Malaysia, Indonesia, Vietnam, United States (US), Thailand, United Kingdom (UK), Brazil and Philippines. Global services revenue across the regions and year-over-year growth are presented in Figure 1b.



a) The global market size of outsourced services in 2000-2018, in billion US dollars.

Source: Statista, 2019a, 2019b



b) Global Regional Services Revenue (First Half of 2018, in USD bln) and Year-Over-Year Growth (in %).

Source: IDC, 2018

Figure 1. The global market size of outsourced services in 2000-2018 (in USD bln) and Global Regional Services Revenue (First Half of 2018, in USD bln) and Year-Over-Year Growth (in %)

According to Technavio's IT outsourcing report (2018), the Americas held the largest share of the market in 2017, accounting for over 50% share, followed by the EMEA (Continental Europe, the Middle East, and Africa) and APAC (Asia-Pacific) respectively. However, during the forecast period the EMEA region is expected to register the highest incremental growth. The market will be accelerating growing at a compound annual growth rate (CAGR) of over 4%, incremental growth of USD 75.99 bln from 2017 till 2022, 60% of the growth will come from EMEA region.

## 6. IT market in the structure of the Ukraine's economy: rankings, trends, challenges and perspectives

Ukraine's IT industry, in addition to its significant economic effect, has become an important element in creating an image of the country nowadays. In 2018, Ukraine and Ukrainian tech companies appeared among top positions in many influential international rankings: more than 100 representatives of "Fortune 500" list (Fortune 500, 2019) in the world are loyal customers of the Ukrainian IT business; The Global Sourcing Association has named Ukraine as the best IT services provider country to the UK (The Global Sourcing Association). In 2019, 11 Ukrainian IT companies and 6 providers with development centres in Ukraine were included in Best of the Global Outsourcing100 listing (IAOP, 2019). Ukraine has been chosen as one of their R&D facilities location for 20% of world leading companies (Tech Ecosystem Guide to Ukraine, 2019, Ukraine is one of the leading countries in the field of IT outsourcing, 2019). In 2017, Gartner included Ukraine in the research on top offshore services locations in the EMEA region (Gartner, 2017). In the Global Innovation Index 2019 Ukraine ranked 47<sup>th</sup> (The Global Innovation Index, 2019). According to HackerRank, Ukraine ranks 11<sup>th</sup> of 100 among the top 50 countries with the best software developers in the world (HackerRank). Also, it is 7<sup>th</sup> on the TopCoder rating of the

best programmers (TopCoder Ranking). Ukraine is 33<sup>rd</sup> (42<sup>nd</sup> – in 2018) in Top 50 Digital Nations and its capital city of Kyiv holds 75<sup>th</sup> position in the Top 100 Super Cities rankings (Tholons Services Globalization Index, 2019). Ukraine ranks 20<sup>th</sup> in the Kearney GSLI of the most attractive outsourcing destinations in 2019 (The 2019 Kearney Global Services Location Index, 2019).

The statistics presented by different organizations such as the World Bank, PwC, IT Ukraine Association, State Statistics Service of Ukraine, and NBU vary in terms of different methodology used. But according to all of these sources, Ukraine's IT industry demonstrates a steep growth.

In 2016, EBA and PwC presented a comprehensive analysis of the Ukrainian IT industry (Andrienko-Bentz, 2016): Ukrainian IT services market increased by 2.5 times between 2011 and 2015 and it's predicted to reach USD 5.7 billion by 2020; Ukraine's export proceeds from IT industry are to increase from USD 2.5 bln. to USD 5.1 bln in 2020 and its share in total export will grow from 5.2% to 7.5%; share in Ukraine's GDP – from 3.3% to 4.5%; budget revenues were estimated at UAH 10.3 bln (UAH 27.2 bln in 2020). Bank deposits of IT specialists accounted for approximately UAH 5.8 bln, mandatory sale of foreign currencies was USD 2.0 bln, banks' income from transactions with foreign currencies was approximately UAH 1.7 bln. In 2018, the industry surpassed 180,000 specialists and was projected to grow to 200,000 professionals by 2020. As a result, the tech industry created 420 thous. jobs in IT and related industries and 670 thous. are expected in 2020 as one new programmer involved in the industry creates up to 4 additional jobs in related industries (the National Association of Software and Services Companies, 2019). According to forecast (basic one), provided in the PwC research in 2017, in 2025 IT industry revenue will increase till USD 8.4 bln, the number of IT-professionals by almost 2.5 times – to more than 240 thous., industry taxes paid – till UAH 46.1 bln, contribution to GDP may be recorded at 4.65% (Pylypenko, 2017).

ICT became the 3<sup>rd</sup> largest export service industry, amounting to more than 20% of all Ukrainian service exports (State Statistics Service of Ukraine, 2019). According to the dynamics of the balance of payments of Ukraine (National Bank of Ukraine, 2019) ICT exports increased by 31.4% during the first half of 2019 till USD 1.64 bln, compared to the same period of the last year (IT Ukraine Association, 2019). The vast majority of Ukrainian software development companies are exporting IT services and 60% of the Ukrainian developers are currently employees in software development outsourcing, 29% are engaged in product development, and 11% in outstaffing (N-iX).

Most company employees and almost all freelancers (must register as Private Entrepreneurs, PE, Sole Proprietor) are hired as independent contractors – a framework which provides substantial tax and easy reporting, benefiting both companies and employees (Contact Ukraine). Under such agreement, the employer does not pay taxes on salaries and the employee, being taxed according to the simplified (unified) tax regime and belonging to the third group of such taxpayers (among four ones currently existing), pays a fixed rate (single tax) of only 5% of his/her gross income if VAT is not paid (3% if VAT is paid). In addition, they are subject to a United Social Contribution (USC) of 22% of a minimum wage (around USD 30 as of 2019). According to (Ministry of Justice of Ukraine, 2019) and (Ippolitova, 2019a), the number of IT specialists registered as PEs increased by 23% in 2018 to 154 thousand persons compared to 125 thousand in 2017, while the total the number of all PEs in Ukraine increased by only 4%.

Revenues from single tax increased by an average of 58.8% annually during 2013-2017 and amounted to UAH 3.2 billion in 2017 (USD 118.5 mln). By contrast, the amount of taxes paid by IT companies during 2014–2017 was steadily growing by 27% each year and in 2017 it reached 4.1 billion UAH (USD 151.9 mln). In the first half of 2019, the amount of taxes paid to the state budget of Ukraine increased by 28.9%, to UAH 6.1 bln, and the payments of the USC – by 31.4% to UAH 1.89 bln, respectively. The personal income tax paid by IT workers was 3.7 times higher

than the national average (Shelest, Kutovyi & Samokhodskyi, 2019; State Fiscal Service of Ukraine, 2019; IT Ukraine Association, 2019; The Price of the State, 2019; Ukraine. The country that codes. IT Industry in Ukraine, 2019).

At the beginning of September, 2019 a meeting of the newly appointed Prime Minister of Ukraine Oleksii Honcharuk with representatives of the IT industry was held. Honcharuk pointed out on the problem of the lack of staff in the industry and proposed to establish a Human Capital Development Fund – IT Creative. A new tax to generate revenues for it was introduced: it should increase till 5% in 2024-2029 and this fee is not to be paid by companies, but by PEs working in the industry. Additionally such PEs have to pay doubled USC and 1.5% of military fee (Karpus, 2019). Ishchenko (2019), commenting on this, considers that relatively low cost of living and services, plus low taxes, are now the reasons for IT professionals to stay in Ukraine. If taxes will be simply raised without providing anything in return, only the problem of the outflow of talents is exacerbated (Ishchenko, 2019). The DOU.ua (Ippolitova, 2019b) carried out a research in which it has been estimated that increasing the tax for IT professionals can encourage them to leave abroad.

In the Ukraine, 72% of employees in IT are under 30 years old (DOU, 2019a), there are more than 4,000 tech companies operating on the market and over 1,600 IT service companies (IT Ukraine Report, 2018). Kyiv and Kyiv region remains the leader in the number of IT specialists (Unified State Register of Legal Entities, Individual Entrepreneurs and Public Formations, 2019; Ippolitova, 2019a). Comparison of the Ukrainian cities with the most developed IT industry in terms of number of IT companies and software developers, level of average salaries is given in Table 1.

Table 1. *Number of IT companies, software developers in top-5 IT-cities of Ukraine and their average salaries*

City	Kyiv	Kharkiv	Lviv	Dnipro	Odesa
Number of tech companies	42	20	24	12	15
Number of software developers in top-50 companies	23061	8289	8536	2685	2883
Total number of IT specialists	45778	21847	15643	13213	7193
Level of the software developer	Average salaries, US dollars (as of June-July, 2019)				
Senior	3900	3500	3500	3400	3600
Software Engineer	2100	1800	2000	1900	2000
Junior	750	700	645	600	650

Source: Compiled by the authors on the basis of (DOU, 2019b, 2019c, 2019d) and (Ippolitova, 2019a)

The positive dynamics has been recorded in the developers' salaries for the last three years: average revenue per developer is USD 50,000 per year, average hourly rate is USD 34-64. In this context it should be noted that the minimum wages in Ukraine currently is UAH 4173 (approx. USD 155) and the average salary in Ukraine is UAH 10783 (approx. USD 400) as of June 2019 (Ministry of Finance of Ukraine, 2019).

One of the reasons, why Ukraine occupies leading position in the list of IT outsourcing locations, is its strong orientation towards IT as about 200 higher education institutions (HEIs) train IT professionals (The Unified State Electronic Database in Education, 2019). Antoniuk, the CEO of the largest Ukrainian IT company EPAM, considers that global competition for talents is growing and not the outflow of professionals, but the beginning of the outflow of students is urgent under current trends of migration (Shelest, Kutovyi & Samokhodskyi, 2019). SoftServe, Luxoft, Ciklum, GlobalLogic are the companies actively cooperating with HEIs as well in the field of IT professionals training and launch their own IT academies.

## 7. Performance of the Ukraine's IT outsourcing in the CEE region

Eastern Europe has established itself as one of the world's best software outsourcing destination. Its IT sector offers an impressive diversity of tech professionals, developed infrastructure and provides

a good educational background (Anisimova, 2019). Compared to other countries in the CEE region with developed IT outsourcing services (see Table 2), Ukrainian competitive advantages are (Eurostat, 2018; IT Ukraine, 2016, Ukraine. The country that codes. IT Industry in Ukraine, 2019; Ukraine Invest, 2018): the cheapest and largest engineering labor force in Europe; ease of recruiting and laying-off employees in the absence of strong legal restrictions or trade unions; highly educated population (99.7% literacy rate, 70% have a secondary or higher education); European mentality; no-visa regime and easy work permit regime for foreigners from most countries; favorable geographic position; well-developed and developing IT infrastructure, with a fast-growing innovation ecosystem; lots of world-famous tech giants operating on its territory; one of the most promising startup scenes (Grammarly, Terrasoft, Petcube, just to name few); a well-developed market of software development companies for hire; local offices in the US and Western Europe; despite that the cost of hiring a Ukrainian developer is lower if compared to western countries, the quality of developed products is not compromised; high English proficiency level of developers.

Table 2. *Ukraine's and the Central and Eastern Europe countries' comparison in key indicators*

Criteria Country	Population, mln. (as of 2018)	Number of software developers, thous.	ICT Service export volume, in bln. USD (as of 2017)	GDP nominal, in bln. USD	GSLI, rank
Poland	38.0	279.8	6.4	581.3	24
Ukraine	43.9	184.7	2.8	132.9	20
Romania	19.6	116.1	4.5	248.8	28
Czech Republic	10.7	95.3	3.8	264.5	33
Hungary	9.8	80.1	2.2	164.5	31
Bulgaria	7.1	70.0	1.2	66.2	17
Belarus	9.5	54.2	1.5	60.0	n/a
Slovakia	5.4	36.9	1.5	112.3	35
Lithuania	2.8	27.4	0.5	54.5	16
Estonia	1.3	20.7	0.7	31.2	12
Latvia	2.0	18.6	0.7	35.8	21

Source: United Nations, 2019; State of European Tech, 2018; Ukraine Invest, 2018; Infoshare CEE Developer Landscape, 2017; The World Bank, 2019a, 2019b; Statistics Times, 2019; The 2019 Kearney Global Services Location Index, 2019; The country that codes. IT Industry in Ukraine, 2019

The Ukraine is among top IT countries not just in the region, but worldwide as well due to the growth rate of the Ukrainian IT companies which exceeds the total world rate by 5 times (Atamas, 2019), their year to year international ranking improvement, attracted investments in new startups, new signed contracts with world well-known IT giants, government's involvement in the industry's development by using its successes as a part of the state's international public relations in particular, cooperation of industry's representatives with Ukrainian universities, creating demand for professionals and adjusting educational programs by doing so.

## 8. Discussion

Top 5 IT outsourcing trends in 2019 have been identified as: shifting away from single-vendor outsourcing, outsourcing core business service, increasing focus on cybersecurity, automation of manual processes through artificial intelligence, and less focus on reducing costs and more – on delivering value (IT Outsourcing News from Central and Eastern Europe, 2019). Key challenges facing the Ukraine's IT industry successful development are identified in (Atamas, 2019; Shelest, Kutovyi & Samokhodskyi, 2019; Hlova, 2019a, 2019b) as: most IT companies are not ready for faster growth due to underdeveloped management systems; less focus on reducing costs; IT outsourcing market is saturated, competition among the companies is increasing; customers shift away from a single IT outsourcing provider; the risk of losing customers; European requirements for personal data protection; possibility of restricting or prohibiting subcontracting with PEs; global IT skills shortage which limits the growth; political and economic instability in Ukraine, not always sufficient transparency and predictability of doing business; abuse by public authorities.

According to Shelest, Kutovyi, and Samokhodskyi (2019), IT industry trends and perspectives are discussed by the heads and representatives of the Ukraine's leading IT companies. Antoniuk is sure that for succeeding the industry is in need of a predictable tax policy, no regulatory barriers, human capital development, growing demand for development services in the domestic market, taking into account the risks posed by global competition for skilled workers. The Ukraine's chance to stand out in the global market is to work on the creation of complex products and services with significant added value. Lutskyi, founder and CEO of Innovecs, also considers that added value should be emphasized. Mostovyi, CEO of AltexSoft and the Chairman of the Kharkiv IT Cluster supervisory board, puts forward an idea that domestic IT companies have to foster the implementation of public-private partnerships between universities and business, and the corporatization of universities. Kushnir, Vice President of Luxoft Global Development Centers, considers that human resources should be a priority for both the IT industry and the state. Bieda, CEO of the Ukrainian office of GlobalLogic, believes that consolidation of all industry participants is paramount: development of the education system and, higher technical education in particular; tax legislation reform; strengthening of the Ukraine's positive image in the international arena; internal market development; R&D – as the Ukraine's niche in the world market (Kulesh, 2016). Kitsmei, co-founder of SoftServe Inc. and President of the IT Ukraine Association, agrees that focus should be made on human and organizational capital. Chaikovska, Chairman of the Board of STEM-coalition of Ukraine, adds that increasing the number of women in the IT sector can improve performance and further avoid gender inequalities in top management (Komsa & Hrebennyk, 2017). Sharma (2017), CEO of BMC Software India Pvt. Ltd., points out that government regulation, a special taxation regime for attracting large numbers of foreign investors, land rent for free are required. Strategy and action plan to the IT industry development are also offered in (Andrienko-Bentz, 2016) and they mostly coincide with the points of view given above.

This paper offers a comprehensive analysis of the IT industry, IT outsourcing in particular, in terms of its impact on not relocating to other countries by identifying share and contribution in the country's GDP, total and services exports, tax revenues, salary rates and prospects for further development.

## 9. Conclusion

Outsourcing is a powerful management tool and its proper use is a key in the processes of transforming an organization and reforming its assets. Research results testify that IT-industry is one of the most perspective, fast growing and innovative sector of the Ukraine's economy and is the one that may stop the brain drain taking place in the country. IT companies in Ukraine ensure a steady capital inflow into the country's economy, attract foreign investments, assist in creation of a demand for consumer goods and services in the fields of education, insurance, healthcare, real estate, additional jobs in related industries, constant foreign exchange earnings, significant amount of taxes is paid, etc. The Ukraine's strong scientific and mathematical education system makes it possible for programmers to become innovative technical leaders as opposed to functioning as body-shop programmers. Therefore, the Ukraine's IT-industry performs one of the best in the CEE region and global market. There are all necessary prerequisites for its successful growth and it will continue doing so under recommendations mentioned above to be followed.

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## DIGITAL TRANSFORMATION IN BUSINESS: A BIBLIOMETRIC ANALYSIS

### DIGITALNA TRANSFORMACIJA U POSLOVANJU: BIBLIOMETRIJSKA ANALIZA

#### Abstract

*The digital transformation presents a challenge and an opportunity for organizations that are willing to change continuously in a very dynamic environment that has been radically changed by information technology. Moreover, year after year the speed of change is increasing, but the nature of the change is also changing. In addition to globalization, increased mobility, population growth and accelerated urbanization, organizations are confronted with a large number of competitors, each of which can introduce new innovations of products and services. For this reason, organizations need to adapt to this new paradigm in order to be able to respond to the new challenges that come with new trends easier, quicker, more efficiently and more effectively. Methodological frameworks can allow organizations to evolve digitally and can be used to bring more benefits to the way they do business. The main objective of our research was to perform a bibliometric and phrase frequency analysis that covered the names of the most popular writers, journals and organisations, year and country of publication, and the frequency with which words and phrases appeared in the literature. We searched for bibliometric units from the Scopus database using the keywords "digital transformation" and "methodology". We find that digital transformation and methodology research has been increasing rapidly since 2014 and is generally not focused on developing methodological frameworks for digital transformation.*

**Keywords:** digital transformation, methodology, framework

**JEL:** M21, M15

#### Sažetak

*Digitalna transformacija predstavlja izazov i priliku za organizacije koje se žele kontinuirano mijenjati u vrlo dinamičnom okruženju koje je informaciona tehnologija radikalno promijenila. Što više, iz godine u godinu brzina promjena se povećava, ali se isto tako priroda promjene mijenja. Uz globalizaciju, povećanu mobilnost, porast populacije i ubranu urbanizaciju, organizacije se suočavaju s većim brojem konkurenata od kojih svaki može uvesti nove inovacije proizvoda i usluga. Iz tog razloga, organizacije se moraju prilagoditi ovoj novoj paradigmi kako bi se mogle lakše, brže i efikasnije nositi sa novim izazovima koji dolaze sa novim trendovima. Metodološki okviri trebao bi omogućiti organizacijama da digitalno evoluiraju i mogu se koristiti kako bi omogućili veće beneficije njihovom načinu poslovanja. Glavni cilj našeg istraživanja je provođenje bibliometrijske i frazno frekvencijske analize koja bi obuhvatila ime najčešćih autora, časopisa i organizacija, godinu i zemlju objavljivanja te učestalost pojavljivanja riječi i izraza u*

*literaturi. Pretraživali smo bibliometrijske jedinice iz Scopus baze podataka, koristeći ključne riječi "digitalna transformacija" i "metodologija". Otkrili smo da se istraživanja u području digitalne transformacije i metodologiji ubrzano povećala počevši od 2014 godine, i uglavnom nisu usredotočena na razvoj metodoloških okvira digitalne transformacije.*

**Ključne riječi:** digitalna transformacija, metodologija, okvir

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## 1. Introduction

Just as the industrial revolution has changed the world and brought substantial increases in production, digital transformation enables businesses to simplification processes (Harvey, 2016), improve day-to-day operations (Aral, Dellarocas & Godes, 2013; Hanna, 2016) and reduce costs (Schwertner, 2017). With the obvious advantages of digital transformation and the fact that ignoring the forces of disruption is no longer an option, prosperous digital transformation is an important topic for businesses (Schwertner, 2017). According to Tabrizi et al. (2019), digital transformation represents number one concern for the business. Based on report held by Markets and Markets, global market of digital transformations will increase from \$ 290 billion in 2018 to about \$ 665 billion by 2023 – at a CAGR of 18.1% from 2018 to 2023 (including services, hardware and software packages).

On the other hand, the failure rate of digital transformation initiatives is alarming. Organizations that struggle in their digital transformation are taking massive losses, and according to Zobell (2018), as a result, \$ 900 million has been lost, making digital transformation progress significant. The sad truth, however, is that more than 70% of all attempts fail to meet their digital transformation goals (Zobell, 2018; Saldanha, 2019). In its 2017 survey, Couchbase stated that “84 percent of respondents reported projects being canceled, delayed, or reduced in scope” (Couchbase, 2017). Eventually, in its 2017 report, Wipro observed that “only 50% of companies are successfully executing on their digital transformation strategies despite demonstrated efforts and investments.” In fact, one in five senior managers secretly believes that a "waste of time" was their digital transformation initiative according to Wipro study (2017). The simple question arises from the above: Why do organizations fail to transform digitally?

To answer the question, it is necessary to explain what is digital transformation. To describe digital transformation, Stone (2019) often uses the term “journey”. They are exploring that analogy in a little more depth as follows: “As with a journey, you begin with a destination. The destination dictates your direction and the potential paths you can take. In preparation for our journey, we research our destination. For example, if our destination is a different country we want to know of any particular entry requirements, what languages are spoken, and what currencies are accepted.

In other words, we research, we plan, and we prepare. Taking these preemptive actions allow us to respond to issues quickly when they arise and still enjoy our journey. Similar treatment should be applied for digital transformation. This can be addressed by a disciplined checklist approach – influenced by the same methodology that has been successfully applied in another field.

Accordingly, the organization will need to explore, plan and prepare for digital transformation (Stone, 2019). Issues may arise along with their digital journey. If organizations are adequately prepared, these challenges can be solved and the path can be made.

More precisely, a lack of appropriate methodology is the underlying cause of the failure of 70% of digital transformation (Saldanha, 2019). With the rapid development of digital technologies, there are increasing requirements for digital transformation frames. Digital transformation frames were built by theoreticians and practitioners methodologically and are intended to help organizations improve their work and/or the outcomes of that work (Furjan & Kuhar, 2018). All digital changes in organizations can be grouped into one of the three categories (Westerman, Bonnet & McAfee, 2014):

- **Substitution**, where digital technologies are used to replace a function/process that is already performed in the organization;
- **Extension**, where digital technologies are used to improve the functionality of a process/product, and
- **Transformation**, where digital technologies are used to fundamentally redefine a process/product.

We also recognize the inconsistencies in the literature on digital transformation, and many of the existing studies see the digital transformation completely different (Morakanyane, Grace & O'Reilly, 2017). For example, while some authors recognize a small technological change such as the implementation of a new IT system as a digital transformation, others claim that digital transformation is in fact a more radical and complex process that takes place over time. While some authors connect digital transformation with business models and strategy, others view digital transformation as a concept or as a process. More precisely, according to Morakanyne, Grace, and O'Reilly (2017), the digital transformation literature needs to be expanded to describe what it is, how it works, what drives it, what impacts it creates and where the impacts are felt.

Our paper attempts to investigate the main determinants of digital transformation and methodology in bibliometric manner.

## 2. Methodology

This research is important from two points of view: firstly, a descriptive analysis of available literature and, secondly, an analysis involving a cluster analysis of the content of research papers in related fields. In order to identify works and papers that are related to the research field, the SCOPUS databases were used to search. The search was conducted based on the combination of keywords “digital transformation” and “methodology”. The search of the SCOPUS database was performed for the entire period, restricted to the name, abstract and keywords. To stop the constant

repetition of the audit report, the October 20th, 2019 was selected as the final date. Using Wordstat 8.0 text mining capabilities, a bibliometric analysis was carried out in the year of publication, a number of publications for individual journal institutions, organizations and authors, and the country of publication.

With the support of Wordstat 8.0 text mining capabilities, phrase frequencies are determined along with the number of different publications in which the phrases appeared and the importance of each phrase on the topic of methodology and digital transformation within the collection of publications. Ultimately, with the support of the capabilities of Wordstat 8.0 cluster analysis, the association between phrases within the publications was studied.

### 3. Results

When searching for methodology and digital transformation, we found that digital transformation as a term has been used since 1979, as can be seen in Figure 1. A total of 204 publications has been found in the SCOPUS database.

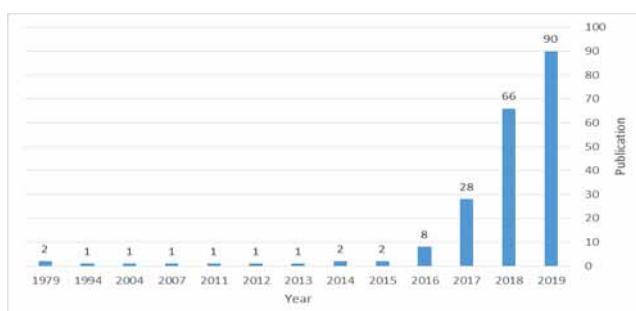


Figure 1. *Publications related to digital transformation and methodology by year of publication*

Source: Authors' research

Most of the publications have been identified with respect to Computer Science (22.46%), Business, Management and Accounting (18.60%), and Engineering (13.77%), while the remaining 45.17% of publication fell into the category of Decision Science (8.94%), Social Science (8.45%), Mathematics (4.59%), Energy (4.11%), Economics, Econometrics and Finance (2.90%), Environmental Science (2.90%), Medicine + Health Professions (2.66%), Earth and Planetary Sciences (2.17%), Materials Science (2.17%), Chemical Engineering (1.45%), and Other (4.83 %) (see Figure 2).

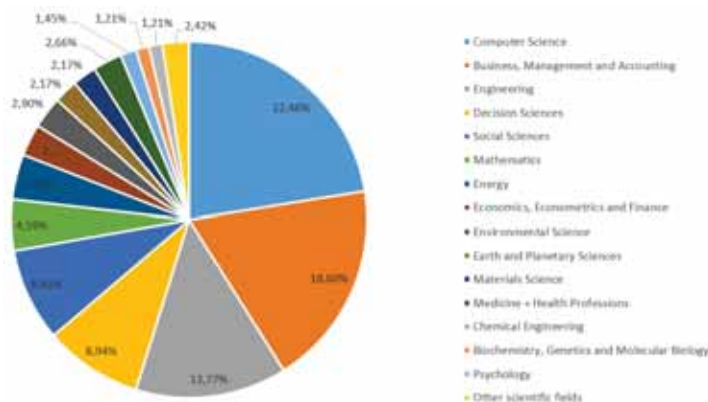


Figure 2. *Percentage of publications on digital transformation and methodology, published in different fields of research*

Source: Authors' research

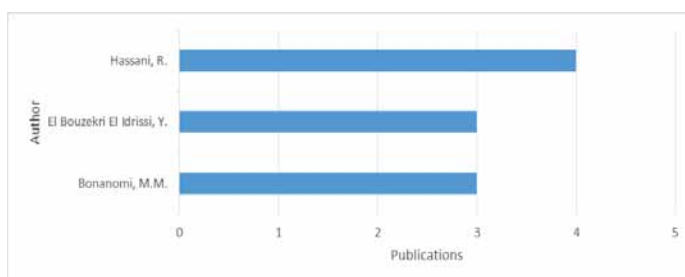


Figure 3. *Authors that published three or more publications on the topic of digital transformation and methodology*

Source: Authors' research

The following scientists contributed to the publication of three or more articles (see Figure 3):

- Rachida Hassani (National School of Applied Sciences, Kenitra, Morocco);
- Marcella Bonanomi (Zurich ZH, Switzerland), and
- Younès El Bouzekri El Idrissi (National School of Applied Sciences, Kenitra, Morocco).

Countries which have published five or more articles on the subject include Germany, United Kingdom, United States, Russian Federation, Spain, Italy, France, Portugal, Switzerland, India, Finland, and Australia (see Figure 4).

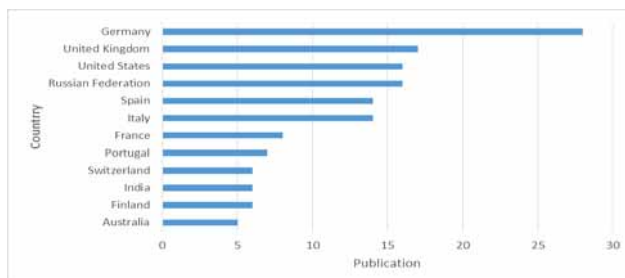


Figure 4. *Countries that published five or more publications on the topic of digital transformation and methodology*

Source: Authors' research

Institutions that had three or more publications were Rheinisch-Westfälische Technische Hochschule Aachen, Ecole Nationale des Sciences Appliquées Kénitra, ETH Zürich, Politecnico di Milano, and University Politehnica of Bucharest (see Figure 5).

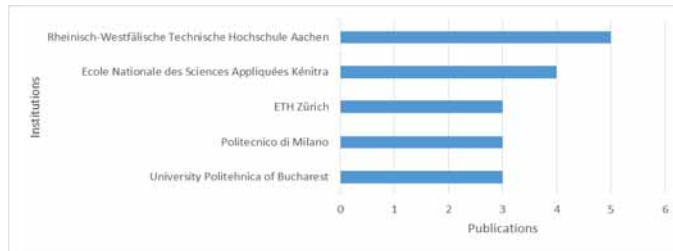
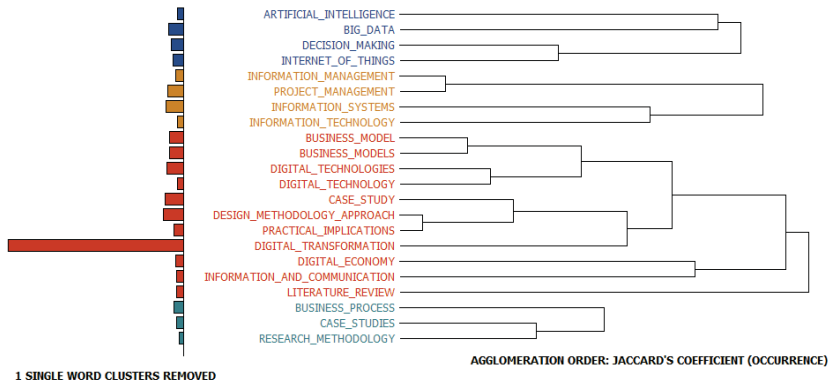


Figure 5. *Institutions that published three or more publications on the topic of digital transformation and methodology*

Source: Authors' research

Figure 6 shows the proximity of different most frequently used phrases within clusters, while Figure 7 shows the connection and intensity between the phrases.

Figure 6. *Proximity of phrases within clusters*

Note: Each color represents a unique cluster.

Source: Authors' research



Figure 7. *Link analysis of phrases*

Note: Each circle represents a unique phrases.

Source: Authors' research

The most frequent phrases and their importance in the publication collection (TF • IDF) are shown in Table 1.

Table 1. *Most frequent and most important phrases*

PHRASES	FREQUENCY	NO. CASES	% CASES	LENGTH	TF • IDF
DIGITAL TRANSFORMATION	396	196	96.08%	2	6.9
DESIGN METHODOLOGY APPROACH	47	44	21.57%	3	31.3
CASE STUDY	43	29	14.22%	2	36.4
INFORMATION SYSTEMS	41	23	11.27%	2	38.9
DIGITAL TECHNOLOGIES	40	25	12.25%	2	36.5
PROJECT MANAGEMENT	38	16	7.84%	2	42.0
BIG DATA	35	15	7.35%	2	39.7
BUSINESS MODELS	33	19	9.31%	2	34.0
BUSINESS MODEL	33	14	6.86%	2	38.4
DECISION MAKING	29	15	7.35%	2	32.9
INTERNET OF THINGS	25	15	7.35%	3	28.3
ENTERPRISE ARCHITECTURE	25	9	4.41%	2	33.9
BUSINESS PROCESS	24	10	4.90%	2	31.4
PRACTICAL IMPLICATIONS	23	23	11.27%	2	21.8
HIGHER EDUCATION	23	10	4.90%	2	30.1
DIGITAL ECONOMY	20	15	7.35%	2	22.7
INFORMATION MANAGEMENT	19	12	5.88%	2	23.4
REAL TIME	19	9	4.41%	2	25.8
CASE STUDIES	18	17	8.33%	2	19.4
INFORMATION AND COMMUNICATION	18	12	5.88%	3	22.1
DIGITAL BUSINESS	18	7	3.43%	2	26.4
DESIGN THINKING	18	7	3.43%	2	26.4
LITERATURE REVIEW	17	12	5.88%	2	20.9
DATA ANALYTICS	17	7	3.43%	2	24.9
CYBER PHYSICAL	17	5	2.45%	2	27.4
AGRI FOOD	17	1	0.49%	2	39.3
INFORMATION TECHNOLOGY	16	10	4.90%	2	21.0
PUBLIC SECTOR	16	5	2.45%	2	25.8
HEALTH CARE	16	5	2.45%	2	25.8
ARTIFICIAL INTELLIGENCE	15	12	5.88%	2	18.5
DIGITAL TECHNOLOGY	15	10	4.90%	2	19.6
MACHINE LEARNING	14	8	3.92%	2	19.7

Source: Authors' research

#### 4. Discussion

As expected, the most frequent word in the results was “digital transformation” (see Table 1), which was also the main search term. Using the search term digital transformation, along with the methodology, the most frequently utilized phrases were the design methodology approach and business model. Of the most common and important phrases in terms of digital transformation and methodology the following are most related to business model and digital technologies (see Table 1): project management, business processes, decision-making, business architecture, big data, internet of things, practical implications and digital economy.

The business model concept is generally understood as the logic of organization, the way it operates, creating and how commercializing its value using digital technologies (Osterwalder, Pigneur & Tucci, 2005; Schallmo, Williams & Boardman, 2017). The aim of implementing digital technologies is to generate a significant advantage for which customers are willing to pay. As such, various management, organizational and engineering skills are necessary, in order to business model and digital technologies function in different organizations. Because of that it is no surprise that computer science, business, management and accounting and engineering were the most research fields in SCOPUS, in regards to digital transformation and methodology.

Business model and digital technologies appear together in the cluster analysis (see Figure 6) with the design methodology approach, practical implications, digital economy and information and communication in cluster 3. These computing mechanisms, for example, artificial intelligence appears, with big data, decision making and internet of things, in cluster 1. In cluster 2 it can be seen that information systems are connected to the project management, information management and information technology. Business process with case studies and research methodology will as such play an important role as a key digital transformation technology, as can be seen in cluster 5.

Out of all of the authors involved in the studies, only 3 published more than 3 papers. However, none of the authors published more than four papers (see Figure 3). The 3 authors were associated with one out of two different institutions. The universities are situated in Morocco and Switzerland. Out of the two universities, two appeared in the top five universities that published 3 or more articles, the South China University of Technology, Università degli Studi di Brescia, Korea Institute of Industrial Technology Evaluation and Planning (see Figure 5). Overall, out of the three countries Germany had the most publications, United Kingdom came in second and United States and Russian Federation third. However, the following countries also published several articles, such as Spain, Italy, France, Portugal, Switzerland, India, Finland, and Australia (see Figure 4). It is interesting to note that out of the 204 articles; only 10 articles had 10 or more citations. According to Belter (2015), for bibliometric indicators of citation to be accurate, articles have to be at least 2-3 years old. However, this is likely due eight out of ten publications are 2-3 years old.

#### 5. Conclusion

On the basis of results our bibliometric analysis of the existing literature, methodology will play an important role in digital transformation. A methodological approach to digital transformation enables organizations to comprehensively transform business activities, processes and business models, by taking advantage of digital technologies in order to remain competitive in the global marketplace. Digital technologies require changes in our way of thinking, functioning and behavior, and have a strategic impact on the organization itself and its business ecosystems. The evolution of digital technologies (e.g. social media, artificial intelligence, cloud, internet of things, wearable technology, big data, virtual and augmented reality, 3D printing, robotics, etc.) has a significant daily impact on people's lives as well as their way of conducting a business.

However, the results of this bibliometric analysis should provide more light on the topic of digital transformation methodology. In the future extensive in-depth literature review can be performed on the publications analyzed in this paper, because leading issue in digital transformation are not digital technology and ICT development. Also, based on the results of this research the main challenges of organization in a digital society have to be achieving the competitive advantages by setting its goals with a focus on business needs and customer expectations, which then can be supported by new technologies.

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**DIFFERENCES IN USING BALANCE SCORECARD MODEL BETWEEN THE  
FOR-PROFIT AND NOT-FOR-PROFIT SECTOR****RAZLIKE U KORIŠTENJU MODELA URAVNOTEŽENE TABLICE  
REZULTATA IZMEĐU PROFITNOG I NEPROFITNOG SEKTORA****Abstract**

*There are numerous challenges facing businesses that operate in a modern, turbulent environment. In order to be able to cope with the dangers and the opportunities offered by the market, it is primarily necessary to evaluate their business with the help of strategic tools. The choice of strategic tools is not a simple task and it depends to a large extent on the fact whether the company operates in a profit or non-profit sector of the economy. There are many strategic tools, and some of the most commonly used are value chain analysis, Boston Consulting Group (BCG) matrix, 1-2-3 marketing plan, product life cycle, Ansof's matrix, SWOT analysis, benchmarking, the Porter's model of five forces, and Balanced Scorecard (BSC). The focus of this paper is the BSC concept, which consists of four perspectives – a financial perspective, a perspective of business processes, a customer perspective, and a perspective for learning and development. The aim of this paper is to examine the level of use of the BSC concept in the surveyed enterprises. The subjects of the research in this paper are enterprises that operate in the territory of the two regions in Bosnia and Herzegovina. The results of the research suggest that there are differences in the selection of indicators and the degree of their use, according to whether the companies operate in a profitable or non-profit sector of the economy.*

**Keywords:** strategic tools, BSC, profit sector, non-profit sector**JEL:** M41, M31, M10**Sažetak**

*Brojni su izazovi sa kojima se susreću kompanije koje posluju u modernom, turbulentnom okruženju. Da bi se mogle nositi s opasnostima i mogućnostima koje nudi tržište, prvenstveno je potrebno procijeniti njihovo poslovanje uz pomoć strateških alata. Izbor strateških alata nije jednostavan zadatak, a u velikoj mjeri zavisi od toga da li preduzeće posluje u profitnom ili neprofitnom sektoru ekonomije. Postoji mnogo strateških alata, a neki od najčešće korištenih su: analiza lanca vrijednosti, Boston Consulting Group (BCG) matrica, 1-2-3 marketinški plan, životni ciklus proizvoda, Ansofsova matrica, SWOT analiza, benchmarking, Porterov model pet snaga i uravnotežena tablica rezultata. Fokus ovog rada je koncept uravnotežene tablice rezultata, koji se sastoji od četiri perspektive – finansijska perspektiva, perspektiva poslovnih procesa, perspektiva kupca i*

*perspektiva učenja i razvoja. Cilj ovog rada je ispitati nivo upotrebe koncepta uravnotežene tablice rezultata u anketiranim preduzećima. Jedinice istraživanja su preduzeća koja posluju na području dva entiteta u Bosni i Hercegovini. Rezultati istraživanja ukazuju na razlike u odabiru pokazatelja i stepenu njihove upotrebe, zavisno od toga da li kompanije posluju u profitnom ili neprofitnom sektoru ekonomije.*

**Ključne riječi:** strateški alati, uravnotežena tablica, profitni sektor, neprofitni sektor

**JEL:** M41, M31, M10

## 1. Introduction

A modern environment poses before an enterprise the challenge of a constant control of its own business. Enterprises, in accordance with their possibilities, in different ways, evaluate their business using different strategic tools. The choice of a strategic tool for evaluating the business alongside the degree of its implementation depend largely on, among other things, the fact whether the organization is a for-profit or not-for-profit one. For-profit organizations must have adequate business control mechanisms to survive in the modern turbulent environment. Contrary to for-profit organizations whose main aim is making profits, not-for-profit organizations may encounter problems in choosing the right strategic tool to control their business. These problems can be apparent in the selection criteria, i.e. defining the indicators which are to be evaluated.

Strategic tools represent defined frameworks which managers use in the operationalization of strategies. For example, author Clark (2007) states that strategic tools can be defined as "concepts, analytical frameworks, techniques and methodologies which help strategic decision makers." Some of the most commonly used strategic tools, which are widely cited, are: value chain analysis, BCG matrix, 1-2-3 marketing plan, product life cycle, Ansoff matrix, SWOT analysis, benchmarking, then Porter's five forces analysis model and, finally, Balanced Scorecard (BSC).

In the focus of this paper is a strategic tool - Balanced Scorecard (BSC) which, according to Kaplan and Norton (1996), is a tool for helping managers in the path to success of their enterprises, and it consists of four perspectives (Kaplan and Norton, 1992): finance perspective, business perspectives process, customer perspective and perspective of learning and growth. For the purpose of evaluating business, BSC, as the strategic tool, is not intended solely for for-profit organizations but it is also used by not-for-profit organizations.

This paper examines whether there is a difference in applying BSC as the strategic tool between for-profit and not-for-profit organizations in Bosnia and Herzegovina. This paper is organized in such a way that it first shows a literature review examining the implementation of the BSC model in for-profit and not-for-profit organizations, then the methodology and results of the research as well as its limitations, recommendations for a further future research and conclusion.

## 2. Literature review

There are plenty studies in favor of the usage of BSC in for-profit organizations, and in our paper some researches carried out in the last decade are being summarized.

Author Chavan (2009) in her research explains the importance of applying BSC as well as the occurring problems which organizations face in the process of construction and implementation of business indicators for their evaluation. The study was conducted in Australia in the form of a case

study on two multinational organizations. The conclusion of the research is that BSC requires understanding, commitment and support from all levels of management in the organization. Different organizations have different approaches in defining indicators that will be evaluated, as well as varying degrees of relevance given to individual indicators. One of its conclusions is also that using BSC performance systems can largely vary between small and medium enterprises, and large companies. Ismail (2007) is researching measures which are being applied for performance assessment in companies belonging to the private sector in Egypt. The results of this survey show that the surveyed companies use both financial and non-financial indicators in evaluation of their performance. Out of financial indicators, the profit rate is used most, and non-financial ones it is - customer satisfaction. As it has been mentioned, one obstacle to the implementation of BSC in the surveyed companies is an inadequate information support. De Geuser, Mooraj and Oyon (2009) examine whether BSC serves to advantage of the company and how using BSC contributes to the organizational performance in companies which operate in the territory of the European Union. Results of the research also point to the fact that using BSC has a positive impact on the organizational performance. In addition, at the same time it improves the integration of management processes as well as empowers employees in the organization. The conclusion of this research is that BSC has a triple effect on the organization: a better strategy operationalization, observing the strategic thinking as a continuous process and a greater coordination of all processes in the organization. Authors Chia, Goh and Hum (2009), in their research, prioritize using BSC by procurement managers in companies which operate in Singapore. The main idea in their paper is to show which indicators are used by these managers and how they are perceived during business evaluation. The results of their research show that, despite understanding the significance of using BSC, managers pay more attention to financial indicators than non-financial ones. The most commonly used financial indicators are gross income, pre-tax profits and cost savings. The most commonly used non-financial indicator is customer satisfaction, as well as delivery on time. Crabtree and DeBusk (2008), in their paper, describe the research on companies operating in the United States of America for a three year period. The aim of their research is to examine whether there is a link between using BSC and the rate of return on investments to shareholders. The results of this research suggest that companies which use BSC as the strategic tool outperform companies that have not started using BSC in their business results. The survey has also showed that companies which implement BSC have better financial results than they used to have in the period when they did not evaluate their business with the help of BSC. Wu (2012) conducts a survey specifically aimed at discovering which performance indicators of all four BSC perspectives are most commonly used in the banking sector. The results of this research show that the most relevant indicators of evaluation in the banking sector are: customer satisfaction, sales revenue and percentage of repeat customers. Based on the above data, in a situation where resources are limited, managers ought to allocate resources to measuring the key indicators in the banking sector. BSC is not a universal model and it has to adapt to the specific environment in which the company operates. Authors Sainaghi, Phillips and Corti (2013) are devoted to analyzing the implementation of BSC in the hospitality industry. The research was devised in such a way that it analyzed the papers published in seven influential magazines in the field of hotel management from 1992 to 2011. It tried to answer the following three questions: firstly, which BSC perspectives are used in evaluating hotel business, secondly, what trends and recommendations for future evaluations of hotel business performance are, and, thirdly, how big, geographically speaking, the scope of research of this topic is. Its conclusion is, despite numerous gaps in the research, that hoteliers equally use both financial and non-financial indicators to evaluate business. Soderberg et al. (2011) examine differences between five levels of BSC implementation in Canada. The first level relates to integration of the organization's strategy with performance measurement. The second level refers to the balance between the indicators being measured. The third level assumes the correlation of the indicators being measured. The fourth level includes the so-called "double loop"

learning, and the fifth level involves linking to employee benefits. The results of this study show that the largest number (74.5%) is at the basic level of the implementation of BSC. Giannopoulos et al. (2013) focus on implementing BSC in small enterprises in Great Britain and Cyprus. The conclusion of their survey is that small businesses are largely unaware of the existence of BSC. Their results also point out to the fact that managers of the surveyed companies believe that BSC is an inadequate strategic tool for small businesses since it requires high costs. However, a big number of the surveyed companies use performance indicators which are similar to the BSC model. Malagueno, Lopez-Valerias and Gomes-Conde (2017), as well as aforementioned authors, investigate the implementation of BSC in small enterprises, but in the territory of Spain. The research was conducted with the argument that small enterprises have difficulties in introducing strategic tools in relation to large enterprises due to their limited resources. The results of their survey show that the surveyed companies which are using BSC have better financial results, as well as greater willingness to introduce innovations.

The abovementioned papers deal with the topic of implementing the BSC concept in the for-profit sector. In addition to the for-profit sector, the BSC concept also found its way into the not-for-profit sector, as evidenced in the work of some authors, which are listed below.

Kong (2010) focuses on the BSC concept as well as on the concept of an intellectual capital. These two concepts are two methods that management applies to raising the organization's intellectual resources. The results of the research suggest that the BSC concept has less efficiency in social not-for-profit organizations than the methods involved in the implementation of intellectual capital management. Gurd and Gao (2007) investigate the impact of implementing the BSC concept as a strategic tool in healthcare institutions. According to these authors, benefits of the BSC concept are not sufficiently described in the works that are part of the literature review in their work. The results of their research also show that the focus of using BSC concept in healthcare institutions is on the financial perspective, not on the health of users, i.e. patients. The gist is that the BSC concept is still in the initial phase of development in health facilities. Sales (2013) explores possible ways to implement the BSC concept in a local government television company. The results of the research show that the organization implements the BSC concept in two ways. Firstly, through the establishment of a hierarchy of objectives from different stakeholders, and secondly, the implementation is carried out through the transmission of strategy and alignment of objectives. Ghoneim and Baradei (2013), furthermore, examine the impact of strategic planning through the implementation of the BSC concept in the performance of not-for-profit organizations in Egypt. The results of the research suggest that there is a statistically significant difference between the performance of those not-for-profit organizations that use strategic planning in relation to those that do not use strategic planning tools. These differences are noted in four, out of five BSC perspectives, that is: the customer perspective, internal processes perspective, employee perspective and the perspective for development of volunteers. When it comes to the finance perspective, it is not statistically significant. The results of the survey also show that not-for-profit organizations in Egypt are not fully familiar with the BSC concept. Kassahun (2010) focuses on the application of the BSC concept in academic institutions in Ethiopia. The performance of academic institutions is assessed with the help of five strategic themes (academic excellence, student diversity, engagement, resource management and partnerships) and BSC perspectives (stakeholders, internal processes, financial management and learning and growth). Garcia, Gonzalez and Acebron (2013) emphasize the importance of implementing BSC concept into charitable non-governmental organizations. For many reasons, the evaluation of charitable NGOs is a topic which encounters many difficulties. What this type of not-for-profit organization most often uses to evaluate its performance is measuring the results of operations, accounting and control, and financial indicators as well. They are

less committed to the implementation of the marketing concept and the orientation towards stakeholders. Manville (2007) deals with the implementation of the BSC concept in small and medium not-for-profit organizations. The results of this research suggest that organizations recognize that implementing BSC concept will not give an immediate effect, and that the full benefits to the organization will be brought nearly a year after the moment of implementation of the new method of business evaluation. Soysa, Jayamaha and Grigg (2016) are doing a research on the performance measurement in the not-for-profit health sector in Australia. The results of their research have resulted in nine dimensions of performance measurement: missions, strategies, organizational skills, infrastructure, financial health, processes and satisfaction of stakeholders. In addition to the satisfaction of external stakeholders, organizations should also put special focus on internal stakeholders (employees). Pietrzak, Paliszkievicz and Klepacki (2015) focus on the application of BSC in higher education institutions in Poland. According to the above-mentioned authors, basic advantages of applying BSC are: better positioning of universities in international rankings, better system adaptation to changes in the environment as well as measurement of intangible performance. Martello, Watson and Fischer (2016) examine implementing BSC in a not-for-profit organization (rehabilitation center). Although being a relatively new idea, BSC concept is accepted by the management of the organization. Using the perspectives of the BSC model imposes some difficulties since the nature of work itself makes it difficult to implement a performance measurement model.

### 3. Methodology

Based on this literature review, we can conclude that the BSC concept is not only used in enterprises of for-profit sector, but also not-for-profit sector. Obviously, evaluation priorities are different and based on them we have set the following hypotheses:

- ⇒ H1: There is some difference in the degree of usage concerning business evaluation criteria which are related to financial perspective of the BSC concept between enterprises (organizations) which operate in the for-profit sector and those which operate in not-for-profit sector of the economy.
- ⇒ H2: There is some difference in the degree of usage concerning business evaluation criteria which are related to customers' perspective for BSC concept if we regard enterprises (organizations) which operate in the for-profit sector in comparison with those which operate in the not-for-profit sector of the economy.
- ⇒ H3: There is some difference in the degree of usage concerning business evaluation criteria which are related to the perspective of BSC internal process if we observe enterprises (organizations) which operate in the for-profit sector compared to those operating in the not-for-profit sector of the economy.
- ⇒ H4: There is some difference in the degree of usage concerning business evaluation criteria which are related to the perspective of learning and developing the BSC concept if we observe enterprises (organizations) which operate in the for-profit sector compared to those operating in the not-for-profit sector of the economy.

For the purpose of checking the above hypotheses, data were collected by the use of a survey method. The data were obtained on the basis of a questionnaire which was created after studying relevant literature. The questionnaire was distributed to enterprises from the for-profit and not-for-profit sector operating in the municipalities of Brčko and Bijeljina (Bosnia and Herzegovina). The population, on basis of which a random sample was drawn, is determined from the lists contained in the Chambers of Commerce of Bijeljina and the Brčko District of Bosnia and Herzegovina. The questionnaires in the form of a written electronic document were sent to e-mail addresses of selected enterprises. The

research was due to be conducted within the time period from January 2019 to March 2019. After the expiration of the mentioned time interval, the results of the survey were summarized and the outcome was 74 correctly filled out questionnaires, which were received, from the total of 250 questionnaires sent. In this way, we received a response of 29.6%.

The collected data were processed using the SPSS statistical data processing software. The questionnaire, on the basis of which data were collected, consisted of six questions. The first question was about the number of employees in the enterprise (organization). The offered responses were, according to the criteria of the number of employees, 0-49 (small enterprises), 50-249 (medium enterprises) and over 250 (large enterprises). The second question was whether the enterprise operates in the for-profit or not-for-profit sector of the economy. The third and fourth questions provided answers whether companies are familiar with the BSC concept in business and whether they are using it. In the fifth question, the respondents gave answers (on the Likert scale from 1 to 5, where 1 is the smallest, and 5 the highest level), on one hand, in relation to the degree of use for each of four perspectives of the BSC concept, and, on the other hand, the importance of each of the stated perspectives. Of course, this question was answered only by respondents who gave a positive response to the fourth question as to whether they use the BSC concept of business evaluation or not. The sixth question has integrated the evaluation of the degree of use and the degree of importance of specific measures which relate to four perspectives of BSC. The measures are mentioned in such a way that there is no indication whether they belong to any of four perspectives of BSC, and, in general, the BSC concept. In this way, we have intended to find out whether companies may "unconsciously" (i.e. without being aware) be using the BSC concept for business evaluation.

#### 4. Results of research and discussion

Small enterprises (67.6%) have the largest share among the surveyed enterprises, and the participation of medium enterprises is 29.7%, while the participation of large enterprises is only 2.7%. Measured in percent, 52.7% of enterprises operate in the for-profit sector, and 47.3% of enterprises operate in the not-for-profit sector. Out of the total number of respondents, 26 (35.1%) responded that they were familiar with the aforementioned concept of business evaluation, while 48 (64.9%) were not familiar with the BSC concept. Only 5 out of 74 surveyed companies (6.8%) use the BSC concept for business evaluation, while 69 (93.2%) don't use the BSC concept. According to the acquired results, all surveyed companies use the "employee satisfaction" indicator most (mean value = 4.68 with standard deviation = 0.58). An indicator of "supplier number" has the smallest degree of use (mean value = 2.78 with standard deviation = 1.53). On the other hand, according to data on the importance of certain indicators given by the surveyed enterprises, "customer satisfaction" is the most important indicator (mean value = 4.85 with standard deviation = 0.36), whereas the indicator "economic value added" is the least important one (mean value = 3.16 with standard deviation = 1.30). If we observe companies operating in the for-profit sector separately from those operating in the not-for-profit sector of the economy, the following results ensue. For-profit enterprises use the "income" indicator most (mean value = 4.79 with standard deviation = 0.41). The indicator "economic value added" is used least by for-profit enterprises (mean = 3.64 with standard deviation = 0.74). When it comes to not-for-profit enterprises, the indicator "employee satisfaction" has the greatest importance (mean = 4.69 with standard deviation = 0.68), whereas the indicator "number of suppliers" is used least (mean = 1.43 with standard deviation = 0.78). Regarding the importance of specific indicators for for-profit and not-for-profit enterprises, the indicator "customer satisfaction" is valued most (mean = 4.90 with standard deviation = 0.31), while the indicator "number of suppliers" has the least importance for the surveyed for-profit enterprises (mean value = 3.72 with standard deviation = 0.79). For surveyed not-for-profit

enterprises, the indicator "employee education" is the most important one (mean = 4.89 with standard deviation = 0.32), and the indicator "increase of sales" is the least important (mean = 1.77 with standard deviation = 0.73).

As for hypotheses' sake, it ought to be pointed out that mentioned indicators can be grouped within four perspectives of the BSC concept. Therefore, the finance perspective of the BSC concept involves the following indicators: return on capital, increase of sales, income flow, economic value added, cost management and income. Customer perspective of the same concept includes: customer satisfaction, customer loyalty, the market share, customer profitability and postsales activities. The perspective of internal processes involves: quality standards, number of suppliers and capacity utilization, while the learning and growth perspective encompasses the following indicators: employee education, employee satisfaction, retention rate of employees and innovations in the organization. Statistically speaking, subgroups which are to be tested are big (number of for-profit enterprises is 39; number of not-for-profit enterprises is 35), t-test will be used for testing.

In order to check the hypotheses we assume that:

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu_2$$

The results of verifying hypotheses in the part of the paper relating to methodology are:

- ⇒ H1: There is some difference in the degree and importance of using specific indicators which are related to financial perspective of the BSC concept between enterprises (organizations) which operate in the for-profit sector and those operating in the not-for-profit sector of the economy.

The results of t-test concerning the degree of using individual indicators indicate the following:

"return on capital" indicator ( $t = 16.82$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

"increase in sales" indicator ( $t = 19.47$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

"cash flow" indicator ( $t = 14.35$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

"economic value added" ( $t = 7.34$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

"cost management" indicator ( $t = 15.63$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

"income" indicator ( $t = 12.31$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

The results of t-test concerning the importance of implementing individual indicators show the following:

"return on capital" indicator ( $t = 10.29$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

"increase in sales" indicator ( $t = 16.71$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

"cash flow" indicator ( $t = 11.93$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

"economic value added" indicator ( $t = 15.12$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

"cost management" indicator ( $t = 13.34$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

"income" indicator ( $t = 6.89$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

Based on the shown results, it can be concluded that all alternative hypotheses are utterly confirmed, *i.e.* there is some difference in the degree and importance of using individual indicators for evaluating business related to the finance perspective of the BSC concept in for-profit enterprises (organizations) as compared to those operating in the not-for-profit sector of the economy.

- ⇒ H2: There is some difference in the degree and importance of using specific indicators for evaluating business in relation to the customer perspective of BSC in enterprises (organizations) which operate in the for-profit sector compared to those operating in the not-for-profit sector of the economy.

The results of  $t$ -test concerning the degree of using specific indicators show the following:

1. "customer satisfaction" indicator ( $t = -0.27$ ;  $p = 0.79 > 0.05$ ) →  $H_0$  is accepted.
2. "customer loyalty" indicator ( $t = -5.57$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.
3. "market share" indicator ( $t = 15.42$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.
4. "profitability of customers" indicator ( $t = 14.07$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.
5. "postsales activity" indicator ( $t = 3.55$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

Based on the above results for the degree of using these parameters, it can be concluded that there are differences between all indicators (loyalty of customers, market share, profitability of buyers and postsales activity), except the indicator "customer satisfaction" whose rate is the same in for-profit and not-for-profit enterprises. Considering the differences about the importance of individual indicators; we can conclude that there is some difference between the following indicators: "market share", "profitability of buyers" and "postsales activities". Contrary to that, it can not be concluded that other indicators such as "customer satisfaction" and "customer loyalty" show differences at a statistically significant level in a degree of importance for for-profit and not-for-profit enterprises.

- ⇒ H3: There is some difference in the degree and importance of using individual indicators for business evaluation which are related to the perspective of internal processes of the BSC concept between enterprises (organizations) which operate in the for-profit sector and those operating in the not-for-profit sector of the economy.

The results of  $t$ -test regarding the degree of using specific indicators show the following:

1. indicator "standards of quality" ( $t = -2.51$ ;  $p = 0.01 < 0.05$ ) →  $H_0$  is rejected.
2. indicator "number of suppliers" ( $t = 13.45$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.
3. indicator "capacity utilization" ( $t = 19.45$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

When it comes to the importance of using individual indicators, the results of  $t$ -test show the following:

1. indicator "standards of quality" ( $t = -1.07$ ;  $p = 0.29 > 0.05$ ) →  $H_0$  is accepted.
2. indicator "number of suppliers" ( $t = 4.09$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.
3. indicator "capacity utilization" ( $t = 12.47$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

Within the degree of using individual indicators related to the internal process perspective, all alternative hypotheses are confirmed which claim that there is some difference in the degree of implementing these indicators between for-profit and not-for-profit enterprises. There is some difference in the importance of using individual indicators such as "number of suppliers" and "capacity utilization", while there is no apparent difference in importance for the "standards of quality" indicator between for-profit and not-for-profit enterprises.

- ⇒ H4: There is some difference in the degree and importance of using individual indicators for business evaluation which relate to the learning and growth perspective of the BSC concept, in

regard to enterprises (organizations) which operate in the for-profit sector and not-for-profit sector of the economy.

The results of *t*-test concerning the degree of using individual indicators show the following:

1. "employee education" indicator ( $t = 0.36$ ;  $p = 0.72 > 0.05$ ) →  $H_0$  is accepted.
2. "employee satisfaction" indicator ( $t = -0.14$ ;  $p = 0.89 > 0.05$ ) →  $H_0$  is accepted.
3. "retention rate of employees" indicator ( $t = 13.36$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.
4. "innovation in the organization" indicator ( $t = 2.80$ ;  $p = 0.01 < 0.05$ ) →  $H_0$  is rejected.

The results of *t*-test regarding the importance of using individual indicators show the following:

1. "employee education" indicator ( $t = -1.33$ ;  $p = 0.19 > 0.05$ ) →  $H_0$  is accepted.
2. "employee satisfaction" indicator ( $t = -0.37$ ;  $p = 0.72 > 0.05$ ) →  $H_0$  is accepted.
3. "retention rate of employees" indicator ( $t = 0.11$ ;  $p = 0.91 > 0.05$ ) →  $H_0$  is accepted.
4. "innovation in the organization" indicator ( $t = -4.42$ ;  $p = 0.00 < 0.05$ ) →  $H_0$  is rejected.

Based on the presented results of *t*-test, it can be concluded about the degree of using individual indicators that there is some difference between the indicator "retention rate of employees" and indicator "innovation in the organization", whereas the indicators such as "employee education" and "employee satisfaction" show no apparent difference in the degree of using at for-profit and not-for-profit enterprises. Considering the importance of these indicators, it can be concluded that the sole difference is apparent for the indicator "innovation in the organization", while the indicators "employee education", "employee satisfaction" and "retention rate of employees" show no apparent difference at for-profit and not-for-profit enterprises.

## 5. Limitations and recommendations for a further future research

Several limitations are apparent in this paper. One of them has to do with a sample, which is relatively small and based on such a pattern that it is difficult to generalize about the results. Likewise, in relation to the sample, the apparent constraint is also the fact that only two companies, of all surveyed enterprises, are large (over 250 employees). Thus said, it was impossible to compare the results between small and medium enterprises on one hand, with big companies on the other hand. What is more, the sample has included enterprises operating in different branches of industry. Furthermore, the given questionnaire was created in such a way so that the respondents could not respond in the form of open answers since all the offered answers had been predefined.

As for recommendations for a future research, to begin with, the sample should be enlarged and it has to cover a larger territory where businesses operate. It would be a fascinating idea to carry out such research in several different countries and then to compare acquired results. In addition to this, focusing on one specific branch of industry at a time is vital since each branch is specific in its own way. To conclude, in line with all these recommendations, the research has to include a financial aspect, that is, has to analyze financial benefits of implementing the BSC concept.

## 6. Conclusion

Disregarding the fact whether enterprises (organizations) are for-profit or not-for-profit ones, turbulent modern environment poses great challenges, which, in order to be overcome, demand strategic thinking and, therefore, the use of appropriate strategic tools. The application of strategic tools varies since

enterprises are for-profit or not-for-profit ones. As mentioned, there are many strategic tools, and some of the most commonly used are: value chain analysis, the BCG matrix, 1-2-3 marketing plan, the product life cycle, Ansoff matrix, SWOT analysis, benchmarking, Porter's model of five forces and, finally, a balanced scorecard (BSC). The focus of this paper is on the BSC concept, which consists of four perspectives: the finance, internal business processes, customer, learning and growth perspectives.

The results of this research imply several conclusions. All surveyed companies mostly use the "employee satisfaction" indicator, whereas the indicator "number of suppliers" is used least. According to the surveyed companies' results about the importance of certain indicators, "customer satisfaction" indicator has the highest importance, while "economic value added" indicator has the least.

Contrasting the groups of surveyed enterprises, i.e. whether companies are for-profit or not-for-profit ones, the results are as follows. For-profit enterprises use the "income" indicator to the greatest extent, while the indicator "economic value added" is used in the minimum. Considering the degree of using certain indicators for not-for-profit enterprises, the indicator "employee satisfaction" is the most important one, while the indicator "number of suppliers" is the least important indicator. Regarding the importance of certain indicators on the basis of whether enterprises are for-profit or not-for-profit ones, the indicator "customer satisfaction" is valued most at for-profit enterprises, whereas the indicator "number of suppliers" is valued least. On the other hand, the surveyed not-for-profit enterprises' results show that "employee education" indicator is the most significant one, while the indicator "sale growth" is the least significant indicator.

Having verified all the stated hypotheses, it has been concluded that there is a completely different level of use and importance of individual indicators for business evaluation which relate to finance perspective of the BSC concept between enterprises (organizations) operating in the for-profit sector and those in the not-for-profit sector of the economy. Such a difference is partially confirmed for the customer, internal processes and learning and growth perspectives.

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## IMPACT OF THE AUDITOR TENURE ON AUDIT QUALITY

### UTICAJ DUŽINE REVIZORSKOG ANGAŽMANA NA KVALITET REVIZIJE

#### Abstract

*The auditor tenure is limited by legislation, in accordance with the Regulation (EU) No. 537/2014, which is a mechanism for the protection of the audit quality. The main reason for this, it is that during the longer audit engagement, the auditor creates a long-term relationship with the client, and loses its independence, which negatively influences the financial statements audit quality. However, in academic literature and auditing practice, it is often questioned whether the limitation of the auditor tenure meets its purpose. The specific knowledge that auditors accumulate about the client, performing an audit of financial statements for years and the costs of a new auditor in the first years of their engagement are not insignificant. The purpose of this paper is to investigate whether the quality of the audit of financial statements, measured by the estimated level of discretionary accruals, will increase or decrease by limiting the auditor tenure. The Jones model will be used to estimate the level of discretionary accruals and the length of the audit engagement will be measured by the number of years of consecutive audits of financial statements by one auditor. The research sample will consist of data from financial and auditor reports of listed companies in Bosnia and Herzegovina capital markets. The results of the research will be the basis for verifying the effects of the legal regulation of the auditor tenure in the audit of the financial statements.*

**Keywords:** audit tenure, audit quality, discretionary accruals

**JEL:** M41, M42

#### Sažetak

Dužina revizorskog angažmana je ograničena zakonskom regulativom, u skladu sa Uredbom EU o posebnim zahtjevima u vezi revizije iz 2014. godine, a predstavlja mehanizam zaštite kvaliteta revizije. Glavni argument tome, navodi se da tokom dužeg revizorskog angažmana, revizor stvara dugoročnu vezu sa klijentom te na taj način gubi svoju nezavisnost, što negativno utiče na kvalitet revizije finansijskih izvještaja. Međutim, često se, u akademskoj literaturi i revizorskoj praksi, postavlja pitanje da li ograničenje dužine revizorskog angažmana ispunjava svoju svrhu. Specifično znanje koje revizori stiču o klijentu, provodeći reviziju finansijskih izvještaja duži niz godina i troškovi koje ima novi revizor u prvim godinama svog angažmana, nisu zanemarivi. Cilj ovog rada je istražiti da li će se kvalitet revizije finansijskih izvještaja, mjereno procijenjenim nivoom diskrecionih razgraničenja, povećati ili smanjiti ograničavanjem dužine revizorskog angažmana. Za procjenu nivoa diskrecionih razgraničenja koristit će se model poprečnog presjeka (Jones), a dužina revizorskog angažmana mjerit će se brojem godina uzastopnih revizija finansijskih izvještaja od strane jednog revizora. Uzorak istraživanja će činiti podaci iz finansijskih i revizorskih izvještaja subjekata čije su vrijednosnice izlistane na tržištima kapitala u Bosni i Hercegovini. Rezultati istraživanja biti će podloga za provjeru efekata zakonskog regulisanja dužine revizorskog angažmana u obavljanju revizije finansijskih izvještaja.

**Ključne riječi:** dužina revizorskog angažmana, kvalitet revizije, diskreciona razgraničenja

**JEL:** M41, M42

## 1. Introduction

Following the role model of many developed countries, with law limited maximum audit tenure, Bosnia and Herzegovina has also limited audit tenure, by the legislation of both its entities. The reason for this is the aim of increasing the audit quality services in response to evidence of a decrease in audit quality, through longer audit tenure, which ultimately contributed to corporate failures. Whether the statutory limitation of audit tenure has served its purpose and whether it is the right way to increase the audit quality of financial statements, is the question discussed in many scientific and expert papers on this topic. Considering many of the audit quality research results, there is still considerable debate in the auditing profession about creation limits on the auditor's relationship with the client.

Legislation that prescribes the maximum audit tenure is based on the assumption that a longer audit tenure may reduce the audit quality of financial statements with a focus on loss of independence. This implies that audit tenure should be limited to a specific period followed by the auditor rotation. The purpose of this research is to determine existing correlation between the audit tenure and audit quality of financial statements for listed companies in Bosnia and Herzegovina. The audit quality of the financial statements listed companies is the first-class evidence of the situation in this area, because these companies have public responsibility and are expected to have a high level of transparency and objectivity in financial reporting.

## 2. Previous research

Regulators believe that they will contribute to the audit quality by adopting new rules in the audit area, specifically by limiting audit tenure. However, there are undeniable arguments for and against this view. Research conducted in countries that have legislated to limit audit tenure has shown different results, sometimes even diametrically opposite. In Bosnia and Herzegovina, no similar research has been done and it is difficult to predict the results, but there is a positive attitude towards limiting the audit tenure in light of improving the audit quality of financial statements.

A study in Spain (Kyriakou & Dimitras, 2018, p. 378) has shown a correlation between the audit tenure and the discretionary accruals in the client's financial statements, as a measure of the audit quality of the financial statements. According to this research, audit tenure longer than three years has negative affects to audit quality of the financial statements in Spanish companies. However, the same research had different results in Germany, France and Italy, where no statistically significant correlation was found between audit tenure and discretionary accruals in the client's financial statements. This is the result of different financial reporting legislation in these countries. As a measure of audit quality of the financial statement, these authors used discretionary accruals, which they estimated according to the Jones model (1991) and the Jones model modifications (Garza-Gomez, Lee & Du, 2006, p. 28).

A study in Brazil (Silvestre, Costa & Kronbauer, 2018, p. 420) confirms that limiting audit tenure reduces the volume of discretionary accruals, when it's measured by Jones and modified Jones models. However, the effect of limiting audit tenure on audit quality was not apparent when the measurement was performed on Dechow, Dichev, and McNichols models. This explains that limiting audit tenure can be considered as mechanism that contributes to the reduction of creative accounting but not to valuation errors.

The audit quality of the financial statements of US companies (Manry, Mock & Turner, 2008, p. 568) was also analyzed by a Cross sectional model (Jones) where estimated discretionary accruals were used to measure audit quality of the financial statements. This research has shown significant and negative correlation between audit tenure and estimated discretionary accruals only for small clients with audit tenure duration up to seven years, regardless of the degree of risk. It also found that audit tenure was not significantly related to the estimated discretionary accruals for large clients. An interpretation of this suggests that as audit tenure increases, smaller client auditors become less willing to accept more aggressive financial statements from managers. Furthermore, audit tenure does not affect the audit quality of the financial statements for large clients or small clients with shorter engagement.

The degree of application of IAS/IFRS was used as indicator of audit quality for research in Australia (Ball, Tyler & Wells, 2015, p. 176). In this regard, the audit quality was assessed as the difference in accounting estimates and adjustments, which appear when Australian firms adopted IFRS. The authors of this study presented evidence of differences in accounting estimates and adjustments adopted through the new IFRSs, which correlate with audit tenure. This was influenced by the long-term relationship between the auditor and the firm's management, which reduced the quality of the audit through lowering the auditor's independence. With this, management was able to adopt more liberal accounting policies, while obtaining the positive opinion of the auditors on its financial statements. On the other hand, they also presented much stronger evidence that the differences in accounting estimates and adjustments made in adopting IFRSs are smaller as audit tenure is shorter. Critically, these different findings for different aspects of engagement suggest that there are complex relationships between auditors and clients and that they have different impacts on audit quality.

A research in Belgium was made on data from audit reports of the bankrupt ones and unlisted companies (Knechel & Vanstraelen, 2007, p. 125). Audit quality of the financial statements was measured by the auditor's opinion on the going concern of the company. They proved that audit tenure did not affect the auditor's ability to anticipate bankruptcy, and also did not affect audit quality.

The audit quality of the financial statements was measured by the auditor's tendency to adopt a positive opinion on going-concern of listed companies in Indonesia, 2003-2008 (Junaidi, Setiyono & Bambang, 2012, p. 313). According to the statistical analysis, the length of the relationship between auditors and clients has a significant negative impact on auditor's tendency to adopt opinions regarding concern matters of to the company. In this study, the loss of independence was not observed by the auditor as a result of the auditor's long engagement, but some evidence was found to improve audit efficiency by increasing the audit tenure. The auditors issued a restrained audit opinion to companies that later went bankrupt.

The study of the impact audit tenure to audit quality of the financial statements for state foundations was done in Spain (González-Díaz, Fernández & López-Díaz, 2015, p. 121). Using a sample of 254 audits over the period 2003-2010 in Spanish state foundations, it was found that audit quality of financial statements decreases as the audit tenure increases, but that loss of quality becomes apparent only at the sixth year of engagement. There is an increase in audit quality in the initial five years of engagement.

### 3. Theoretical framework

#### 3.1. Audit tenure

The 2014 EU Regulation on Specific Audit Requirements is obligatory for EU Member States and those countries that will become members in the future. However, not all countries have limited audit tenure. Some did so after the Regulation, some had this restriction before but abandoned it. Below is an overview of the different ways to regulate the audit tenure.

Table 1. *Overview of different practices for regulating audit tenure*

No.	Country	Method of regulation
1.	Brazil, India and Italy	Restrictions of audit tenure have been made in the past.
2.	Spain, Canada	The previously adopted regulations restricting audit tenure have been abolished.
3.	Australia	Are in the process of discussing the adoption of regulations for audit tenure.
4.	Portugal	Audit tenure of 8 to 10 years for listed companies is recommended.
5.	Slovenia	Gives the choice to rotate the auditor in the same audit firm in five-year engagements.
6.	Bosnia and Herzegovina	Limited audit tenure to 5 years with extension to 2 years.
7.	UK, Germany, Netherlands	Require the rotation of the auditor in the same audit firm.
8.	Belgium	The auditor is elected for 3 years and there is no possibility of dismissal, but there is a possibility of renewal of the engagement.
9.	USA	The potential benefits of auditor rotation are not considered to outweigh the risks and costs to the audit firm but require five years of individual engagement.

Source: Ewelt-Knauer, Gold & Pott, 2012

##### 3.1.1. Arguments for limiting audit tenure

The first and most important argument for limiting audit tenure is to increase the independence of the auditor, which directly increases audit quality of the financial statements (Ewelt-Knauer, Gold & Pott, 2012, p. 15). There are evidences of this in many studies on the impact audit tenure on audit quality. The second argument is the users perception of financial statements (investors, employees, creditors) where, by limiting auditor tenure, it enables another auditor to evaluate the financial statements with "objective eyes" (Davis, Soo & Trompeter, 2009, p. 543). Long-term audit engagement at one client, make auditor loses objectivity in adopt the auditor's opinion because he is involved in the client's business, through giving advice and guidance on key decisions.

The third argument is that limiting audit tenure also creates an opportunity for the engagement of smaller audit firms and it increase the competitiveness of audit services. Obtaining the trust of a client which already has a long-term relationship with its auditor is a very difficult and almost impossible task. The opportunity that small audit firms get by limiting audit tenure means a greater level of competition in the audit services market. The fourth argument is the reputation of the auditing profession, which in some way breaks the longstanding friendly relations between the auditor and the management of the company and thus prevents the "compliant" of the auditor under the pressure of "friendly" relations (Ball, Tyler & Wells, 2015, p. 173).

### 3.1.2. Arguments against limiting audit tenure

The main argument against limiting auditor tenure is the auditor's accumulated knowledge of the business, the specifics of the business, and the legal regulations in the client's business area. In the first years of their engagement, auditors have the biggest work while getting to know the business of the client and there is a high possibility of giving a positive opinion on the financial statements because they are not thoroughly familiar with all the regulations governing the client's business. The another argument is that a relatively shorter period of auditor engagement can create financial dependence on the client's audit firm, especially if it is a new audit firm. An auditor in this position may be more lenient and tolerant than an auditor with a longer business history and greater financial stability. Some research shows that in the early years of their engagement, auditors are more inclined to give a positive opinion on financial statements, in order to establish a stronger relationship with the client (Ewelt-Knauer, Gold & Pott, 2012, p. 16).

The third argument is lowering audit costs. An auditor who has been providing services to a client for many years has "specific knowledge". This knowledge accumulates during the period of the audit of the financial statements. The new auditor will spend at least the same time and amount of money to know a client's business in the first years of the audit. The fourth argument is the problem of audit services market concentration, where Big Four create market barriers for small audit firms. After the audit engagement of a large audit firm expires, it lobbies for the engagement of another large audit firm, which closes the way to the market for small audit firms. This is confirmed by research from South Korea (Kwon, Lim & Simnett, 2014, p. 189).

### 3.1.3. EU regulation on specific audit requirements

In order to increase the independence of the certified auditor, to increase professional skepticism and to improve the audit quality of the financial statements, and to eliminate the danger of the closeness certified auditors with the client, the European Commission has adopted a Regulation on specific requirements regarding the audit of the financial statements. This determines audit tenure of the initial audit engagement to a minimum of one year and a maximum of ten years (whether it is the engagement of a specific certified auditor or audit firm or a combination of that engagement with its renewal). The engagement may be extended up to twenty-four years under certain conditions, which are prescribed by the Regulation.

The regulation provides two alternatives to extending the longest engagement period: the regular and open mandatory restart of a competitive process or nominate on of more than one certified auditor or audit firm by public-interest entities. The involvement of smaller audit firms in these measures would also increase the capacity development of such companies, in this way expanding the selection of certified auditors and audit firms that public-interest entities may choose. It is also important to determine the appropriate period during which the auditor or audit firm may not audit the same company. In order to ensure a smooth transition, the previous certified auditor should provide the next certified auditor with handover documentation with relevant information (EU Regulation No. 537/2014). After the longest period of engagement has expired, the statutory auditor or audit firm may not perform a statutory audit of the same public interest company for the next four years.

In Australia, audit firms have an obligation to adopt quality control programs and to ensure the implementation of professional standards (for example, APES 2010), which helps to promote the professional skepticism of auditor independence (Davis, Soo & Trompeter, 2009, p. 545; Gay & Simnet, 2010, p. 162). The Sarbanes-Oxley Act of 2002 requires the rotation of auditors within the audit firm itself every five years so that engagement can be viewed with "fresh and skeptical eyes" (Manry, Mock & Turner, 2008, p. 570).

### 3.1.4. Limitation audit tenure in Bosnia and Herzegovina

In Bosnia and Herzegovina, the both entities have limited audit tenure with their Accounting and Auditing Laws. In the Federation of Bosnia and Herzegovina, maximum period of audit firm engagement is five years. An exception is if audit firm provide another auditor to perform an audit of the same company for another two years after the expiration of this period (Law on Accounting and Auditing of the Federation of Bosnia and Herzegovina).

In Republika Srpska, maximum period of audit firm engagement is seven years. This period can be extended to another three years after the expiry of the previous deadline, if audit firm provides another auditor (Law on Accounting and Auditing of Republika Srpska).

### 3.2. *Audit reports quality*

#### 3.2.1. Audit quality determinants

The audit quality of the financial statements is most usually associated with the possibility that the auditor will detect material misstatements in the client's financial statements and will influence on auditor opinion. There was a different audit quality determinants used in different audit quality studies, but in our opinion, the most frequently are: (a) Audit Opinion on going concern, (b) Accounting estimates and accounting policies, and (c) Discretionary accruals.

An audit opinion on going concern, as a measure of the audit quality of the financial statements, suggests a future problem for the client's business. By expressing doubt about the future of the client's business which declares bankruptcy later on, confirms the auditor's quality reporting. Research in Indonesia (Junaidi, Setiyono & Bambang, 2012, p. 313) confirmed the auditor's quality reports by showing that auditors submit disclaimer of opinion for companies which went bankrupt later on.

It is widely known that accounting estimates and accounting policies are often used for the purposes of manipulative accounting. If the auditor adopts aggressive accounting policies, then the quality of the audit report is questionable. This audit quality determinant was used in Australian research in period after IFRS was adopted.

Discretionary accruals are non-obligatory expense (such as projected employee expenses, management bonuses and similar future expenses) that should be realized in the future, but are still recorded in company's financial statements. Obligatory expense (upcoming bills or next month's pay) that will be realized in future but already recorded in company's financial statements is considered a non-discretionary accrual.

If an auditor finds that discretionary accruals are aggressive (for example an unusually large and positive amount of passive accruals), the auditor may still be prepared to accept and positively evaluate company's financial statements. Alternatively, the auditor may find that the financial statements are excessively aggressive and may pressure management to make a lower level of discretionary accruals. If the auditor accepts the financial statements with a high degree of discretionary accruals, audit quality of the financial statements will decrease (Manry, Mock & Turner, 2008, p. 570). Different models are used to measure discretionary accruals. Some of them are Jones, Modified Jones, Dechow and Dichev, McNichols, and others. These models are presented in Table 2.

Table 2. *Discretionary accrual assessment models*

Jones	$ACC_t/A_{t-1} = \alpha (1/A_{t-1}) + \beta_1 (\Delta Rev_t/A_{t-1}) + \beta_2 (PPE_t/A_{t-1}) + \varepsilon_t$ $ACC_t = \Delta CA_t - \Delta CL_t - \Delta Cash_t + \Delta STD_t - DEP_t$
Modified Jones	$ACC_t/A_{t-1} = \alpha (1/A_{t-1}) + \beta_1 ((\Delta Rev_t - \Delta Rec_t)/A_{t-1}) + \beta_2 (PPE_t/A_{t-1}) + \varepsilon_t$ $ACC_t = \Delta CA_t - \Delta CL_t - \Delta Cash_t + \Delta STD_t - DEP_t$
Dechow and Dichev	$\Delta WC_t = \alpha + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \varepsilon_t$ $\Delta WC_t = \Delta AR_t + \Delta Inventory_t - \Delta AP_t - \Delta TP_t + \Delta Other Assets_t$
McNichols	$\Delta WC_t = \alpha + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \Delta Rev_t + \beta_2 PPE_t + \varepsilon_t$ $\Delta WC_t = \Delta AR_t + \Delta Inventory_t - \Delta AP_t - \Delta TP_t + \Delta Other Assets_t$

Source: Silvestre, Costa & Kronbauer (2018)

The symbols used in Table 2 indicate the following:  $ACC_t$ —Total accruals in year  $t$ ;  $A_{t-1}$ — Total assets in year  $t-1$ ;  $PPE_t$ — Gross fixed asset in year  $t$ ;  $CFO_t$ — Cash flow from operations in year  $t$ ;  $DEP_t$ — Depreciation and amortization in the period in year  $t$ ;  $\Delta Rev_t$ — Change in revenue in year  $t$ ;  $\Delta REC_t$ —Changes in receivables in year  $t$ ;  $\Delta WC_t$ — Change in working capital in year  $t$ ;  $\Delta AR_t$ — Change in accounts receivable in year  $t$ ;  $\Delta Cash_t$ — Change in cash and cash equivalents in year  $t$ ;  $\Delta STD_t$ — Variation in short-term financing in current liabilities in year  $t$ ;  $\Delta CA_t$ — Change in current assets in year  $t$ ;  $\Delta CL_t$ — Change in current liabilities in year  $t$ ;  $\Delta AP_t$ — Change in accounts payable in year  $t$ ;  $\Delta TP_t$ — Change in taxes payable in year  $t$ ;  $\Delta Inventory_t$ — Change in inventories in year  $t$ ;  $\Delta Other Assets_t$ — Change in other net assets in year  $t$ ;  $\alpha$ ,  $\beta$ — Parameters to be estimated;  $\varepsilon$ — Residuals accruals.

The models proposed by Jones (1991) and the modified Jones model, proposed by Dechow, Sloan, and Sweeney (1995) use balance sheet and income statement data to identify revenue management. The models proposed by Dechow and Dichev (2002) and McNichols (2002) use data from cash flow statements and identify estimation errors, whether intentional or not. We will base our research on the Jones (1991) model and the modified Jones model, proposed by Dechow, Sloan, and Sweeney (1995).

### 3.2.2. Cross sectional model (Jones)

To estimate discretionary accruals, we use a Cross sectional model based on Jones (1991) and modeled on the research by DeFond and Jiambalvo (1994), and Dechow, Sloan and Sweeney (1995), Xie (2001), and Manry, Mock and Turner (2008). Accordingly, we will base our discretionary accrual estimates on the Cross sectional model (Jones) discussed below:

$$\left( \frac{TAC_{ijt}}{TA_{ijt-1}} \right) = \alpha_{ij} \left( \frac{1}{TA_{ijt-1}} \right) + \alpha_{2j} \left( \frac{\Delta REV_{ijt}}{TA_{ijt-1}} \right) + \alpha_{3j} \left( \frac{NCA_{ijt}}{TA_{ijt-1}} \right) + \varepsilon_{ijt}$$

where:  $TAC_{ijt}$ — Total accruals of company  $i$  in industry  $j$  in year  $t$ ;  $TA_{ijt-1}$ — Total assets of company  $i$  in industry  $j$  in year  $t-1$ ;  $\Delta REV_{ijt}$ — Change in revenue of company  $i$  in industry  $j$  in year  $t$ ;  $NCA_{ijt}$ — Long-term assets of company  $i$  in industry  $j$  in year  $t$ ;  $\alpha_{ij}$ — Parameters to be estimated of company  $i$  in industry  $j$ ;  $\varepsilon_{ijt}$ — Residuals accruals of company  $i$  in industry  $j$  in year  $t$ .

To estimate non-discretionary accruals:

$$\left( \frac{NDAC_{ijt}}{TA_{ijt-1}} \right) = \alpha_{ij} \left( \frac{1}{TA_{ijt-1}} \right) + \alpha_{2j} \left( \frac{\Delta REV_{ijt} - \Delta REC_{ijt}}{TA_{ijt-1}} \right) + \alpha_{3j} \left( \frac{PPE_{ijt}}{TA_{ijt-1}} \right)$$

where:  $NDAC_{ijt}$  – Total non-discretionary accruals of company  $i$  in industry  $j$  in year  $t$ ;  $TA_{ijt-1}$  – Total assets of company  $i$  in industry  $j$  in year  $t-1$ ;  $PPE_{ijt}$  – Long-term assets of company  $i$  in industry  $j$  in year  $t$ ;  $\Delta REV_{ijt}$  – Change in revenue of company  $i$  in industry  $j$  in year  $t$ ;  $\Delta REC_{ijt}$  – Change in net receivables of company  $i$  in industry  $j$  in year  $t$ ;  $\alpha_{ij}$  – Parameters to be estimated of company  $i$  in industry  $j$ . Based on the previous, we have created a formula for calculating discretionary accruals as follows:

$$TDAC_{ijt} = TAC_{ijt} - NDAC_{ijt}$$

where:  $TAC_{ijt}$  – Total accruals of company  $i$  in industry  $j$  in year  $t$ ;  $NDAC_{ijt}$  – Total non-discretionary accruals of company  $i$  in industry  $j$  in year  $t$ ;  $TDAC_{ijt}$  – Total discretionary accruals of company  $i$  in industry  $j$  in year  $t$ .

#### 4. Research results and discussion

We have estimated the total accruals, non-discretionary accruals and discretionary accruals according to the Cross sectional model (Jones) already described. To estimate these accruals we used data from the financial statements of listed companies in Bosnia and Herzegovina them.

We have processed the data from financial and audit reports of the listed companies in Bosnia and Herzegovina from Subsegment 1 for the period 2009-2018 to compare the audit tenure with the estimated discretionary accruals. The sample of research is the financial and audit reports of 13 listed companies of the Sarajevo Stock Exchange and 18 listed companies of the Banja Luka Stock Exchange. The sampling criterion was transparency in the publication of financial and audit reports. There are 322 companies listed on the Sarajevo Stock Exchange, of which 16 companies are classified in Subsegment 1, the segment with the highest degree of transparency in reporting. There are 175 companies listed on the Banja Luka Stock Exchange, of which 24 companies are classified in the Free Market Segment, the segment with the highest degree of transparency in reporting. By sampling, we excluded the financial and audit reports of financial sector companies, due to the difference in the basis of preparation and presentation of financial statements of companies in this sector.

We measured the audit tenure by the number of repeatedly audits performed by the same audit firm, taking into account the auditor and the type of auditor opinion for the specific financial statements. The table below provides an overview of the research sample by geographical criterion.

Table 3. *Research sample*

No.	Geographical area	Number of companies	Number of years covered	Total number of financial statements	Total number of audit reports covered
1.	Federation of BiH	13	10	130	130
2.	Republika Srpska	18	10	180	180
3.	BiH (total)	21	10	310	310

Source: Authors' research

After estimating total accruals, non-discretionary accruals and discretionary accruals we present in Table 4.

Table 4. *Estimated averages of total, discretionary and non-discretionary accruals in BAM*

No.	Estimated average accruals and the number of audit opinions delivered	Audit opinion			
		Unqualified opinion	Qualified opinion	Adverse opinion	Disclaimer of opinion
1.	Estimated total average accruals	12,289,783.00	62,847,937.00	8,833,148.00	48,422,649.00
2.	Estimated average non-discretionary accruals	4,638,792.00	8,043,039.00	34,160,307.00	55,908,771.00
3.	Estimated average discretionary accruals	7,650,991.00	4,944,279.00	42,993,455.00	7,486,122.00
4.	Number of audit opinions delivered	112	68	4	5
5.	Average discretionary accruals in one opinion	68,312.00	72,709.00	10,748,363.00	1,497,224.00

Source: Authors' research

Table 4 shows that listed companies in Bosnia and Herzegovina, which received a disclaimer of opinion or adverse opinion on the financial statements, had, on average, larger discretionary differences than those whose audit reports got unqualified opinion. Companies which have received unqualified opinion on its financial statements have, on average, the lowest level of discretionary accruals at BAM 68,312 per year. The following table shows the trend of average discretionary accruals versus the average audit tenure.

Table 5. *Discretionary accruals regarding the audit tenure*

Year	Average discretionary accruals in BAM	Average audit tenure in years (average number of consecutive audit engagements up to the current year)
2018	38,517,866.00	3.89
2017	20,456,670.00	2.78
2016	28,290,329.00	3.95
2015	22,048,401.00	3.85
2014	14,830,781.00	3.40
2013	34,365,743.00	3.25
2012	12,698,431.00	3.15
2011	1,116,727.00	3.00
2010	1,346,340.00	2.85
2009	1,285,360.00	2.50

Source: Authors' research

Table 5. shows the correlation between average discretionary accruals and average audit tenure, especially for the period 2015-2018. The results of the research have led us to the conclusion that limiting the audit tenure reduces discretionary accruals in the financial statements of companies in Bosnia and Herzegovina, measured by the Cross sectional model (Jones), especially for the period 2015-2018. Reducing discretionary accruals in a company's financial statements means increasing the quality of the audit reports.

## 5. Conclusion

Following the breakdown of major companies such as Enron, which includes auditor responsibility also, and the emergence of the Sarbanes-Oxley Act of 2002, a lot of research has been done on the subject of impact audit tenure on the audit quality of financial statements. This research is a contribution to both the literature on the audit quality reports and the validation of the legislation

foundations on which the limitation audit tenure was built on. Audit quality of financial statements research is abstract and complicated but we presented a number of alternative determinants of audit quality that can be used to measure it. It is also important to confirm the appropriateness of legal regulations on a scientific basis, what is demonstrated throughout this paper.

An empirical study, based on data from the financial statements of listed companies in Bosnia and Herzegovina, presents evidence that the limited audit tenure has a positive effect on reducing discretionary accruals. Reducing discretionary accruals in a company's financial statements means increasing the audit reports quality. Measured by the Cross sectional model (Jones), the correlation between the two variables is particularly evident over the period 2015-2018.

A guideline for future research on the audit quality of financial statement is to focus the research sample on unlisted companies because there are doubts about the quality of the audit reports of private sector firms that do not have a high level of transparency.

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## WEB-BASED FATWA FINANCIAL DISCLOSURE: EVIDENCE FROM ISLAMIC BANKING IN BAHRAIN

### OBJAVA FINANSIJSKE FETVE NA INTERNETU: PRIMJER ISLAMSКИH BANAKA U BAHREINU

#### Abstract

*Objective of this study is to investigate the level of fatwa financial disclosure (FFD) in Islamic banking in Bahrain. The method adopted is the Fatwa Index, and it is used to measure the level of web-based fatwa financial disclosure. This Index consists of five products which are: murabahah, mudarabah, musharakah, ijarah, and raffle account. The main findings showed a good level of fatwa disclosure through the web-portal which is 85.88%. The average deviation from the average value of Fatwa Index disclosure is 25.45%, while the coefficient of variation amounts to 29.63%. Products which have the highest FFD are: murabahah, musharakah, and raffle account (each one higher than 94%), and the lowest have ijarah (76.47%) and mudarabah (70.59%). The implication of this paper could help Islamic financial institutions, including Islamic banking, to disclose web-based fatwa information in the future to reach full online financial disclosure to all interested parties. This is the first study in Islamic banking in Bahrain to measure the level of awareness of financial disclosure. Publishing fatwa through the website has not been extensively studied, so this study fills the gap. Islamic banks operate under different school of thought in different countries and this may lead to a lower level of disclosure which is against the concept of trusteeship between all concern parties. Complete transparency in operations leads to create a high level of ethical identity of Islamic banks.*

**Keywords:** web-based fatwa, financial disclosure, Islamic banking, Bahrain

#### Sažetak

*Rad ima za cilj istražiti nivo objava finansijske fetve (FFD) u islamskim bankama u Bahreinu. Korištena metoda istraživanja je tzv. indeks fetve, putem kojeg se mjeri nivo objavljivanja finansijske fetve na web portalima. Ovaj indeks se računa na bazi pet proizvoda: murabahah, mudarabah, musharakah, ijarah i raffle account (jaizah). Rezultati istraživanja ukazuju na visok nivo objava finansijske fetve putem web portala, koji iznosi cca 85,88 %. Standardna devijacija od prosječne vrijednosti indeksa fetve je 25,45%, dok koeficijent varijacije iznosi 29,63 %. Proizvodi koji imaju najviši nivo FFD su: murabahah, musharakah i raffle account (svaki pojedinačno preko 94 %), dok najniži nivo imaju ijarah (76,47%) i mudarabah (70,59 %). Implikacija ovog članka mogla bi biti pomoć islamskim finansijskim institucijama, uključujući i islamske banke, za buduće objavljivanje informacija o finansijskoj fetvi putem weba, kako bi dostigle potpuno online finansijsko objavljivanje svim zainteresiranim stranama. Ovo je prvo istraživanje u islamskom bankarstvu u Bahreinu koje mjeri nivo svijesti o potrebi potpunog finansijskog objavljivanja. Objavljivanje fetve putem web portala nije bilo detaljno proučavano, stoga ova studija popunjava tu prazninu. Islamske banke u različitim zemljama djeluju pod različitim islamskim učenjima, što može dovesti do smanjenog nivoa objavljivanja o poslovanju, što je suprotno konceptu punog povjerenja među uključenim stranama. Potpuna transparentnost u poslovanju utječe na kreiranje višeg nivoa etičkog identiteta islamskih banaka.*

**Ključne riječi:** objava *fatve* na *web-u*, finansijsko objavljivanje, islamsko bankarstvo, Bahrein

**JEL:** A13, M41, G21, Z12

## 1. Introduction

The Kingdom of Bahrain hosts many Islamic Financial Institutions (IFIs) to push the Islamic finance industry. These institutions are, but not limited to, the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), the General Council for Islamic Banks and Financial Institutions (CIBAFI), the International Islamic Financial Market (IIFM) and the Islamic International Rating Agency (IIRA) (Sarea, 2012).

The Kingdom of Bahrain as the hub of Islamic finance and banking are attracting many international banking to operate locally. According to International Money Fund to ensure financial stability in countries with Islamic banking, almost all international banks, such as HSBC, Standard Chartered, Deutsche Bank, Citibank, and other banks, are engaged in Islamic banking activities (IMF, 2017). However, the Islamic banking sector should disclose the financial information to all interested parties, they should consider formal channels such as online financial reporting disclosure and informal channels such as the social media for communicate adequate disclosure.

The Shariah law *Fatwa* is considered as a religious order, given by a qualified legal scholar (known as a *mufti*). It can be defined as an “Islamic ruling on a point of Islamic law that is given by a recognized authority based on sound evidence or it is informing others about the rules of Shariah without incurring any binding terms”.

*Fatwa* in Islamic finance sector is a finding of “Shariah governing by a competent Shariah scholar on undecided matters of Islamic finance by providing legal Shariah judgement extracted from Islamic source through a process of ‘*ijtihad*’ on a Muslim religious matters after the demise of the Prophet (SAW) in the light of the Shariah rules and Islamic jurisprudence principles”.

*Fatwa* intends to clarify a lawful decision (*hukm*) in light of an inquiry, or it may be very well issued without any inquiry, as to clarify some new circumstance to set the right standards and practices of Muslims. The *fatwa* involves most extreme earnestness, since it clarifies the law of the Lord of the universes, and in his ruling the mufti is followed up in the interest of God, and it pursues the model of the Messenger of God (may God bless him and grant him peace) by clarifying the decisions of the Shariah.

Since numerous contemporary issues are complex in nature, to get clear understanding about them and to appreciate their decision the *fatwa* is required. The fundamental level of *fatwa* is not restricted juridically, but religiously restricted. A Muslim cannot disobey the *fatwa* when there are clear confirmations for its rightness. Islamic financial institutions must follow the *fatwas* of the Shariah bodies, inside the system of decision of the “Fiqh Academy”.

This paper researches the exposure of *fatwa* through the websites of Islamic banking in Bahrain. The Standards of “Accounting and Auditing Organization of the Islamic Financial Institutions (AAOIFI)” and “Islamic Financial Services Board (IFSB)” which are the most elevated worldwide governing body on Islamic financial industry that recommend *fatwa* disclosures and Shariah resolutions.

An Islamic financial institution should publish *fatwa* rulings and guidelines issued by its Shariah Supervisory Board (SSB) during the year. Online interfaces have turned out to be popular in financial industry for variety of reasons. The fundamental reason, being the competitive advantage, is offered by the arrangement of a single point of access to different financial products and services.

## 2. Literature review

### 2.1. Why fatwa through web-portal?

A web portal is a specially designed website that often serves as the single point of access for information. The publication of *fatwa* and Shariah compliant decision of Islamic banking or financial institutions offers more creditability to the performances of Shariah system and a major strategy of attaining the anticipated growth.

Shariah standard on “Online financial dealing” covers the Shariah rulings relating to a conclusion of financial contracts online, either by launching commercial websites, or by providing online access services. The standard aims are to indicate “the various aspects pertaining to this subject such as the Shariah status of the contracts pertaining to this subject and the Shariah status of the contracts concluded in this manner, determination of the time of contract inception, and permissible procedures of possession after signing the contract, and Shariah rulings relating to protection of online financial dealings”.

Disclosure in Islamic financing is significant since this will cover the way for “Shariah Supervisory Board (SSB)” to discover reasonable Shariah rules. The necessity of “disclosure” in the financial framework refers to the disclosing all material and relevant information of a bank to the stakeholders and the public. Such disclosure is vital for the improving of basic decision making process on investment and operation of Islamic banking and financial industry.

### 2.2. Issues related to web-based disclosure

Previous studies discussed a number of issues related to the financial reporting disclosure including *fatwa* to disclose information through the website. Several studies conducted in different countries discuss several issues related to the online financial reporting. The adoption of new techniques to disclose *fatwa* through the bank website could help Islamic banking to disclose more information to satisfy all parties related to *halal* activities in order to avoid any impermissible activities.

In relation to the online financial disclosure through the website, the UAE, Momany and Pillai (2013) investigated the extent of volunteer online disclosure among (UAE) firms listed on the Abu Dhabi finance market (ADX). Sixty five (65) firms were selected and used search engines to test the level of volunteer online disclosure. They selected eight (8) characteristics including “the effect of profit ratios, firm’s volume, firm’s age, the type of ownership and its concentration, debt ratios, corporate governance and asset ratios”. The main findings of the study showed that 89% of the listed firms had access to web-sites. On the other hand, 11% had no access to the website. Also of 60% disclosed financial information online, 40% did not disclose financial information online. In addition, 91% disclose comprehensive financial statements, whereas 9% disclose partial financial statements. In related study, Miniaoui and Oyelere in UAE (2013), the main results showed, “larger companies with greater leverage are more likely to set up a website and use it for internet financial reporting (IFR) than smaller, less leveraged ones”.

In a study, conducted by Hossain, Momin, and Leo (2012), it was concluded that, from the total of 42 companies listed at Qatar Stock Exchange, the scope of financial and non-financial information disclosure is impacted primarily by: firm size, assets in-place, and business complexity. These are variables which in significant way explain the level of internet financial reporting disclosure, whereas age, profitability, and liquidity are not significant. Out of the 42 companies, 41 have a website, 1 does not have, and of those, 29 have financial reports disclosed, while 13 do not.

In GCC, Sarea, Al-Sartawi, and Khalid (2018) conducted the study to compare level of electronic financial disclosure between Islamic and conventional banking in Gulf cooperation council (GCC). They indicated that the level of electronic financial disclosure was 78.6% in conventional banks while compared to 73 % by Islamic banks in GCC. In Kuwait, another study Alanezi (2009) collected data form 179 firms listed on Kuwaiti joint-stock (KSX). The main findings showed that only 56% of the listed firms disclose online financial information whereas the rest did not disclose online financial information. In another study, Joshi and Al-Modhahki (2003) collected data of 75 firms in (Kuwait 42 and Bahrain 33). The main results showed that 47.6% of Kuwait firms owned website and disclosed online financial information, while 48.5% of Bahrain firms did.

In a study conducted by Olayemi, Nouredin, and Siddiqui (2018), they investigated the disclosure of *Fatwa* and Shariah resolutions of the Shariah boards of the Islamic banks in United Arab Emirates on their web portals. It was concluded that two of thirteen banks have published *Fatwas* on their Web portals in English and non in Arabic language. All thirteen banks mentioned the Shariah principle in their business only in the annual business reports.

### 3. Research methodology

In reference to previous studies, the research methods adopted check list that consists of five products which are (*murabahah*, *mudarabah*, *musharakah*, *ijarah*, and raffle account). The data were collected from web-portal for each bank during 2017. The research population has 16 banks, of which 11 are in the research sample.

#### 3.1. Why Islamic banks as a research population?

Islamic banks represent 71% of the total Islamic finance. They are followed by *takaful* (Islamic insurance) 2%, Other Islamic Financial institutions are represented by 6%, of which *sukuk* (Islamic bonds) 17%, and Islamic fund 4% according to Thomson Reuters (2018). Therefore, the researchers selected Islamic banks in Bahrain.

This study has adopted a checklist consisting of five product items to measure the level of *Fatwa* Financial Disclosure (FFD). The *fatwa* index is based on dummy variable (score 1 - if the bank reported the *fatwa* in the website, otherwise - score 0). Therefore, the Index for each Islamic bank was calculated by dividing the total earned scores of the bank by the total maximum possible score appropriate for the bank. The formula bellow shows the way of calculating the *fatwa* index (Sarea, Al-Sartawi & Khalid, 2018).

$$OFRD = \sum_{i=1} \frac{di}{n}$$

where:

*di* - disclosed item - equals (1) if the bank meets the checklist item, otherwise (0);

*n* - equals maximum score each bank can obtain.

Table 1. *Sample size*

Description	N.	Excluded*	Total <i>n</i>	Sample %
Islamic banks in Bahrain	17	1	16	94.12%

\* Unavailable of data

Source: Authors' research

Several research studies have addressed the issue of electronic disclosure in different countries such as (Sarea, Al-Sartawi & Khalid, 2018), (Alrwahi & Sarea, 2016), and (Al Jawader & Sarea, 2016). These studies have investigated different aspects of online disclosure. This is the first study to test the *fatwa* disclosure through web-portal in Bahrain.

### 3.2. Rating score

This study adopted the rating score according to previous study conducted by Marsidi, Annuar, and Rahman (2017) as follows:

Table 2. *Rating score*

Score (%)	Rating
70 and above	Very good
60 - 69	Good
50 - 59	Fair
40 - 49	Poor
39 and below	Very poor

Source: Marsidi, Annuar & Rahman, 2017

## 4. Results and discussion

The results suggest that the level of *fatwa* disclosure index in Islamic banks in Bahrain was 85.88% (Table 3).

Table 3. *Level of FFD*

Code	N	Excluded	Available <i>n</i>	100%
Web-based <i>fatwa</i> %	5 products	NA	100%	85.88%

Source: Authors' research

The average deviation from the average value of *Fatwa* index disclosure is 25.45%, while the coefficient of variation amounts 29.63% (Table 4).

Table 4. *Statistical data*

MOD	MED	AVRAGE	STDEVP	Coefficient of variation	First quartile	Third quartile
1	1	0.858824	0.25451	0.296347	0.8	1

Source: Authors' research

Result of FFD is considered as a “very good”, according to rating score method. This is quite high level of disclosure compared to previous studies in different sectors and in different countries. Ideally, all Islamic banks should disclose the *fatwa* information for all products to reach “full *fatwa* disclosure”. However, due to different requirements of Islamic banks compared to other financial sectors, this level of *fatwa* disclosure could be justified.

In general, Islamic banks operate under different school of thought in different countries and this may lead to a lower level of disclosure, which is against the concept of trusteeship between all concern parties. On the other hand, the level of web-based *fatwa* disclosure of Islamic banks in Bahrain can be considered as to somehow “high level”. However, previous studies in the area of

Islamic banking and finance such as (Sarea, Al-Sartawi & Khalid, 2018) confirm the need of full Web-based Financial Reporting Disclosure as part of the principle of Islamic law and Shariah.

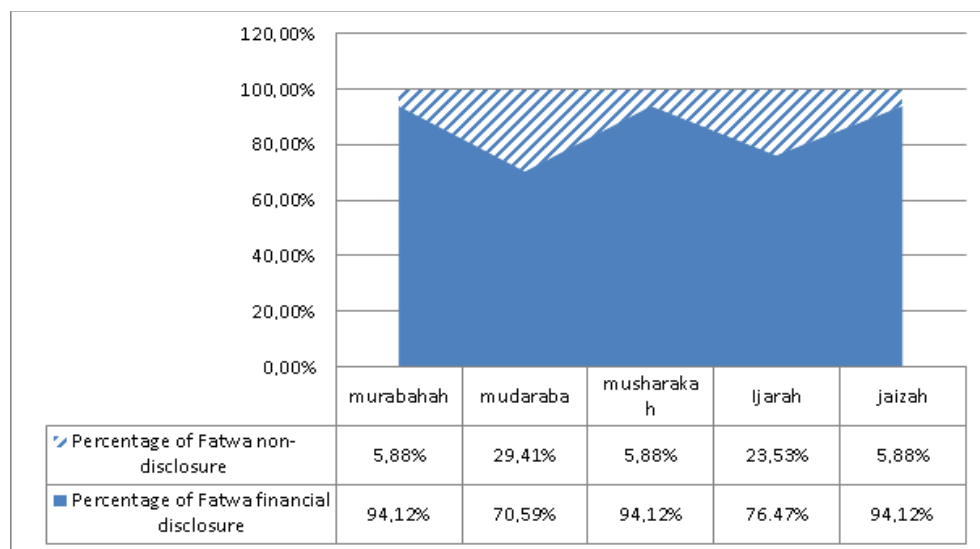


Figure 1. Level of fatwa disclosure by products

Source: Authors' research

In short, all tested products have a high and acceptable level of disclosure. Based on the descriptive analysis, it shows that, the *fatwa* disclosure is 85.88%. Considering this, it is evident that there are deviations in the degree of disclosure according to five observed products. Products which have the highest FFD are *murabahah*, *musharakah*, and raffle account (*jaizah*), while the lowest is *mudarabah*.

*Fatwa* disclosure is not just financial accountability, it is also religious accountability. A high level of *fatwa* disclosure of Islamic banks in Bahrain confirms the high level of corporate social responsibility. Complete transparency in operations leads to a creation of a high level of ethical identity of Islamic banks in Bahrain. Ethical identity represents a type of internally generated goodwill which has its own impact on operational performance.

#### 4. Conclusion

This paper contributes theoretically to fill the gap in the literature. Previous studies in Islamic banking and finance have dealt with different issues of cooperating disclosure in different countries. However, a few studies have dealt with *fatwa* and online *fatwa* in different countries. Another contribution of this paper is calculation of *fatwa* index to measure the level of web-based *fatwa* financial disclosure. The index creation is based on the following five key products of Islamic banks: *murabahah*, *mudarabah*, *musharakah*, *ijarah*, and raffle account (*jaizah*).

The overall level of *fatwa* web-based disclosure in Islamic banks in Bahrain, were (85.88%). The average deviation from the average value of *Fatwa* index disclosure is 25.45%, while the coefficient of variation amounts 29.63%. This level is acceptable level, according to Wallace, Nacer and Mora (1994) claim that more than 50% disclosure will be acceptable. Complete transparency in operations leads to a creation of a high level of ethical identity of Islamic banks in Bahrain. Ethical identity, as a part of intangible assets, affects operations of financial institutions.

In general, this paper recommends that Islamic banks should use the web-based *fatwa* disclosure through new differ techniques. The future studies should consider using social media to test the web-based *fatwa* disclosure as well as adding some products and services to the *fatwa* index. In addition, further studies should consider different tools to test the level of *fatwa* disclosure in Islamic banks in Bahrain or a larger number of other countries.

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## TOURIST DESTINATION DEVELOPMENT: THE EXAMPLE OF SARAJEVO CANTON

### RAZVOJ TURISTIČKE DESTINACIJE: PRIMJER KANTONA SARAJEVO

#### Abstract

*Tourism phenomenon is global and the roots of the touristic movement can be found even in the distant past when the basis of human movement was motivated to meet the needs necessary for their survival. The continuous growth of the tourism industry is a basic indicator of its significance and tourism industry is one of the leading world industries. Destination management is a necessary precondition for long-term and sustainable tourism development, so it is necessary to employ a systematic and holistic approach for the development of tourist destination of Sarajevo Canton. This can only be possible if there is cooperation with public, private and non-governmental sector. The main purpose of this paper is to show that Sarajevo Canton as a tourist destination has great development potential but is faced with many challenges related to destination management. An online survey has been conducted and 337 respondents were interviewed. It is necessary to invest huge effort to turn potentials owned by Sarajevo Canton into a viable economic resource.*

**Keywords:** tourism, destination management, Sarajevo Canton, tourist destination

**JEL:** Z32

#### Sažetak

*Fenomen turizma je globalnog karaktera, gdje korijene turističkih kretanja možemo naći još u dalekoj prošlosti kada je osnova kretanja ljudi bila uglavnom motivisana za zadovoljenje potreba neophodnih za njihov opstanak. Kontinuirani rast turističke industrije osnovni je pokazatelj njegovog značaja, a turistička industrija je jedna od vodećih industrija u svijetu. Destinacijski menadžment je neophodan uslov za razvoj turizma, te je potrebno raditi na sistematskom pristupu razvoja turističke destinacije Kantona Sarajeva. Ovo je moguće samo ukoliko postoji saradnja javnog, privatnog i nevladinog sektora. Osnovna svrha ovog rada je da prikaže da Kanton Sarajevo kao turistička destinacija posjeduje veliki potencijal za razvoj, ali je istovremeno suočen sa brojnim izazovima vezanim za destinacijski menadžment. Provedeno je online istraživanje, pri čemu je anketirano 337 ispitanika. Neophodno je uložiti ogroman napor, kako bi turističke potencijale koje posjeduje Kanton Sarajevo pretvorili u ekonomski resurs.*

**Ključne riječi:** turizam, destinacijski menadžment, Kanton Sarajevo, turistička destinacija

**JEL:** Z32

## 1. Introduction

Tourism is rightfully considered to be the industry that best secures the specific offer and economic valorisation of the domestic touristic product, which consists of elements of tradition and culture, natural heritage and built material culture, as well as the service and production components of local tourism content. It is today a fast-growing industry with growing knowledge share and high added value that contributes to social well-being, GDP growth, employment and investment. A large number of world analysts consider tourism to be a true phenomenon of the 20th century. The many changes that have occurred as a result of the development of tourism have affected man himself as well as the perception of the world, and tourism as a social and economic phenomenon requires constant research. In this context, a special emphasis is placed on the concept of “tourist destination” and the process of “destination management”.

In recent decades the literature on tourism development has been complemented by growing research on destination management. Destination management is a necessary precondition for the development of tourism, and requires a systematic approach to the development of a particular tourist destination (in cooperation with the public and private sector). The tourist destination is a complex concept and destination as a phenomenon depends on a wide range of factors. In simplified terms, a tourist destination is primarily a set of different components that, by acting together, secure meeting the needs of tourists, in which the starting point for that type of consideration should be the needs of tourists to be met at the destination and the creation of an appropriate set of tangible and intangible components that can provide adequate needs of tourists at the appropriate tourist destination. Destination management is related to competitiveness and sustainability of destinations (Dwyer & Kim, 2003; Presenza, Sheehan & Ritchie, 2005), involvement of stakeholders in managing destinations (Bornhorst, Ritchie & Sheehan, 2010; Fuchs & Weiermair, 2004; Wang, 2011), structures and processes required for effective management (Bieger, Beritelli & Laesser, 2009; Sainaghi, 2006) and destination management organizations (DMOs) (Presenza, Sheehan & Ritchie, 2005; Sainaghi, 2006; Sheehan & Ritchie, 2005; Wang, 2011).

The aim of this paper is to research current situation in the development of Canton Sarajevo as a destination, identify challenges in the field of destination management and provide certain recommendations with the aim of improving the development of this destination.

## 2. Tourism and tourist destinations

### 2.1. *Tourism industry and destinations*

Tourism is a dynamic industry with extremely fragmented chain of values which support economy through generating income, employment, investments and export, thus stimulating economic growth. After the end of the World War II, tourism grew into a mass phenomenon (with rising living standards and increased leisure time); taking into consideration the achieved tourist traffic and the scope of activities in tourist destinations.

Tourism actually belongs to a group of social systems that represent a specific combination of natural, technical, social and economic elements and/or subsystems. Social systems, including the tourism system, can be viewed and defined from a territorial point of view. In this sense, the tourism system can be defined at the national level, at the level of individual sectors (related activities and their consumers), as well as at the level of lower territorial units. Basically, we talk about a destination concept of the tourism system that is about defining a tourism system within a certain space that does not need to be administratively or historically shaped. A tourist destination is represented by a variety of products, services, natural resources, created elements and information, which are able to attract a certain number of visitors to one place (Popesku, 2011).

Tourism does not represent a separate economic activity or branch, as is the case with classical economic activities; it represents a heterogeneous activity consisting of a whole range of different activities that are today classified into, conditionally speaking, economic and non-economic activities and branches. The essence of tourism is the desire to travel to places (destinations) that, due to their specific characteristics, attract the demand, that is, tourists.

A tourist destination is a complex term and destination as a phenomenon depends on a wide range of factors. Destinations attract attention because they stimulate and motivate the movement of tourists and represent the areas where most tourism products are created. Accordingly, destinations account for the greater part of the total tourism economy and exhibit most of the positive and negative effects of tourism development.

According to the Federal Ministry of Tourism and the Environment, the term destination comes from the Latin word “*destinatio*”, which in its original form means destination and goal (destination and vacation, destination of stay and rest in an area).

Mathieson and Wall (1990) refer to a destination as a location with characteristics familiar to a sufficient number of potential visitors to justify its conception as an entity that attracts travel regardless of the attractiveness of other locations. Very important are the natural and created characteristics, infrastructural characteristics, economic structure, features and characteristics of the local population of the destination. Based on what is offered to tourists, destinations can be defined as such. Gunn (1994) defines a tourist destination as a geographical area containing a critical mass of development that meets the needs of tourists.

The World Tourism Organization (WTO) defines the destination as the place visited during a trip. From a marketing point of view, a tourist destination is much more than a geographical area or a place. In terms of tourism demand, tourists may have different opinions about a destination as well as about the realized benefits according to the social status, culture and value system of the tourists. The overall tourism experience of the destination also includes the joint activity of tourism companies, public organizations, intermediaries, *etc.* in the context of development of various tourism activities and programs. Destination is a dynamic concept and is not a permanent category, and thus does not necessarily need to follow administrative boundaries.

Manente and Minghetti (2006) point out that shifting focus from the destination as a “tourist destination” to a destination as a “tourism product” or, better still, as a product system, depends on the perception of directly and indirectly involved participants.

The development of tourism, therefore, depends on the ability of tourism industry and tourist destinations to respond to the challenges arising from the current structure of tourism and expected changes in society that have an impact on tourism demand (the so-called megatrends). For destinations, effective differentiation of the offer is of utmost importance given the hyper-competitive nature of tourism. Many destinations offer similar tourism products based on, for example, cultural and historical heritage, natural attractions, *etc.*, which can be substituted by offers at other destinations.

Planning, managing and control of the development of the destination require a systematic and interdisciplinary approach, and the starting point in the development of the destination are the needs of tourists, which will be met through the material and intangible elements of the offer at the destination. Therefore, destination management is a proactive, visitor-centred approach to the development of a destination that balances and integrates the interests of visitors, service providers and local community. According to Fuchs and Weiermair (2004) “the fundamental goal of destination management is to assess the adequacy and effectiveness of the product, facilities,

services and programs that all together provide memorable tourism experiences”.

Even the destinations that own very interesting attractions can expect failure if the destination and tourist products of the destination are not properly managed. Participation of the interest groups - stakeholders, especially local community, has become a rule in the development of destinations and products, as well as in the pursuit of tourism activities. Positioning in the market depends on the willingness of local actors to work together and contribute to the development of the destination.

Therefore, it is not enough to have a tourism product for tourism development. Tourism development requires a systematic and holistic approach, strategic planning and involvement of all interest groups in decision making. Even those destinations that have very interesting attractions can expect failure if the destination and tourist products of the destination are not properly managed. In order to develop a tourist destination, the needs of all interest groups – stakeholders in the long term must be met, and this can be achieved through a strategic planning process. This process balances the relationship between, on the one hand, a marketing orientation that is primarily directed at tourists and, on the other, an orientation towards planning that is directed to the needs of the local population (Cooper, 2000).

Destination management is a continuous process in which the tourism sector, public administration and other entities direct the development of the destination in order to achieve a common desired vision of the destination. Destination management is the result of the involvement of different sectors, groups, participants and partners who, by working together, each from their perspective, realize the common goals of a particular destination.

Holistic approach to destination management and marketing requires partnerships between different levels of government, among different public sector organizations, as well as between public and private sectors. In general, the main role of destination management should be to oversee the development and implementation of the created tourism strategy based on the needs of participants from the public and private sectors.

## *2.2. Tourism development in Canton Sarajevo*

Tourism development in Canton Sarajevo is based on its distinct natural and social potential. It can be stated that Canton Sarajevo has exceptional prerequisites for the development of practically all forms of tourism, which enables the duration of the tourist season throughout the year.

Despite the fact that there is a significant cultural, historical and natural heritage in the Canton, which can be one of the pillars of the overall tourism development, the fact is that this potential is not being sufficiently valorised and almost all the problems that tourism in Bosnia and Herzegovina (BiH) is facing are reflected in tourism development in Canton Sarajevo. The situation in the development of tourism in BiH is best described by the T&T (Travel & Tourism) Index of the World Economic Forum (2018). BiH ranks 113th out of 134 countries in 2017, with the following parameters:

- 108<sup>th</sup> place – international openness,
- 111<sup>th</sup> place – prioritization of travel and tourism,
- 100<sup>th</sup> place – human resources and labour market,
- 76<sup>th</sup> place – safety and security,
- 127<sup>th</sup> place – business environment,
- 110<sup>th</sup> place – price competitiveness,
- 94<sup>th</sup> place – environmental sustainability,
- 123<sup>th</sup> place – air transport infrastructure,
- 106<sup>th</sup> place – ground and port infrastructure,

- 78<sup>th</sup> place – tourist service infrastructure,
- 134<sup>th</sup> place – natural resources and
- 102<sup>th</sup> place – cultural resources and business travel.

The following figure shows tourist movements – number of arrivals and overnight stays in Canton Sarajevo in the period of 1999-2017.

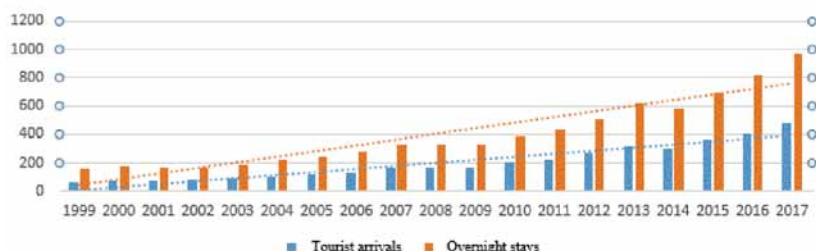


Figure 1. *Tourist movements in Canton Sarajevo in the period of 1999-2017*

Source: Federal Institute of Statistics (2017)

Regardless of the continuous increase in the number of visits and the number of tourist nights, current situation in the tourism development of Canton Sarajevo shows that the destination as a whole and therefore the development of tourism has not been effectively managed. Tourism development is the result of organic growth and the initiative of the mostly private sector. Private sector is marketed independently and atomized, with little integration. Destination Management Organization did not exist, although according to the WTO, local and regional tourism organizations have a DMO role. Tourist association at all levels of BiH, including Canton Sarajevo, were mainly engaged in promotional activities, which is only a part of the expected activities. Canton Sarajevo has neither a tourism development strategy nor clearly defined directions for development.

According to a study by Peštek *et al.* (2019), it is evident that local population in both Canton Sarajevo and BiH have a positive attitude towards tourism development but also recognizes that there are problems in managing tourism as a system. The tourist offer in Sarajevo is characterized by the quality of food and drinks, diversity of historic and cultural attractions and a variety of cafes and dining options (Economic Institute, 2018).

According to a survey conducted by Peštek and Činjarević (2017) for Canton Sarajevo Tourist Association during 2017 on a sample of 1,000 respondents from 60 countries, a better insight into the degree of tourists' satisfaction with the Sarajevo destination was obtained. The key findings of the research are as follows:

- *Arrival motive:* Rest and relaxation is the primary arrival motive for 74.8% of tourists. Among tourists who are motivated by rest and relaxation, there is approximately an equal share of those staying in a hotel, hostel and private accommodation. Getting to know the culture/cultural sights is the primary motive for the arrival of 58.8% of tourists.
- *Travel characteristics:* The Internet is the primary source of information on Sarajevo destination for 60.1%, along with a recommendation from relatives and friends (42.4%). Other sources include the media (9.2%), printed travel guides (9.4%) and travel agency recommendations (11.9%). Self-organizing a trip directly via the Internet is the dominant way of the arrival of tourists to Canton Sarajevo, *i.e.* 56.7% of tourists organized a trip directly through the Internet.
- *Stay characteristics:* Tourists in Canton Sarajevo mostly stay up to three days (69.1%). About two-thirds of tourists stay in Canton Sarajevo with a partner/spouse or with friends/acquaintances.

- *Satisfaction with the elements of tourist offer:* Tourists expressed a very high level of satisfaction for the hospitality of the local population, the quality of the gastronomic offer and the overall 'value for money'. The tourists expressed a high degree of satisfaction for the offer of tourist activities/contents (museums, galleries, historical sites, *etc.*) and the offer of local products and souvenirs. Medium levels of satisfaction were expressed by tourists for the quality of outdoor tourism offer, the quality of nightlife and entertainment and for shopping opportunities. Tourists are very satisfied with the social elements of the tourist offer (personal safety and 'family-friendly' environment), and are dissatisfied with the quality of local transport and the clarity of the signposts, *i.e.* tourist signalling.
- *Key advantages and disadvantages of the destination:* According to the tourists, the key advantages of Canton Sarajevo as a tourist destination are 'diverse and picturesque architecture', 'gastronomic offer', 'hospitality and kindness of people' and 'cultural wealth'. On the other hand, the key disadvantages of Canton Sarajevo as a tourist destination are: 'cleanliness/tidiness of the destination' and 'poor public infrastructure' (public transport and traffic congestion).
- *Overall satisfaction and future intentions:* 90% of tourists are very satisfied with their stay in Canton Sarajevo, and intends to speak positively about this destination to their relatives and friends/acquaintances. Also, more than 80% of tourists consider the visit to Canton Sarajevo to be 'good value for money' and intends to recommend the destination to relatives, friends/acquaintances. As many as 80% of tourists expressed their desire to visit Canton Sarajevo again in the future.

According to research conducted for the purpose of designing the Branding Strategy of Canton Sarajevo (2018) and Tourism Development Strategy of Municipality Stari Grad Sarajevo (2018), the following factors have been identified as important in terms of tourism development of Canton Sarajevo: the importance and role of the capital city, increase in tourist arrivals in Federation BiH (FBiH) and Canton Sarajevo (Canton Sarajevo generates about 50% of tourist arrivals and overnight stays in FBiH), geographical location and good connectivity with other cities and regions, proximity to large broadcast markets, unique cultural and historical heritage and national monuments, *i.e.* tangible and intangible cultural heritage, natural resources, the reputation of Sarajevo city in the region, hospitality of the population, the possibility of developing specific forms of tourism for specific target groups, crafts, events and manifestations (Sarajevo Film Festival, Jazz Fest, MESS, Sarajevo Winter, *etc.*), complementary offer of other municipalities and other places in the surrounding area (spas, health tourism, congress tourism, winter tourism, mountain tourism, eco tourism, *etc.*).

Disadvantages include among others the following: quality of tourism infrastructure is seriously not in line with tourists' expectations, as well as transport and communal services, the tidiness of the destination, gray economy, seasonality, average tourist stay is very short, the issue and overlapping of responsibilities and inefficient destination management, promotion of the destination does not meet the needs, abundance and possibility of development of tourism personnel and their knowledge of tourism personnel, the quality of the overall tourist offer is lower than objectively possible.

### 3. Research methodology

The primary research was conducted to get data about the perception of tourists on Canton Sarajevo as a tourist destination. The study aims to offer answers on the following research questions:

RQ1: To explore the resource basis for development of different types of tourism.

RQ2: To assess the quality of tourist infrastructure.

RQ3: To assess the quality of tourist offer and the possibility of development of tourist products.

RQ4: To analyze the satisfaction with Tourism Association activities.

We have decided upon a quantitative method and an online questionnaire distributed through Google forms. The questionnaire was developed by authors. The target group for this research were tourists who visited Canton Sarajevo once or on several occasions. Questions from the survey questionnaires were divided into four general groups: (1) demographic data of respondents; (2) general questions about visiting the tourist destination of Canton Sarajevo (frequency of visits, purpose of visit, accommodation, length of stay, *etc.*); (3) questions that measure tourists' perceptions of particular elements of a tourist destination; (4) issues related to tourist associations. The total number of questionnaires answered is 337, which satisfies the sample size assumption.

Out of 337 respondents, women making 51.9% of respondents and 48.1% were male. The age group was heavily dominated by 18-29 years old, making 52.2% of total respondents, followed by the 30-39 years old who made 29.7%, the 40-49 years old make 10.4%, and 50+ years old make 7.7%. The answers were obtained from 56 different countries, which actually gives the impression that the respondents are very diverse and that the results of this research actually represent the global attitudes of tourists. Thus, as many as 60% of respondents from the following 13 countries: Croatia (8.01%), Sweden (7.12%), Serbia (6.82%), USA (6.82%), Germany (3.86%), Spain (3.86%), UK (3.86%), China (3.56%), Denmark (3.56%), France (3.56%), Belgium (2.97%), Italy (2.97%) and the Netherlands (2.97%).

#### 4. Results and discussion

Initially, we wanted to explore the general indicators in terms of the number of visits and the length of the last visit of tourists. In this regard, the data show that the largest percentage of respondents (49%) visited Canton Sarajevo once. Based on the table we can conclude that the number of visits is inversely proportional to the number of respondents so that only about 11% of the respondents visited Canton Sarajevo more than 10 times.

Table 1. *Number of visits to Canton Sarajevo*

<i>Number of visits to Canton Sarajevo</i>	<i>Frequency</i>	<i>Percent</i>
1 time	165	49.0
2- 5 times	85	25.2
6- 10 times	50	14.8
More than 10 times	37	11.0
Total	337	100.0

Source: Authors' work

In the following part, regarding the research questions, tourists evaluated the list of attributes using the Likert scale from 1 to 5, with 1 indicating that they were very dissatisfied and 5 very satisfied with the attributes.

Table 2. *Analysis of attributes related to Canton Sarajevo*

<i>Attributes related to Canton Sarajevo</i>	<i>N</i>	<i>Mean</i>	<i>Standard. deviation</i>
Attractive and good local food (cuisine)	335	4.63	.656
A variety of local gastronomic specialties	335	4.53	.678
Variety of cultural attractions	337	4.48	.764
Food quality	335	4.48	.656
Variety of historical attractions	333	4.46	.660
Good restaurants	335	4.42	.687
Beautiful natural beauties	337	4.41	.706
Offering cultural and other events	333	4.34	.800
Good adventure options	337	4.28	.791
Good climatic conditions	337	4.27	.753
Wide offer of restaurants	337	4.23	.829

Good nightlife and fun	333	4.17	.799
Shopping opportunity	337	4.13	.793
Quality of service in restaurants	335	3.90	.792
Personal security	337	3.89	.726
Suitable accommodation (motels, hotels, apartments)	335	3.89	.730
Unpolluted environment	337	3.88	.901
Quality of infrastructure	333	3.80	.925
Various spa/massages/healing options	330	3.77	.837
Overall cleanliness of the destination	335	3.76	.730
Availability of sports facilities and recreational activities	331	3.64	.821
Convenience of local transportation	337	3.41	.882

Source: Authors' work

A unique and diverse resource base is the basis for the development and future of tourism. Canton Sarajevo is a very interesting tourist destination with a variety of resource bases. From the list of attributes, two variables were best rated: tempting local food (cuisine) and a variety of local specialties. On the other hand, the worst-rated variables are the convenience of local transport. The problems with transport are evident and are faced by the citizens of the Canton Sarajevo as well. Those findings are in line with findings of Peštek and Činjurević (2014) and Economic Institute (2018).

The attributes listed in Table 2 are also related to the second research question related to the tourism infrastructure and individually give us an insight into the situation in Canton Sarajevo. The average grade for the quality of tourist infrastructure was 3.8, which also confirms that the quality of tourism infrastructure is not seriously in line with tourists' expectations. By itself, it is not sufficient to form a tourist offer, but it is a basic and key factor without which any tourist attraction, facility or event would not have a chance of successful presentation and distribution in the tourism market.

When it comes to the level of satisfaction of tourists with the elements of the tourist offer of the Canton Sarajevo, based on the average rating, it can be concluded that in most cases tourists are satisfied with the tourist offer of the Canton Sarajevo. Top-rated variables indicate that tourists show a willingness to visit Canton Sarajevo again (mean is 4.67), and would be happy to recommend Canton Sarajevo to their friends (Mean 4.57). They think that visiting Canton Sarajevo is worth the money they spent (mean is 4.52) and that they see Canton Sarajevo as a global tourist destination (mean is 4.54). Echtner and Ritchie (2003) cite attributes that have been referenced in a large number of studies addressing this topic (beautiful natural beauties, good climates, good nightlife and fun, attractive and good homemade food. The findings confirm that Canton Sarajevo has a quality tourism offer and there is a possibility for development of new tourism products based on cultural, historical and natural elements (such as dark tourism, rural tourism, outdoor activities, MICE, health tourism, gastro tourism, *etc*). The findings of this research are mainly in accordance with the findings of research of Peštek and Činjurević (2017).

In order to facilitate further creation of the tourist offer, it is necessary to understand how different age groups perceive the importance of factors. Thus, tourists under the age of 18 consider culture and historical heritage the most significant factor, as do tourists in the age groups 19-29 and over 60. Tourists aged 30-39 consider food and drink quality to be the most important element. For those aged 40-49, accommodation and quality of accommodation are the most important and lastly for tourists aged 50-59 the most important element are prices, price levels and value.

The lowest ratings related to tourist satisfaction are those related to the tourism association. The lowest rating (mean is 2.70) refers to the element in which tourists evaluated whether they received a response that met their requirements when contacting a tourism association. A rating of 3.28 assessed the openness and accessibility of the tourism association. In this sense, it is clearly seen

that tourists do not show satisfaction with the way this tourist destination is managed. This does not surprise considering the situation with organisation of Canton Sarajevo Tourist Association which so far has not positioned itself as a destination organisation. Yet to come is the establishment of a more intensive activity of Tourist Association which, apart from promotion of tourist offer, should deal with integration of tourist offer and management of the destination. This is obvious in recent measures of Canton Sarajevo Government that wants to establish a platform for successful connecting of private, public and nongovernmental sector in tourism especially through improvement of the work of Tourist Association.

Since the first question in this section examines the overall satisfaction and tourist offer in Canton Sarajevo, we tried to determine whether there is a statistically significant difference in tourist satisfaction in relation to the number of visits to Canton Sarajevo. Since overall satisfaction with the tourist offer and stay in Canton Sarajevo is a continuous variable and that we want to determine if there is a difference between different groups of tourists, the One-way Analysis of Variance (ANOVA) will be used. The starting point for using the ANOVA test is the homogeneity of variance, which we test using the Levene test.

Table 3. *Test of Homogeneity of Variances - Levene test*

<i>All in all, how satisfied are you with the tourist offer and stay in Sarajevo?</i>			
<i>Leven Statistic</i>	<i>df1</i>	<i>df2</i>	<i>Sig.</i>
4.962	3	333	.002

Source: Authors' work

If the Levene test is significant ( $p < 0.05$ ) then we can say that there is a difference between the variances. In our analysis, this is the case, which means that the basic assumption for the ANOVA analysis is violated, so it will be necessary to perform an alternative test as well as post hoc analysis.

One-factor analysis of variance (ANOVA) confirmed that there was a significant difference between groups of tourists in terms of satisfaction with the tourist offer, and depending on the number of visits to Canton Sarajevo  $F(3, 333) = 5.582$ ,  $p < 0.001$ . As the basic premise of the ANOVA test is violated, Welch ANOVA and Brown-Forsythe test will be used as an alternative test. Welch test shows that there is a difference between groups of tourists in terms of satisfaction with tourist offer and stay in Sarajevo  $F(3, 110.113) = 4.694$ ,  $p < 0.01$ . Also, Brown-Forsythe test also shows that the difference between the groups is statistically significant;  $F(3; 155.089) = 5.304$ ,  $p < 0.01$ .

It is obvious that there are differences between groups of tourists depending on the number of visits to Canton Sarajevo, but what can still be determined is between which groups there are those differences. This is determined by post hoc tests. If all the preconditions for ANOVA are satisfied, Tukey test is used, however, since this assumption violates the assumption of equality of variance, it is necessary to perform Games-Howell test. This post hoc test provides confidence intervals for the differences between group means and shows whether the differences are statistically significant.

Table 4. *Games-Howell test*

<i>All in all, how satisfied are you with the tourist offer and stay in Sarajevo?</i>							
	<i>(I) Visit to Sarajevo</i>	<i>(J) P Visit to Sarajevo</i>	<i>Mean Difference (I-J)</i>	<i>Std. Error</i>	<i>Sig.</i>	<i>95% Confidence Interval</i>	
						<i>Lower Bound</i>	<i>Upper Bound</i>
Games-Howell	1 time	2-5 times	-.064	.097	.913	-.32	.19
		6-10 times	.230	.112	.176	-.06	.52
		More than 10 times	.474*	.163	.028	.04	.91
	2- 5 times	1 time	.064	.097	.913	-.19	.32
		6-10 times	.294	.122	.080	-.02	.61
		More than 10 times	.537*	.170	.013	.09	.99

	6- 10 times	1 time	-.230	.112	.176	-.52	.06
		2-5 times	-.294	.122	.080	-.61	.02
		More than 10 times	.243	.179	.530	-.23	.72
	More than 10 times	1 time	-.474*	.163	.028	-.91	-.04
		2-5 times	-.537*	.170	.013	-.99	-.09
		6-10 times	-.243	.179	.530	-.72	.23

\*. The mean difference is significant at the 0.05 level.

Source: Authors' work

As we can see in the previous table, the Games-Howell test confirmed that there was a significant difference between specific groups of tourists in terms of satisfaction with the tourist offer, and depending on the number of visits to Canton Sarajevo. Statistically, a significant difference has been confirmed between tourists that visited Canton Sarajevo one time and tourists that visited Canton Sarajevo more than 10 times ( $p=0.028$ ). Also, there is a significant difference between tourists that visited Canton Sarajevo 2-5 times and these that with more than 10 times ( $p=0.013$ ).

Canton Sarajevo has a good chance to develop tourism based on existing resources and hospitality of people, level of satisfaction of tourists, their interest to spread the word about Sarajevo and willingness to come to Sarajevo again. Therefore, there is an imperative for policy-makers in Canton Sarajevo to initiate the processes needed for the strategic transformation of destination and establishment of effective destination management.

## 5. Conclusions

The survey leads to the conclusion that there are huge challenges in managing tourist destination of Canton Sarajevo. It is necessary to make a significant effort to turn the tourism potentials of the Canton Sarajevo into an economic resource that is inevitably necessary to our country as a form of development opportunity. Unfortunately, the results are not the results of strategic, systematic planning and action in tourism, but the result of the work of individuals and entrepreneurs. In order to be more competitive and successfully, a strategic turn in the tourism field is necessary. In this sense, it is first and foremost necessary to invest in improving the knowledge (on marketing, quality management, sales, *etc.*) of tourism professionals. Then, raising the awareness of the citizens of Canton Sarajevo about the importance of tourism for them as well as for the entire Canton and the state, and turning Tourism Association into an efficient DMO as a crucial step in tourism development. In other words, we need to follow the example of the world's top developed destinations, where there is a behind-the-scenes branding system in place, thus avoiding the mistake of following the way tourism is managed by countries in the region (such as Croatia).

Canton Sarajevo has resources and potential for development of different types of tourism. It is necessary to modernize the approach to the promotion of Canton Sarajevo as a tourist destination. The whole tourism paradigm has changed, brochures and printed material have no effect, and digital tourism is now in effect. This study has several limitations. The sample may be one of the first, since with the use of convenience sampling and uncontrolled online sharing of the survey the sample may not have been the most representative one. For further research on this topic, we propose it to be done in more detail, with employing other methods, both quantitative and qualitative, and expanding the domain of this research with respect to the geographical coverage, in order to get better quality results.

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## THE ROLE OF GUT FEELINGS IN FINANCIAL DECISION-MAKING PROCESS IN SMALL AND MEDIUM-SIZED COMPANIES

### ULOGA INSTINKTA U DONOŠENJU FINACIJSKIH ODLUKA U MALIM I SREDNJIM PODUZEĆIMA

#### Abstract

*Choosing between alternatives is commonly used as the definition for the decision-making process that every owner/manager in small and medium-sized companies experiences in everyday business operations. The decision-making process in small and medium companies depends upon many variables and is closely linked to the type of decision being made. Financial decision-making that presupposes financial literacy and financial planning is extremely hard for every owner/manager. In times of financial crisis, when access to financing is even more difficult, owners/managers of SMEs tend to rely more on networking, experience and gut feelings in their decision-making processes. The main goal of this paper is to check whether owners/managers of SMEs in Croatia use a strategic approach in financial decision-making processes, or rely more on past experience and information from other entrepreneurs, which can be defined as gut feelings. The research has been conducted on 108 small and medium-sized companies in Croatia that operate for more than 1 year and have more than 1 employee. Research results show that successful owners/managers of SMEs cannot exclude gut feelings from their decision-making process, but that they also use other tools in order to choose the best possible alternative. The results of this research can assist financial institutions in creating better financial products for SMEs, as well as help create better policies and regulations at local, regional and national government levels.*

**Keywords:** decision-making process, financial decisions, small and medium-sized companies, financial crisis, gut feelings

**JEL:** G41, M21

#### Sažetak

*Najčešće korištena definicija za procese donošenja odluka u malim i srednjim poduzećima je odabir među postojećim alternativama. Proces donošenja odluka u malim i srednjim poduzećima ovisi o više varijabli i usko je vezan uz vrstu odluke koja se donosi. Za vlasnike malih i srednjih poduzeća posebno je teško donijeti financijske odluke, jer pretpostavljaju financijsko planiranje i financijsku pismenost. U vrijeme financijske krize, kada je pristup izvorima financiranja dodatno otežan, vlasnici/menadžeri malih i srednjih poduzeća se više oslanjaju na kontakte (networking), iskustva i instinkte prilikom donošenja odluka. Osnovni cilj ovog rada je provjeriti koriste li se u procesima donošenja odluka vlasnici/menadžeri malih i srednjih poduzeća u Republici Hrvatskoj strateškim pristupom, ili se više oslanjaju na prikupljena iskustva i informacije drugih poduzetnika, koje nazivaju instinktima u poslovanju. Istraživanje je provedeno na 108 malih i srednjih poduzeća u Republici Hrvatskoj koja su starija od godinu dana i imaju više od jednog zaposlenika. Rezultati istraživanja pokazuju kako uspješni poduzetnici ne mogu isključiti utjecaj instinkta u donošenju odluka, ali se koriste i drugim alatima prilikom odabira alternativa. Rezultati ovog istraživanja mogu pomoći*

*financijskim institucijama prilikom kreiranja financijskih proizvoda za vlasnike malih i srednjih poduzeća, ali i za kreiranje boljih politika i regulativa na lokalnoj, regionalnoj i nacionalnoj razini.*

**Ključne riječi:** proces donošenja odluka, financijske odluke, mala i srednja poduzeća, financijska kriza, instinkt

**JEL:** G41, M21

## 1. Introduction

One of the most important managerial tasks, what constitutes the “core of organisational management” (Stewart, 2006, p.12), is decision-making. Decision-making is most often defined as choosing between different alternatives (Robbins *et al.*, 2008, p. 218), but it is much more than that. According to results of the survey by the American Management Association (AMA) conducted in 2012, the most important functions of management are the use of information for the purpose of solving business problems, identifying problems and implementing solutions, and selecting the necessary information from the plethora of information available. All of these functions are part of the decision-making process.

Cyert, Simon and Trow (1956, p. 237) defined decision-making as “choosing one course of action, finding an appropriate solution to a new problem posed by the changing world”. Mullins (2005, p. 85) defines the decision-making process as “explanation of goals, specification of problems and search for a solution, as well as the implementation of the solution”, while Vermuelen and Cursen (2008, p. 1) see the decision-making process as a “cognitive process of choosing a specific direction or action that should lead us to a certain result”.

The decision-making process consists of manager’s careful deliberation about the encountered problem, collection and selection of information, selection of one of the possible solutions and its implementation, with the goal of achieving a specific business objective. The decision-making process is driven by the existence of a specific problem, that is, the difference between the existing and the desired situation, or disconnect between the existing and the desired state of affairs (Robbins *et al.*, 2008, p. 218). In order to reach the desired state, managers must recognise the problem for which an appropriate solution has to be found. In the problem identification phase, Volkema (1987, p. 115) emphasizes that it is extremely important to distinguish the problem from the symptom. McCall and Kaplan (1985, p. 25) state that managers need to recognise three dimensions of the problem: awareness of the problem, awareness of the necessity to solve it, and possession of the resources needed to solve the problem. Managers must define also the criteria for decision-making, that is, “specific measures that are used when deciding which alternative is the best choice” (Robbins *et al.* 2008, p. 219) and best alternative. Criteria for decision-making are well set, that is, decisions are valid when “the level of conflict between criteria or of conflict between different stakeholders, regardless of the validity of the factors, is such that it is no longer sufficient to use intuition or gut feelings” (Belton & Stewart, 2002, p. 2). By carefully defining the criteria, it is more likely that better decisions will be made and that the influence of intuitive decision-making will be lessened. Although setting criteria serves as an attempt to reduce the influence of intuition in decision-making processes, researchers agree that, regardless of the difficulty of the task, a certain level of subjectivity cannot be avoided. Defining decision-making criteria, according to Robbins *et al.* (2008, p. 219), reveals the personal values of managers, while in large companies definition of criteria will be influenced also by organisational culture.

Decision-making in business entities is incorporated in every task, that is, every managerial function. Everyday decision-making can be divided into complex and frequent, which are repeated in certain time intervals, the so-called routines. Complex decisions require time and information for

finding solutions, while managers often do not classify routines as decisions. The first theories on processes of managerial decision-making (Simon, 1955, p. 100), the so-called traditional theories, started from the assumption that managers strive to make decisions through rational decision-making (that are in the best economic interest of their organisations). However, most decisions that managers make today, in a complex and changing environment, cannot be made in the best economic interest, that is, through rational decision-making. The process of rational decision-making presupposes clear and unambiguous problems, known alternatives and their consequences, and no time or financial constraints. Managers, as Selten (1999, p. 252) argues, are simply not “mythical heroes who know the solutions to all mathematical problems and do not have the ability to solve every problem, regardless of how complex it is”. Selten (1999, p. 253) also emphasises that human cognitive abilities are limited, and therefore managers are not capable of making fully rational decisions. When making decisions, Selten (1999, p. 252) argues that managers make decisions under the influence of strong emotional impulses, which further distances them from the process of rational decision-making.

Managerial decision-making processes are also affected by some other factors, both within and outside of the organisation, such as organisational culture, internal policies, the positional and real power of decision-makers, *etc.* (Arkes & Blumer, 1985, p. 124). According to Arkes and Blumer (1985) and McNamara, Moon and Bromiley (2002), at times when one should admit that the decision made was wrong, managers often opt to continue acting in line with the original decisions, ignoring other possible alternatives (*sunk cost*). Choosing an alternative, a possible solution will be influenced by several factors: safety, risk, uncertainty and ambiguity. Most management decisions are made without knowing all the relevant information. The ability to predict probability, according to Robbins *et al.* (2008, p. 220), may be based on managers’ personal experience, secondary information or historical data. The greater the uncertainty in decision-making, the more managers will rely on the experiences of other managers (exchange perspectives) or on other decision-makers who have the ability to reduce uncertainty when choosing solutions (informational social influence). Daft and Marcic (2009, p. 200) state that managers will rely on their intuition when conditions in which decisions are made often change, the goals are unclear, information about the consequences of selection is vague and inaccessible, and alternatives are difficult to define. The greater the uncertainty, the more managers will rely on feelings, intuition, creativity and their network of contacts.

Factors that shape decision-making processes are still not fully elucidated, but researchers increasingly focus attention on the influence of instinct or gut feelings, especially when it comes to processes of making financial decisions.

This paper deals with the complex processes of financial decision-making in small and medium-sized companies u time of the financial crisis and the influence of the gut feelings (instincts) in that process.

## 2. Previous research

The influence of instinct on decision-making is mainly viewed from the perspective of psychologists (Kahneman, 1991, p. 143.). There is no doubt that every managerial decision is under subjective influence of the manager, as well as his or her previous experiences. Kahneman and Klein (McKinsey Quarterly, 2010, p. 10) agree on the fact that managers cannot turn off their instincts when making decisions, but disagree on the conclusion to what degree one should and can rely on selected alternatives. Gut feelings are in direct contact with our accumulated experiences, so managers can form judgements and take actions without any logical, conscious consideration (McKinsey Quarterly, 2010).

Physiologists use the term gut feelings for any introspective sensation that guides human behaviour (Kandasamy *et al.*, 2016, p. 1). According to Kandasamy *et al.* (2016, p. 1), interoceptive information, even if unconscious, provides valuable inputs in risky decision-making. Bechara and Damasio (2005, p. 370) found that people can make optimal decisions on gambling tasks before they are able to articulate the reason of their decisions. The influence of somatic markers (autonomic responses feedback on the brain to bias our decision) is crucial for our survival – without them, people can become lost among possible choices and be unable to choose in an optimal manner (Bechara & Damasio, 2005, 371). Gut feelings are, according to Kandasamy *et al.* (2016, p. 2), valuable guides when taking risks. Traders and investors in the financial markets also stressed the importance of gut feelings for selecting profitable trades.

Kandasamy *et al.* (2016, p. 3) observed male traders in high-frequency trading. Each of the traders had equal access to information and capital so that their success was determined purely by skill. The traders were monitored during the financial crisis, which was a very volatile period for all working in the financial institutions. Their findings suggested that the gut feelings are more than “mythical entities of financial lore” (Kandasamy *et al.*, 2016, p. 5). Those traders who have reported the importance of gut feelings in making decision have performed better.

While traders on stock markets report usage of gut feelings in decision-making processes, Nobel laureate Daniel Kahneman and psychologist Gary Klein do not neglect the importance of gut feelings but define conditions under which the intuitions of professionals are worthy of trust (2009). Kahneman and Klein (2009, p. 517) claim that intuitive judgements can arise from genuine skill, but also from inappropriate application of heuristic process, and therefore individuals who are not skilled do not know where their judgements come from. Gut feelings depend on the environment and on an opportunity that the judge has had to learn the regularities of that environment (Kahneman & Klein, 2009, p. 5). In conclusion, those two leading researchers in the field of decision-making will find that one should never trust its guts, unless there is strategy that help rule things on. Those who find themselves lucky (having good hunches, or gut feelings) will be susceptible to an illusion of skills and to overconfidence (Arkes, 2001, p. 139). But also, “psychology of judgement and decision making that ignores intuitive skill is seriously blinded” (Kahneman & Klein, 2009, p. 525).

Decision-making processes in small and medium-sized companies are still an insufficiently researched area. All research is conducted on large companies, with managers who have knowledge and experience in managing organisations. Owners of small and medium-sized companies usually do not have either of these two characteristics. Previous research in this area aims to prove or disprove conclusions drawn from research in large companies.

Papadakis, Lioukas and Cham (1998, p. 117), Mador (2000, p. 217) and Liberman-Yaconi *et al.* (2010, p. 72) advocate the hypothesis that decision-making processes in small businesses will be influenced by the environment, the characteristics of entrepreneurs and the specificity of the decision or problem itself. Small and medium-sized companies have fewer resources available for decision-making, and therefore the decision-making process itself is different.

Owners of small and medium-sized companies will compensate for this disadvantage with routines, intuition and prejudices, which will shape the decision-making process.

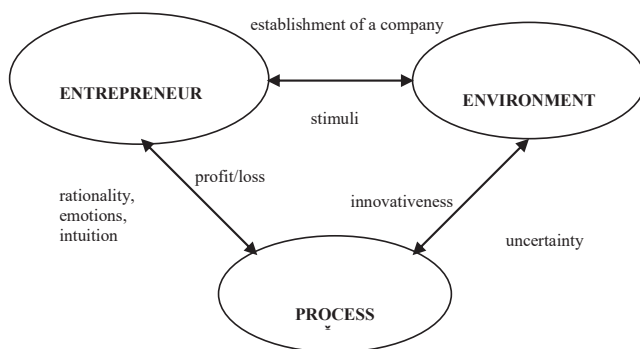


Figure 1. *Decision-making model in small and medium-sized companies*

Source: Vermuelen & Cursen, 2008, p. 16

In decision-making processes, depending on the chosen alternative, owners of small and medium-sized companies may be at a profit or loss, but each decision and chosen solution will shape existing knowledge and experience of entrepreneurs (Vermuelen & Cursen, 2008, p. 15). The environment itself, the business ecosystem, is a constant stimulator for new decisions and solutions. Information and data gathering processes in small companies, especially in complex and dynamic environments, are often chaotic and opportunistic (Mador, 2000). Owners of small and medium-sized companies most often rely on emotions and intuition, and their cognitive abilities are of the utmost importance. The more dynamic the environment, the more owners of small and medium-sized companies will rely on their network of contacts. However, as they make the final decision themselves (and take responsibility for it), owners of small and medium-sized companies rarely use consulting services.

When the environment is extremely dynamic, owners of small and medium-sized will rely more on previous experiences and intuition. The most dynamic changes in the environment take place during times of financial crisis. In multinational corporations, top executives will respond to crisis with a relatively universal order of behaviour (Lukaszewski, 1987, p. 517). Owners of small and medium-sized companies have no defined rules in the event of a crisis or steps and processes prepared in advance; therefore, it is our assumption that emotions, gut feelings and networking will have a greater impact in their decision-making processes.

### 3. Research methodology

Research on the impact of gut feelings on decision-making in small and medium-sized companies was conducted through a questionnaire on a sample of 108 small and medium-sized companies, older than a year, with at least one employee. The research was conducted on the entire territory of the Republic of Croatia, and the sample included various economic activities in order to avoid industry influence on decision-making processes. The goal of the research was to check whether more experienced owners of small and medium-sized companies (with more years of experience) rely more on gut feelings.

According to registration type, companies that participated in the survey are registered as limited liability companies, institutions, cooperatives and the so-called profit trades (trades that opted to pay corporate income tax and use double-entry bookkeeping). The purpose of this selection was to have companies that are required to submit final financial statements – balance sheet and profit and loss statement in the database, which provide sufficient information for analysis of financial indicators, which were the basis for comparison of the surveyed companies.

The largest number of companies in the sample (58.3%) is made up of companies with up to 10 employees, while those with more than 50 and less than 250 employees account for only 10.2%. The owners of the surveyed companies were between 40 and 50 years of age (37.5%), most often with secondary education (only 9.6% of respondents had a master's or doctoral degree), and they regularly attend additional training (76% of respondents regularly attended professional seminars and trainings, but only 29.8% attended seminars related to business management). Most respondents had more than 10 years of experience (56.2%), while only 9.5% of respondents had less than 5 years of experience.

The survey was conducted during a period of the financial crisis, when the environment is more dynamic, decisions that are more complex need to be made, and owners of small and medium-sized companies found themselves for the first time in such a situation. According to previous research results, owners of small and medium-sized companies then had to rely solely on their cognitive skills, networking and gut feelings. In the observed period, 51.4% of owners of small and medium-sized companies reported a significant drop in sales, which led to a decrease in profits. In the same period, 37.1% of owners also experienced problems with increased costs due to the financial crisis, while 43.8% of them also had increased trade receivables (outstanding receivables).

To test the hypothesis that more experienced owners of small and medium-sized companies use gut feelings more in decision-making processes, the years of experience variable and selected responses to the question about the use of gut feelings were used. By comparing the arithmetic means of the above two groups of data, and using Levene's test, we tried to prove the validity of the hypothesis. However, before comparing arithmetic means, a correlation test for the experience variable was done, in order to test its importance for making financial decisions in small and medium-sized companies.

#### 4. Results

For making valid decisions, or choosing alternatives that will maximise company profitability, owner's prior experience, acquired primarily in the company's line of business, is extremely important. According to previous research, owners of small and medium-sized companies who have more years of experience should rely more on them. Experience (which is closely related to gut feelings), is considered crucial for making financial decisions by 58.7% of respondents. However, what is not in line with previous research results is the fact that only 31.7% of owners of small and medium-sized companies consider gut feelings crucial for making financial decisions. On the other hand, 95.4% pointed out that financial literacy is crucial in situations of the financial crisis. Owners of small and medium-sized companies included in the sample stated that they most commonly used profit and loss statement data to make financial decisions. That report is the major source of information for banks, which represent the most important external source of finance. Although, the question about the quality, but also about the benefits of information can be raised, which can be connected with the quality of the financial decision that was made.

Another goal of the survey was to find out how much owners of small and medium-sized companies rely on their own data (only 39.4% of them), and how much they use the advice of others (outside the company) to make financial decisions (23.9 %). Due to the financial crisis, owners of small and medium-sized companies in the Republic of Croatia lost some of their buyers, their profits decreased, their outstanding receivables increased, and access to sources of financing became more difficult. In their efforts to reduce the impact of the financial crisis, different business strategies were used by owners of small and medium-sized companies: focusing on foreign markets (especially those that have already gone through the process of financial crisis), reducing costs, intensifying marketing activities, intensive search for new jobs and markets, stopping all investment activities, detailed financial check of each buyer, business reorganisation, reduction of wages and

termination of employees, frugality, and advance payments for goods sold. According to the results of the research, the conclusion about the importance of the experience in financial decision-making was made.

Table 1. *Testing the hypothesis on the importance of experience in decision-making*

	Crucial for making financial decisions
Experience in economic activity	$r = 0.010$ $p = 0.917$

Source: Analysis of data from the conducted survey

As we have not shown the crucial importance of experience in making financial decisions during a financial crisis, it was necessary to check how important gut feelings were in making financial decisions.

Table 2. *Group statistics for factors that are crucial for making decisions on capital structure in small and medium-sized companies*

<i>Factors crucial for making decisions on capital structure</i>	<i>N</i>	<i>Arithmetic mean</i>	<i>Standard deviation</i>	<i>Standard error</i>
<i>Experience in managing a company</i>				
no	43	3.09	1.042	0.159
yes	58	3.31	1.030	0.135
<i>Gut feelings for the decision made</i>				
no	69	3.25	1.035	0.125
yes	32	3.16	1.051	0.186

Source: Analysis of data from the conducted survey

The independent test of samples of those factors that have been identified through previous research as crucial for making financial decisions also failed to demonstrate differences in the distribution of the observed groups. The above result shows that the decision-making process is extremely complex and that there is no single factor that shapes the process and has decisive importance for making financial decisions.

## 5. Discussion and conclusion

Decision-making processes are among the most important managerial tasks. Decision-making processes are influenced by cognitive abilities of managers, their experience, environment, but also the type of problem or solution that needs to be found. Most of the research on decision-making processes is the result of research conducted in large companies, on managers with extensive formal training and experience in various situations. But when it comes to decision-making processes in small and medium-sized companies, there are fewer studies and results. Most research on this topic is the result of research by psychologists who do not take into account that owners of small and medium-sized companies differ greatly from managers in large companies.

In decision-making processes, especially when it comes to managers who have experience in business management, intuition, that is, gut feelings play an important role. According to previous research results, gut feelings are valuable when taking risks. Gut feelings are more used in dynamic and complex business environments.

During the financial crisis, business environments, as well as the entire global market, became extremely uncertain, and managers found themselves in situations for which there were no known alternatives, that is, solutions. The hypothesis that owners of small and medium-sized companies will rely more on experience and gut feelings in such situations has not been proven. Namely, during the financial crisis, owners of small and medium-sized companies in the Republic of Croatia

encountered problems of this kind for the first time. Lack of experience in dealing with these problems has driven owners of small and medium-sized companies to other factors in the decision-making process – networking. Since they had no experience in solving such problems, owners of small and medium-sized companies did not rely on gut feelings. Furthermore, we focused our research on financial decision-making. This type of decisions has its characteristics – owners will only share data and information with a narrow circle of people they trust (*arm's length relationships*), and the influence of asymmetric information makes choosing alternatives more difficult. The business environment is one of the important factors in the decision-making process. It changes in times of financial crisis, and sources of financing are becoming more difficult to access, even inaccessible in certain situations. Croatia has a rather shallow financial market dominated by bank loans and government incentives. Other factors, such as networking, will be more important on that type of financial markets. Future studies in this area should start with in-depth, qualitative research on the factors in the decision-making process, taking into account the characteristics of the business environment, as well as the rules of doing business in an underdeveloped financial market.

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## **JOB SATISFACTION OF EMPLOYEES IN ORGANIZATIONS IN RELATION TO THEIR DEMOGRAPHIC CHARACTERISTICS**

### **ZADOVOLJSTVO ZAPOSLENIKA POSLOM U ORGANIZACIJAMA PREMA DEMOGRAFSKIM KARAKTERISTIKAMA**

#### **Abstract**

*The purpose of the research is to examine whether there is a difference in job satisfaction level between man and women and how much are interrelated job satisfaction dimensions to one another, as well as to total job satisfaction. The research includes public, private and non-governmental organizations. Data collection was conducted by polling. Data processing, first indicates relations of job satisfaction level for women and men. In the second step, the data base was divided into female and male populations, measuring the interrelationship of job satisfaction dimensions to one another and with total job satisfaction, separately for women and men. The results of the research have shown that there is a difference in the level of job satisfaction between women and men and that women have more job satisfaction. Also, the results of research have shown that man population have positive correlation between medium and strong intensity of all job satisfaction dimensions, and that the working atmosphere and the work environment as well as the relationship with the management contribute most to the total job satisfaction. For women, all job satisfaction dimensions contribute to the total job satisfaction, with the exception of material compensations that do not contribute to total job satisfaction at all. Non-material compensation mostly contributes to women total job satisfaction while overall life satisfaction for women least contributes to the total job satisfaction.*

**Keywords:** job satisfaction, job satisfaction dimensions, demographic characteristics, job satisfaction among the sexes

**JEL:** J28, M52

#### **Sažetak**

*Svrha istraživanja je ispitati da li postoji razlika u nivou zadovoljstva poslom između žena i muškaraca, te koliko su međusobno povezane dimenzije zadovoljstva poslom kod žena i muškaraca, kao i koliko su povezane dimenzije zadovoljstva žena i muškaraca poslom sa njihovim ukupnim zadovoljstvom poslom. Istraživanjem su obuhvaćene javne, privatne i nevladine organizacije. Prikupljanje podataka vršeno je anketiranjem. Obrada podataka u prvom koraku stavila je u odnos nivoe zadovoljstva poslom kod žena i muškaraca. U drugom koraku uzorak je podijeljen na žensku i mušku populaciju, te su se mjerile međusobne povezanosti dimenzija zadovoljstva poslom, te povezanosti dimenzija zadovoljstva poslom sa ukupnim zadovoljstvom poslom, posebno za žene, a posebno za muškarce. Rezultati istraživanja su pokazali da postoji razlika u nivou zadovoljstva poslom između žena i muškaraca i da su žene zadovoljnije poslom nego muškarci. Također, rezultati istraživanja su pokazali da kod muškaraca postoji pozitivna međusobna povezanost srednjeg i jakog intenziteta svih dimenzija zadovoljstva poslom, a da radna atmosfera i poslovno okruženje, te odnos sa menadžmentom najviše doprinose ukupnom zadovoljstvu poslom. Kod žena sve dimenzije zadovoljstva poslom jakim intenzitetom doprinose ukupnom zadovoljstvu poslom, izuzev materijalnih kompenzacija koje ne doprinose ukupnom zadovoljstvu poslom. Od svih dimenzija, nematerijalne kompenzacije kod žena najviše doprinose ukupnom*

*zadovoljstvu poslom, dok opšte zadovoljstvo životom kod žena najmanje doprinosi ukupnom zadovoljstvu poslom.*

**Ključne riječi:** zadovoljstvo poslom, dimenzije zadovoljstva poslom, demografske karakteristike, zadovoljstvo poslom među spolovima

**JEL:** J28, M52

## 1. Introduction

Organizations achieve their goals with their people, employees. Many factors effect on organization success, but employees are a core resource of each organization. Employee satisfaction can be a crucial factor for organization success. Each employee is unique in their own characteristics, age, work experience, qualifications, but one of their main characteristics is gender. With this research, intention is to survey whether there are significant differences in job satisfaction between the sexes, as well as for correlation between individual job satisfaction dimensions and also with total job satisfaction, separately for men and women.

Ignoring employee job satisfaction and dealing with it as unimportant, executives can make more challenges for organizations. Experienced managers know that people are doing the work and that job satisfaction is main sources of energy for them. A wise manager will pay special attention to employee job satisfaction testing and improving that level.

Job satisfaction have several dimensions: management/supervision, material compensation, non-material compensation, work atmosphere and work environment, social atmosphere at work and general life satisfaction. Men and women are different by laws of nature, and it can be more increased through life. Knowing their differences can be crucial for their job satisfaction. Comprehensive gender job satisfaction analyses, regarding levels and causes, can be a key factor in an organization's progress.

The overall objective of the research is to analyze whether there are statistically significant differences between men and women based on job satisfaction level analysis. Regarding overall objective of the research, research hypotheses were defined:

- $H_1$ : There are statistically significant differences in job satisfaction level between men and women.
- $H_2$ : There is a statistically significant positive correlation between job satisfaction dimensions and total job satisfaction for men and women.
- $H_3$ : There is a statistically significant positive correlation between the job satisfaction dimensions for men and women.

The paper is structured into 5 chapters. The introductory part of the paper describes the research problem specificity, defines subject, objectives and hypotheses of the research. The second part of the paper provides an theoretical framework of research overview with data from previous research. The third part presents empirical research methodology, which defines independent and dependent research variable, research indicators, data and data collection instruments, determined characteristics of the research sample, and tests measurement scales internal consistency. The fourth chapter presents the results of the research, while the fifth chapter deals with the research results discussion and concluding considerations, which also provide recommendations for further research work.

## 2. Theoretical framework of research

### 2.1. Job satisfaction

Job satisfaction is a pleasant feeling which comes from the perception that job fulfils or enables the important business values of the person. Job satisfaction can also be defined as a person's positive attitude about their job, which results from characteristics assessment of that job. A person with a high level of job satisfaction has positive feelings about job, while a person dissatisfied with job has a negative feeling about that job. People are satisfied if they consider that their job is in line with their values. Of all aspects of job (work, salary, opportunities for promotion, supervision, colleagues), enjoyment in work is the aspect that has the highest correlation with high levels of total job satisfaction (Dilber, 2018, p. 58).

Job satisfaction is closely connected with ability to satisfy employee's needs. It is related to factors such as associates, job content, superiors, salary, working conditions, working hours, promotion, education, recognition, status, success, responsibility, security, development opportunity, *etc.* Employees satisfaction is the terminology that describes whether employees are happy, satisfied and whether their needs and desires are fulfilled at work. Many measures indicate that employee satisfaction is a factor of motivation and employees' achievement and also positive attitude of workplace. Job satisfaction is also defined as the mental attitude of an individual in relation to the work environment, *i.e.* company, executives, associates, work organization (Uljanić, 2015, p.7-8).

Job satisfaction is a complex variable and its structure contains a number of variables that can probably be ranked, from so-called. "pure" to those that are quite complex, so it is impossible to define them easily. Job satisfaction is the general affective attitude of an individual towards the job they perform and the overall work situation. In theory, it is the result of the employee's opinion on all relevant aspects of the job. It is a hypothetical construct that cannot be seen but can be manifested in behavior (Proroković, Miliša & Knez, 2009, p. 7).

Job satisfaction is an attitude. Attitude is a behavioral stimulus or knowledge that prepares an individual for behavior. Attitude is important because continuity on individual personality and also as a sense for daily activities and it facilitates attempts for achieving different goals. Attitudes consist of three main elements. These are emotions, thoughts and behavior. Emotion element is related to individual's condition which can be positive, negative or neutral towards things. Thoughts element consists individual knowledge towards things. Behavior element is related to the field of impact, which is the external appearance of knowledge and emotions. Thus, job satisfaction as an individual's attitude to his or her own job consists of components of emotion, thought, and behavior, and is shaped by environmental factors (Uljanić, 2015, p. 8).

### 2.2. Previous research on the topic

As authors Mirković and Čekrlija (2015) point out in their paper *Personality traits of employees and job satisfaction*, "gender makes a significant difference in total job satisfaction, salary satisfaction, promotion, benefits, rewards and communication". The authors further state that "men show greater total job satisfaction as well as greater satisfaction with salary, promotion, benefits, rewards, communication and associates. This is not surprising since men very often have higher salary than women at same workplace, receive higher benefits and rewards, and are more respected by associates in job-related communication" (Mirković & Čekrlija, 2015, p. 9).

The paper entitled *Job Satisfaction in the EU, Russia and Serbia - Comparative Analysis*, by Bojičić, Pavlović and Stojanović-Višić (2018), states that “regarding gender, more total job satisfaction and satisfaction with organization are higher for female, and satisfaction with current job is higher for male gender” (Bojičić, Pavlović & Stojanović-Višić, 2018, p. 362).

Korkmaz (2016), in her paper *Job satisfaction: an application on Alanya tourism sector*, compared, among other things, the levels of job satisfaction between men and women, and stated that there is a statistically significant difference in job satisfaction between men and women, and that women are more satisfied with the job (Korkmaz, 2016, p. 2718).

Another research shows that job satisfaction by men is higher than by women. Perhaps, the main reason for lower degree of satisfaction among women might be the lack of flexibility and long hours of audit working. That will lead to social pressure because of the responsibilities women have for their own families. In addition, satisfaction rate according to gender showed a significant difference, comparing with similar studies (Salehi, Moradi & Dehghan, 2013, p. 17).

The asymptotic significance calculated by Mann-Whitney's test shows that gender, however, has a significant effect on employee satisfaction, considering satisfaction with work, promotion, superior and colleagues. Men are more satisfied with all the variables considered except the superiors, where the women are more satisfied. Variance analysis gave the same results as Mann-Whitney's test, and it can be concluded that the level of job satisfaction depends on the employee gender (Maškarin, 2005, p. 201).

While many empirical studies have found that women tend to enjoy significantly higher levels of job satisfaction than men not all findings have been completely conclusive, and many studies have either found inconsistent or no significant gender gap in job satisfaction and its determinants, particularly when controlling for other workplace and personal characteristics (Westover, 2012, p. 269).

### 3. Research methodology

Considering research framework, secondary and primary research scientific methods were applied. The secondary research sought to address the available data on previous research on this topic. The primary research, using the survey method as a research instrument, collected data from 13 organizations in the Federation of Bosnia and Herzegovina. Organizations in this sense refer to public and private companies and civil society organizations.

The questionnaire was intended to calculate the level of job satisfaction of employees according to 6 dimensions of job satisfaction and the seventh dimension called total job satisfaction. From each organization, 1-5 employees were interviewed. Questionnaires were submitted and downloaded via e-mail or in person where possible. The survey was conducted over a period of 30 days, between 15.11.2018 and 15.12.2018.

#### 3.1. Research variables

Based on the research hypotheses, gender was defined as independent and employee job satisfaction as dependent variable.

### *3.2. Research indicators*

Employee satisfaction in this paper represents the average value of respondents' views expressed through 74 questions divided into 6 groups. These questions groups are research indicators that relate to management/supervision, material compensation, non-material compensation, working atmosphere and work environment, social atmosphere at work and overall life satisfaction.

### *3.3. Data and data collection instruments*

Data in this paper were collected through a questionnaire. Questionnaires were sent and received in person or by e-mail. The survey questionnaire had two questions groups. The first questions group consisted of demographic characteristics of employees, obtained through 9 questions for gender, marital status, qualifications, age, years of job experience, job characteristics, average monthly salary and position.

The second questions group consisted of 74 questions divided into six categories (management/supervision, material compensation, non-material compensation, work atmosphere and work environment, social atmosphere at work, and overall life satisfaction). Every scale used in the questionnaire was created using five-degree Likert scale measurement (1-strongly agree, 2-agree, 3-somewhat agree, 4-disagree, 5- strongly disagree). The questionnaire was adapted by Kozarević, Perić and DeliĆ (2014, pp. 30-49).

### *3.4. Research sample characteristics*

In this research, a suitable sample method was used for 44 persons employed in the public, private and civil society organizations. Descriptive statistical analysis of the respondents was done using the SPSS statistical data processing software, version 21.0, to convert the data into a form that will facilitate the understanding and interpretation of the data.

### *3.5. Testing the internal consistency of measurement scales*

Cronbach's alpha was used to measure the internal consistency of the measurement scales. For the Employee Satisfaction Scale as a whole, the Cronbach's alpha value is 0.942. Cronbach's alpha values for subscales are good for management/supervision (0.887), material compensation (0.878), non-material compensation (0.836) and social atmosphere at work (0.897), while this value for the work atmosphere and work environment is acceptable (0.788). The only value below 0.7 (0.641) is for overall life satisfaction.

## **4. Results**

### *4.1. Employee satisfaction levels comparison between men and women*

Out of total number of respondents, 23 or 52% were male, while 21 or 48% were female. The following chart shows the mean of all dimensions employee job satisfaction and total job satisfaction for both male and female. As can be seen from the graph, women are more satisfied with the job than men in all dimensions of job satisfaction and total job satisfaction, except where both genders have the same mean value, management/supervision dimension.

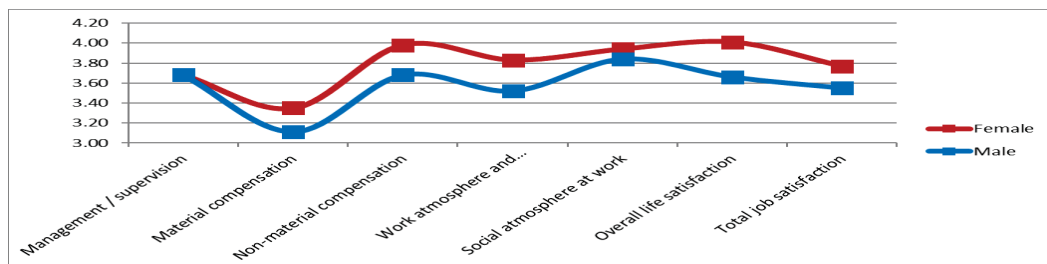


Figure 1. Mean job satisfaction for men and women

Source: Author's own work

As for job satisfaction statistically significant gender difference, results shows there is a statistically significant difference in job satisfaction between women and men, both in terms of work atmosphere and work environment and overall life satisfaction, as well as total job satisfaction. Significance level for these three dimensions is less than 5%, while for all other categories is more than 5%.

Table 1. Job satisfaction mean for men and women

Job satisfaction dimension	Sex	N	Mean	T	Significance
Management / supervision	Male	23	3.68	-.04445	.965
	Female	21	3.68		
Material compensation	Male	23	3.11	-1.10250	.277
	Female	21	3.35		
Non-material compensation	Male	23	3.68	-1.847	.072
	Female	21	3.98		
Work atmosphere and work environment	Male	23	3.52	-2.9553	.005
	Female	21	3.83		
Social atmosphere at work	Male	23	3.84	-.50397	.617
	Female	21	3.94		
Overall life satisfaction	Male	23	3.66	-2.44554	.019
	Female	21	4.01		
Total job satisfaction	Male	23	3.55	-2.07749	.044
	Female	21	3.77		

Source: Author's own work

Regarding results that two of the five dimensions of employees job satisfaction and total job satisfaction, resulted a statistically significant difference between the sexes, and also considering other three dimensions analysis that did not show a statistically significant difference but showed higher job satisfaction for women, I can confirm  $H_1$  hypothesis: There are statistically significant differences in job satisfaction level between men and women.

#### 4.2. Job satisfaction dimensions correlation for men

The following table gives an overview of the linear correlation between male job satisfaction dimensions for the significance level up to 5%. As can be seen from the table, a strong positive correlation of total job satisfaction with all dimensions of employee satisfaction was shown. The

highest positive correlation is with work atmosphere and work environment, at .772 with a significance level of .000, while the lowest was shown for the social atmosphere at work.

Regarding individual dimensions of job satisfaction, the highest positive correlation is shown between the work atmosphere and the work environment on the one hand and overall life satisfaction on the other, where the Pearson coefficient of linear correlation is .710 with a .000 level of significance. Non-material compensations and overall life satisfaction are the least positive correlations where the Pearson coefficient is .426 and the .043 level of significance.

Table 2. *Job satisfaction dimensions correlation for men*

<i>Job satisfaction dimension</i>		<i>N</i>	<i>Pearson coefficient</i>	<i>Significance</i>
Management / supervision	Total job satisfaction	23	.770	.000
	Work atmosphere and work environment	23	.512	.013
	Non-material compensation	23	.487	.019
Material compensation	Total job satisfaction	23	.622	.002
Non-material compensation	Total job satisfaction	23	.733	.000
	Work atmosphere and work environment	23	.606	.002
	Management / supervision	23	.487	.019
	Overall life satisfaction	23	.426	.043
Work atmosphere and work environment	Total job satisfaction	23	.772	.000
	Overall life satisfaction	23	.710	.000
	Non-material compensation	23	.606	.002
	Management / supervision	23	.512	.013
Social atmosphere at work	Total job satisfaction	23	.462	.027
Overall life satisfaction	Work atmosphere and work environment	23	.710	.000
	Total job satisfaction	23	.706	.000
	Non-material compensation	23	.426	.043
Total job satisfaction	Work atmosphere and work environment	23	.772	.000
	Management / supervision	23	.770	.000
	Non-material compensation	23	.733	.000
	Overall life satisfaction	23	.706	.000
	Material compensation	23	.622	.002
	Social atmosphere at work	23	.462	.027

Source: Author's own work

It is important to note that all calculated correlations are positive, and it means that increasing level of one dimension of job satisfaction affect increasing level of another dimension of job satisfaction.

#### 4.3. Job satisfaction dimensions correlation for women

The linear relation between job satisfaction dimensions for women, shown in the following table, indicates differences between women and men. Total job satisfaction and non-material compensation have highest strong positive correlation with Pearson coefficient value .908 and significance level .000, while the lowest positive correlation with total job satisfaction have overall life satisfaction with Pearson coefficient value .560 and a significance level of .008.

It is important to point out that there is no significant correlation between material compensation and any dimension of job satisfaction for women. Analyzing correlation between individual dimensions of job satisfaction, the highest positive correlation is non-material compensation with social atmosphere at work where Pearson coefficient value is .812 with significance level of .000. Next positive correlation is again between non-material compensation and work atmosphere and work environment with Pearson coefficient value .759 and significance level of .000.

Lowest positive correlation between individual dimensions of employee job satisfaction is for management / supervision and the social atmosphere at work with Pearson coefficient value .443 and significance level of .044. An overview of these and all other correlations between all dimensions and total job satisfaction for women is presented in the following table.

Table 3. Correlation of job satisfaction dimensions for women

<i>Job satisfaction dimension</i>		<i>N</i>	<i>Pearson coefficient</i>	<i>Significance</i>
Management / supervision	Total job satisfaction	21	.716	.000
	Non-material compensation	21	.619	.003
	Work atmosphere and work environment	21	.575	.006
	Social atmosphere at work	21	.443	.044
Material compensation		21		
Non-material compensation	Total job satisfaction	21	.908	.000
	Social atmosphere at work	21	.812	.000
	Work atmosphere and work environment	21	.759	.000
	Management / supervision	21	.619	.003
Work atmosphere and work environment	Non-material compensation	21	.759	.000
	Total job satisfaction	21	.757	.000
	Overall life satisfaction	21	.587	.005
	Management / supervision	21	.575	.006
	Social atmosphere at work	21	.469	.032
Social atmosphere at	Non-material compensation	21	.812	.000

work	Overall life satisfaction	21	.760	.000
	Work atmosphere and work environment	21	.469	.032
	Management / supervision	21	.443	.044
Overall life satisfaction	Work atmosphere and work environment	21	.587	.005
	Total job satisfaction	21	.560	.008
Total job satisfaction	Non-material compensation	21	.908	.000
	Social atmosphere at work	21	.760	.000
	Work atmosphere and work environment	21	.757	.000
	Management / supervision	21	.716	.000
	Overall life satisfaction	21	.560	.008

Source: Author's own work

It is also important to note that all calculated correlations are positive, and it means that increasing level of one job satisfaction dimension affects for increasing level of another dimension of job satisfaction. This confirms second and third research hypothesis.

## 5. Conclusion

According to this research, women have higher job satisfaction for all dimensions and total job satisfaction also. Only for management/supervision dimension, man and women have identical results. Neighboring countries research results on gender satisfaction as well as the studies conducted in Eastern Europe, Asia and America, cited in this paper, testify to different results of job satisfaction in favor of both genders, even the absence of significant differences in gender job satisfaction. This paper, nevertheless, belongs to the group of papers that testify greater job satisfaction for women.

In addition to this we need to underline two job satisfaction dimensions that show a statistically significant difference between men and women. These dimensions are working atmosphere and work environment and overall life satisfaction. A statistically significant difference in job satisfaction between man and women was also calculated for total job satisfaction.

Comparing job satisfaction dimensions and total job satisfaction correlation we can conclude the following:

- All correlations between job satisfaction dimensions are positive for both gender. Also, these correlations are medium to strong intensity. All dimensions of job satisfaction are interconnected, which means that increasing one dimension will affect for increasing other dimension as well as total job satisfaction.
- Total job satisfaction for men is positively related to all dimensions of job satisfaction, and most of all to the work atmosphere and the work environment and management/supervision which means that increasing the level and quality of the work atmosphere and work environment, and the relationship of management to male employees, contributes most to increasing the level of total job satisfaction for men.

- Non-material compensation and total job satisfaction also correlates positively with total job satisfaction for men. Although with a smaller correlation coefficient, these two dimensions still make a big contribution to total job satisfaction.
- Social atmosphere at work is the only job satisfaction dimension with medium positive intensity, and together with material compensation dimension, least contributing to total job satisfaction for men.
- Particularly distinguished is connection between working atmosphere and work environment with overall life satisfaction for men. This indicates importance of work environment for man's private life conditions and also the fact that private life satisfied man will contribute to a higher working atmosphere.
- For women, all job satisfaction dimensions contribute to total job satisfaction, except for material compensation. This indicates that material compensation is not relevant to women at all.
- All other dimensions of job satisfaction are positive with strong intensity, which indicates that each of these dimensions contributes very much to the total job satisfaction for women.
- The greatest contribution to total job satisfaction for women is non-material compensation. Inside non-material compensation it is especially important to women to receive feedback for their work performance and achievements, and to become familiar with the business policies of their organization. It means when woman knows what are the main policy of organization she will be dedicated to the goals of the organization, and she will be especially pleased to receive feedback from colleagues about her work performance and achievements.
- The lowest contribution to total job satisfaction for women has an overall life satisfaction, which indicates women's ability to have mind separation between work and personal lives,
- For women, non-material compensation is most associated with the social atmosphere at work, which again indicates that if women's satisfaction is expressed through some segments of non-material compensation, it will contribute to a better social atmosphere at work.

This paper showed the levels of employee job satisfaction for women and men, and their interconnectedness of job satisfaction dimensions. The research showed there is a statistically significant difference in job satisfaction among women and men, and that women are more satisfied with their job than men, which confirms first hypothesis.

Also, this paper shows that there is a positive correlation between all job satisfaction dimensions for both gender except material compensation for women that has no correlation with total job satisfaction. This confirms second and third hypotheses.

For men's total job satisfaction, the most important is working atmosphere and work environment, where teamwork and the ability to express creativity through work are especially emphasized, while women are most interested for non-material compensation with a particular focus on their organization's business policies and feedback on their work abilities and performance.

Since satisfied employees contribute most to the organizations goals achievement, it is necessary to have special attention to their job satisfaction. It should be practice for all organizations to make this kind of research and to make activities that contribute increasing employee job satisfaction.

This research has sample of 44 respondents, which is a relatively small sample. Regarding this it is recommendation to make this kind of research on a larger number of respondents and organizations. Also, this research should be extended to a larger geographical area in order to do more objective and higher quality research.

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## THE RELATIONSHIP BETWEEN AUTHENTIC LEADERSHIP AND WORK-LIFE BALANCE: JOB SATISFACTION AS A MODERATOR

### ODNOS IZMEĐU AUTENTIČNOG VODSTVA I RAVNOTEŽE IZMEĐU POSLOVA I ŽIVOTA: ZADOVOLJSTVO POSLOM KAO POSREDNIK

#### Abstract

*An important role in achieving work-life balance is played by the leadership. A leader influences the formation of family-friendly practices and practices for work-life balance and on the other hand plays an important role in the implementation of these policies and practices in practice. Also, leadership style importantly attributes to a healthy working environment in which individuals feel well and respected, as an employee as well as a person with private life. Main aim of our research was to empirically test relations between authentic leadership, job satisfaction and work-life balance. Based on an extensive literature review, we have formulated three hypotheses, which we tested in the structural model by using structural equation modelling (SEM). We have examined whether job satisfaction mediated the relationship between authentic leadership and work-life balance. The quantitative data for our analysis was collected through a survey on 164 online participants. Participants in this study were higher education lecturers from Austria, Croatia, Czech Republic, Germany, Serbia and Slovenia. The results show that job satisfaction mediates the relationship between authentic leadership and work-life balance. Implications for research and practice of our findings are discussed. Researches in the area of human resources management are of great importance for researchers and managers. Our research also contributes to the area of employee's behaviour together with understanding of the connection between authentic leadership, job satisfaction and work-life balance.*

**Keywords:** work-life balance, job satisfaction, authentic leadership, SEM

**JEL:** M3, L86

#### Sažetak

*Važnu ulogu u postizanju ravnoteže između posla i života igra rukovodstvo. Vođa utiče na formiranje porodično-ljubaznih praksi i praksi za balansiranje između radnog i privatnog života, a sa druge strane igra važnu ulogu u sprovođenju ovih politika i praksi u praksi. Također, stil vođenja važno pripisuje zdravom radnom okruženju u kojem se pojedinci osjećaju dobro i uvaženo, kao zaposleni i kao osobe sa privatnim životom. Glavni cilj našeg istraživanja bio je empirijski testirati odnose između autentičnog vodstva, zadovoljstva poslom i ravnoteže između posla i života. Na osnovu opsežnog pregleda literature, formulisali smo tri hipoteze, koje smo testirali u strukturnom modelu pomoću modeliranja strukturnih jednačbi (SEM). Ispitali smo je li ima zadovoljstvo poslom učinak posrednika između autentičnog vodstva i ravnoteže između posla i života. Kvantitativni podaci za našu analizu prikupljeni su putem ankete na 164 sudionika. Sudionici ove studije bili su predavači za visoko obrazovanje iz Austrije, Hrvatske, Češke, Njemačke, Srbije i Slovenije. Rezultati su pokazali, da ima zadovoljstvo poslom učinak posrednika na odnos između autentičnog vodstva i ravnoteže između posla i života. Razmatrane su implikacije za istraživanje i praksu naših otkrića. Istraživanja u oblasti upravljanja ljudskim resursima od velikog su značaja za istraživače i menadžere. Naše istraživanje također doprinosi području ponašanja zaposlenika, zajedno s razumijevanjem povezanosti autentičnog vodstva, zadovoljstva poslom i ravnoteže radnog i privatnog života.*

**Ključne riječi:** ravnoteža radnog i privatnog života, zadovoljstvo poslom, autentično vodstvo, SEM

**JEL:** M3, L86

## 1. Introduction

In today's fast-paced life, an individual often has the difficulty of balance all life roles and responsibilities. With the growth of families employing both parents, single-parent families, an increase in the number of families with dependent members, and, on the other hand, the increasing demands of working organizations, the prolongation of working hours and the age of modern technology in which an individual must actually be "available" all the time, however, the work-life balance will become increasingly difficult, and the conflict between the two spheres will increase.

The results of numerous studies show that the support of the organization, especially the support of the leader is of great importance in work-life balance. The leader influences both job satisfaction by influencing work scheduling, organizational climate and the like, as well as a work-life balance of the individual either through the formulation and implementation of policies and practices or through non-formal employee support. The results of the survey (Yadav & Dabhade, 2014) even showed that a balanced work and family life can be achieved by the same factors that are "responsible" for job satisfaction, such as the support of colleagues, the support of the work environment, and the mentally demanding work, equitable rewards, and employee-oriented policies.

Leadership style is also important for achieving employee job satisfaction. The focus of the paper is on authentic leadership, which is characterized by focusing on positive achievement rather than negative (Jensen & Luthans, 2006). Authentic leaders may, therefore, be able to motivate employee satisfaction and involvement. At the same time, they can make a positive contribution to employees' work-life balance by taking into account the employee's efforts in a family role. This paper will present the link between authentic leadership and employees' work-life balance with job satisfaction as a mediator.

## 2. Literature review

### 2.1. Work-life balance

The problem of work-life balance is a common topic in both everyday conversations and scientific research. In scientific studies, the concept of a work-life balance was primarily used to describe the stability and balance between responsibilities and obligations associated with work and those in the family, with an equilibrium where the individual feels right (Rajni & Ravinder, 2015). Generally speaking, the work-life balance could, therefore, be described as a satisfactory involvement or adjustment between several roles in one's life (Bedarkar & Pandita, 2104).

All people have set certain boundaries between work and family (or other private life), but they differ in how they place them in a desire to achieve coherence between the two roles, and how these roles are intertwined (Allen, Cho & Meier, 2014). There are four types of work-life balance types (according to available resources and requirements): useful, harmful, active and passive. The useful type has a high level of available resources and low requirements, active many resources and also many requirements, passive has small resources and small requirements, harmful low resources and many requirements. Employees belonging to each type should qualitatively differ from one another in terms of psychological performance and commitment to each role (Rantanen *et al.*, 2011).

The work-life balance is a broad concept and can be viewed from different perspectives. The most commonly seen aspects of the terms are psychological, sociological, gender, and work environment (Sukalova, Ceniga & Janotova, 2015). The psychological aspect examines, in particular, the

consequences of a mismatch between work and family/life, or how problems with work-life balance affect stress and dissatisfaction in the workplace or life and, consequently, its psychological health. The sociological aspect deals with the issue of work-life balance from the perspective of national social policy, *i.e.* the link between coherence and state support. The gender perspective addresses gender differences in the problems associated with work-life balance and solving the problems. The work environment aspect, however, deals with what and how much an organization can do to make it easier for employees to balance work and family/private life. For our research, we will be interested primarily in this last aspect.

Work-family balance is influenced by factors at three levels, the individual, the organization, and the state, with an organization being the most influential. The individual needs to perceive the organization as family-friendly, which has a positive effect, namely reducing work-family conflict (Lapierre *et al.*, 2008). Organizations influence the employees' work-life balance with different family-friendly policies and practices. Employees with access to such policies reported better psychological well-being, thinking that they could control their work and family life, which leads to better psychological well-being and satisfaction (Kashyap, Joseph & Deshmukh, 2016).

It should also be emphasized that the organization's support in work-life balance is not only important from a financial point of view, in terms of maximizing employee engagement and productivity, but programs are also becoming an increasingly important factor for job seekers. Work-family balance measures are thus becoming a decisive factor in a company's ability to attract and retain good employees (Kashyao, Joseph & Deshmukh, 2016).

Organizations can help to reduce work-family conflict or improve the balance between work and family with family-friendly measures that help employees more easily reconcile the responsibilities of both roles (Boyar *et al.*, 2008). Researches (*e.g.* Parakandi & Behery, 2016; Humer *et al.*, 2016; McNamara, Bohle & Quinlan, 2011; Sukalova *et al.*, 2015; Stier *et al.*, 2012) examining policies and practices for work-life balance have shown that the most useful and desirable measures highlighted by employees as flexible schedules, overtime work, part-time work, compressed workweek, work from home (Parakandi & Behery, 2016).

For successful implementation of family-friendly measures that will help employees balance work and private life and achieve the goal of satisfied and productive employees, it is important an organizational culture that incorporates family-friendly measures that serve employees and the leader's support (Wei, Yili & Tianin, 2013). Namely, the support of the work organization and the leader reduces the work-family conflict (Lapierre *et al.*, 2008), which affects personal, family and work outcomes (Valcour *et al.*, 2011).

## 2.2. Leader support

A family-friendly work environment is undoubtedly very important for the individual's work-life balance. However, research indicates that informal support of the work environment in work-life balance is sometimes even more important than formal practices (Goh, Ilies & Wilson, 2015). Informal support also includes leader support, which is of great importance in creating a work environment that supports the work-life balance of employees (Goff, Mount & Jamison, 1990).

The leader plays an important role because, on the one hand, it influences the formation of family-friendly practices and practices for work-life balance and on the other hand, plays an important role in the implementation of these policies and practices in practice (Maxwell, 2005). The leader also plays an important role in creating a work environment that supports the work-life balance in general (Knaflić, Svetina Nabergoj & Pahor, 2010).

The leader support in work-life balance, or on employees' ability to balance work and family/private life, has been confirmed by much of the existing research (Maxwell, 2005; Greenhaus, Zieger & Allen, 2012; Li, McCauley & Shaffer, 2017). Leadership support is important at all career levels, but research (Darcy *et al.*, 2012) has shown that it is most relevant to those at the beginning of their careers and those just before retirement.

Leader support in work-life balance significantly reduces the impact of daily work overload on work-family conflict (Goh, Ilies & Wilson, 2015). Family-friendly leadership also has a positive effect on individual job satisfaction (Kong, 2013) and job satisfaction is related to the work-life balance (Arunika & Kottawatta, 2015).

### 2.3. Authentic leadership

As we explained in the previous chapter, the leader plays an important role in employees' work-life balance. Undoubtedly, the style of leadership is also important, specifically in our case, authentic leadership.

Leadership is, on the one hand, a process, and on the other, a trait of the individual (Moorhead & Griffin, 2010). As a process, leadership is meant to influence without the use of coercion, and as a trait is a community of attributes attributed to persons who we believe are successfully using influence. Impact, in this case, means the ability to influence the perception, beliefs, attitudes, motivations and/or behaviours of others. Authentic leadership differs from other leadership concepts in fact that it does not define the leadership style that a leader should adopt, but rather places the personality of the leader to follow in his or her character (Dimovski, Penger & Peterlin, 2009).

Authentic leadership is the way how the leader can easily achieve the mission and vision of the organization by focusing on the positive attributes of himself and his associates (Luthans *et al.*, 2005). Rather than on making mistakes, authentic leadership focuses on positive achievement (Jensen & Luthans, 2006). Authentic leaders may, therefore, be able to motivate commitment, satisfaction, and collaboration, which is important for increasing employee efficiency and productivity (Avolio & Gardner, 2005).

Authentic leaders are self-confident, full of hope and trust, optimism and ethical (Cooper, Scandura & Schriesheim, 2005). An authentic leader regulates his behaviour in accordance with internal moral norms and standards, but not in accordance with external norms and pressures (Gardner, Fischer & Hunt, 2009). George (2003) claims that authentic leaders follow five main dimensions: understanding their purpose, practicing solid values, leading with heart, establishing connected relationships and demonstrating self-discipline.

Main advantage of an authentic leadership is the chance for constant development of employees and organization (Gardner & Schermerhorn, 2004). Crucial challenge of an authentic leadership demonstrates itself in the awareness of leaders that an individual is the most important part in the organization (Storr, 2004; Sparrowe, 2005). Authentic leaders need to identify the advantages of their followers and help them to develop them and connect them with common goal, purpose, vision and identity of the organization.

To achieve their goals, authentic leaders must also take into account the fact that employees have other life roles that are just as important to them and take this fact into account in leadership. Research (Braun & Nieberle, 2017) has shown that authentic leadership has a negative impact on work-family conflict and a positive effect on work-life enrichment. However, less work-family conflict increases job satisfaction (Rathi & Barath, 2013).

## 2.4. Job satisfaction

Job satisfaction is a well-researched concept, so there are many definitions. Tang, Siu and Cheung (2014) say that employee satisfaction is roughly influenced by three relationships, namely employee-organization relations, employee-manager relations, and employee-employee relationships. Employee satisfaction is also influenced by the personality of the individual (Judge, Heller & Mount, 2002). Thus, for example, those individuals who are more emotionally stable or more prone to trust, altruism, and conformity are generally more satisfied with work than those who are less stable (Rothmann & Coetzer, 2002). The same is true of other predictor variables, such as congenital optimism and the like, which have been proven to influence increased job satisfaction (Mincu, 2015).

Increased job satisfaction is undoubtedly influenced by the work environment. Individuals who work in an environment where they feel well, are respected and valued will also be more satisfied with the work (Dimec *et al.*, 2008). However, a good working environment is also greatly influenced by the leader of the organization. The leader needs to be understanding, friendly, show interest in and listen to employees (Robbins, 1993). Besides, the leader also influences the nature of work, fair pay, complexity, and meaningfulness of work tasks, as well as relationships among colleagues and other important factors that affect job satisfaction (Lumley *et al.*, 2011).

However, job satisfaction is also influenced by work-life balance policies and practices (Kamran, Zafar & Ali, 2014). It can be influenced either generally or through indicators of family demands such as the number of young children, partner employment, and similar (Saltzstein, Ting & Hall, 2001). Grandey, Cordeiro, and Michael (2007) found that organization and leadership support in work-life balance is strongly associated with job satisfaction and the level of work-family conflict. The individual needs to perceive the organization as family-friendly, as this has a significant impact on job satisfaction and also on reducing work-family conflict (Lapierre *et al.*, 2008). The survey (Jiang, 2012) also showed that when leaders respected their employees as individuals with unique traits and needs, including family, and treated them differently but fairly, employees perceived a high level of trust, dedication, satisfaction, and reciprocity.

Good knowledge of job satisfaction is not only important for the employee but also for leaders of organizations and organization itself, as more satisfied employees are also more productive employees (Keles, 2015), which is the goal of all organizations. Employees job satisfaction is an important indicator of organizational effectiveness (Rothmann & Coetzer, 2002). Satisfaction is reflected in greater stability, discipline, accountability and a greater workforce (Hajdukova, Klementova & Klementova, 2015), and the chances of employees being employed will be reduced (Morrison, 2008). As satisfied employees are also productive employees, therefore managers need to recognize the needs and wants of employees, including in terms of family life obligations, to increase employee satisfaction (Saari & Judge, 2014).

## 3. Research methodology

### 3.1. Hypotheses

Based on written above we formulated a hypothesis to determine the relation between authentic leadership and work-life balance, where job satisfaction has a moderating effect on their relation. The proposed hypothesis is shown in the conceptual model (Figure 1). The hypothesis is: *Job satisfaction is a moderator of the relation between authentic leadership and work-life balance in a manner that the effect of authentic leadership on work-life balance is higher as the level of job satisfaction higher is.*

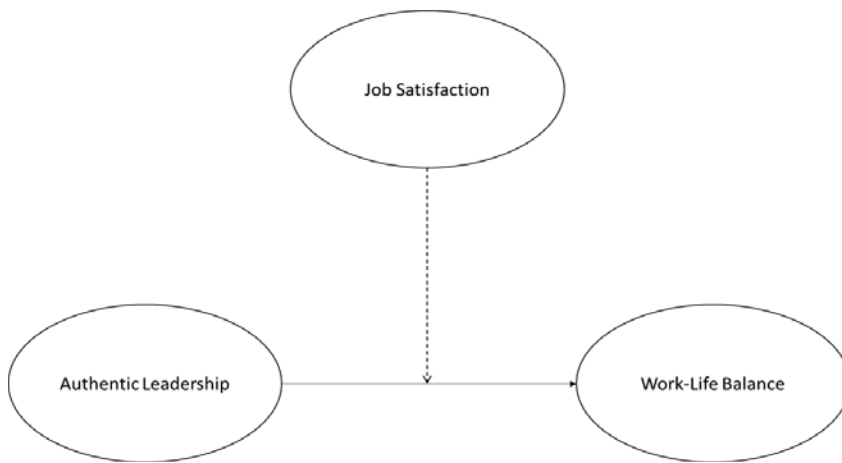


Figure 1. *Conceptual model of an indirect relation between authentic leadership and work-life balance with job satisfaction as the moderator.*

Source: Authors' own work

### 3.2. Instruments

Authentic leadership was measured by using The Supervisors' Authentic Leadership Measure, a seventeen item scale developed by Marič *et al.* (2013). The response scale was a five-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree). The coefficient of reliability (Cronbach's alpha) was 0.952, respectively.

Job satisfaction was measured by using JSS (Job Satisfaction Survey), a thirty-six item scale developed by Spector (1997). The response scale was a five-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree). The coefficient of reliability (Cronbach's alpha) was 0.624, respectively.

Work-life balance was measured by using a four-item scale developed by Brough *et al.* (2014). The response scale was a five-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree). The coefficient of reliability (Cronbach's alpha) was 0.402, respectively.

Empirical research on authentic leadership, job satisfaction and work-life balance was performed by survey method. To obtain data, we designed an online questionnaire, which was sent *via* e-mail in spring 2019. After conducting online research, primary data was controlled and edited. For processing and analysing data, we have used IBM SPSS Statistics 24.

### 3.3. Research setting and participants

The full set of questionnaires was completed by a total of 164 participants, which represent our sample, of whom 63 (38.4%) were men and 95 (57.9%) were women and 6 (3.7) did not answer this question. According to the marital status of respondents: 96 (58.5%) were married, 4 (2.4%) were engaged 9 (5.5%) were divorced, 70 (36.8%) were 14 (8.5%) were single, 35 (21.3%) were in a committed relationship and 6 (3.7) did not answer this question. We have also asked about the number of children (under the age of 18), where 106 (64.6%) had none, 24 (14.6%) had one child, 17 (10.4%) had two children, 6 (3.7%) had three children, 2 (1.2%) had four children and nine did not respond. According to the educational level of respondents: 6 (3.7%) had a BSc or BA, 30 (18.3%) had an MSc. or MBA, and 121 (73.8%) had a PhD. (seven did not respond). According to

their academic ranks 27 (16.5%) were teaching assistants, 16 (9.8%) were research assistants, 57 (34.8%) were assistant professors, 33 (20.1%) were associate professors, 24 (14.6%) were full professors and seven did not respond. According to work status, 140 (85.4%) had full-time employment, 8 (4.9%) had part-time employment, 8 (4.9%) worked per contract, one was self-employed and seven did not answer. The average age of respondents was 38.62 years for the 158 who responded to this question. The average years of work experience in higher education were 15.09 and the average years of work experience overall were 18.68.

#### 4. Results

The empirical part of our research is based on quantitative research, for which the data was collected through our survey. In continuation, we present a method to test the model by applying structural equation modelling (SEM), which is used for testing structural relations between constructs. That operation was made by building a model in Lisrel 8.80 software package, which is an analytical statistics program, which allows the testing of multiple structural relations at once (Prajogo & McDermott, 2005). It combines factor and regression analysis by which it tests the proposed model by which we can assess the significance of hypothesized cause-and-effect relations among the variables (Diamantopoulos & Siguaw, 2000). The standardized solutions and t-values for the hypotheses tested in the model are presented in Figure 2.



Figure 2. Standardized solutions (and t-test) for the hypothesis

Source: Authors' own work

Standardised solution weights between the authentic leadership and job satisfaction and between job satisfaction and work-life balance are presented in the model in Figure 2. We can therefore with the use of structural equation modelling confirm positive relations between the researched constructs in our hypothesis and a mediating effect of job satisfaction on the relation between authentic leadership and work-life balance. Based on the standardized solutions we found that the relations are positive. Table 2 presents model fit indices for our researched model.

Table 2. Model fit indices

Fit indices	Value for the model
$\chi^2/df$	2.737
NFI	0.800
NNFI	0.864
CFI	0.869
IFI	0.869
SRMR	0.112

Source: Authors' own work

We also confirmed that a direct relation between authentic leadership and work-life balance is not statistically significant; therefore, the need for job satisfaction as a moderator.

## 5. Discussion and conclusion

The broad scientific and professional interest in the constructs work-life balance, leadership styles or job engagement are increasing as the global competition rapidly grows and organizations need engaged and productive employees; and based on our research, we can add to these studies. Work-life balance and leadership style, such as authentic leadership, therefore, plays a remarkable role in job engagement and in the sustainability and growth of organizations. The theoretical contribution of this study is to the existing research of authentic leadership, job satisfaction and work-life balance in the aspect of advancing previous research by empirically examining the relations and the mediating effect between them. The practical contribution is in the presented results that authentic leadership influences work-life balance with job satisfaction as the mediator.

With proposed hypothesis, which was based upon previous research and in-depth study of relevant literature, we have gathered empirical evidence on the relations between authentic leadership, job satisfaction and work-life balance have been missing and are highlighted in this research in which job satisfaction is presented and confirmed as a mediator between authentic leadership and work-life balance.

We interpret our findings as follows: employees exhibit higher levels of job satisfaction as their leader's levels of authentic leadership rise, which leads to an increase in work-life balance. Positive experiences therefore lead to authentic leadership, which leads to job satisfaction, which leads to work-life balance.

Limitations of this study need to be considered before interpretations of the results can be explored. The whole research was focused mostly on these three constructs and the mediating effect, whereas other determinants were not considered. As mentioned, authentic leadership is not the only determinant of job satisfaction together with work-life balance, therefore we can only propose, that authentic leadership affects the construct of job satisfaction together with work-life balance, whereas there are also other factors involved in the process.

For further research, we suggest investigating the effects of the determinants omitted or to put in other words not included in our study. These determinants could be divided into those influencing the constructs researched in our study, such as situational and other attributive determinants.

Achieving employees' job engagement has become essential for many organizations and will render those who will not comply with these trends, as obsolete. Creating and implementing applicable work-life balance policies and practices together with the right leadership style such as authentic leadership is important for dosing satisfied, engaged and productive employees, especially in a highly competitive environment.

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**STRENGTHENING THE RESEARCH OF KEY ENABLING  
TECHNOLOGIES FOR NEW INNOVATIONS****JAČANJE ISTRAŽIVANJA KLJUČNIH NAPREDNIH TEHNOLOGIJA ZA  
NOVE INOVACIJE****Abstract**

*The development of science and technology in recent times is hosting major changes with the emergence of new key concepts, e.g. nanotechnology, micro nanoelectronic, etc. Technologies are changing the way in which society operates and there is a need to ensure that they are used in a best possible way. The way to address these new concepts is crucial for achieving economic and social prosperity and an obvious indicator of a country's ability to maintain a sustained growth in accordance with the latest advances. In Croatia, key enabling technologies (KETs) are recognized as one of the two cross-cutting topics able to create the biggest added-value and foster the emergence of new economic activities, the rising of the productivity of the Croatian economy and the creation of new and sustainable job opportunities in the Croatian Smart Specialization Strategy. In addition, Croatian scientific and research institutions have a lot of experience in KET-related projects funded by the European Union, either as a partner in international projects or having their own project. The biggest Croatian strength in KET are open economy and relatively high-level of internationalisation of national companies, as well as the access to a pool of high-skilled workers and good quality infrastructures with substantial investments in the fields of transportation, telecommunications and energy. However, there is limited collaboration between industry and academia in R&D and there is a need to further support and train SMEs.*

**Keywords:** innovation, research and development, KETs, international cooperation, economic development

**JEL:** O31, O32, O33, O19

**Sažetak**

*Razvoj znanosti i tehnologije u novije vrijeme prolazi velike promjene pojavom novih ključnih koncepata, npr. nanotehnologije, mikronanoelektronike i slično. Tehnologije mijenjaju način na koji društvo funkcionira i postoji potreba da se iskoriste na najbolji mogući način. Uvođenje u upotrebu ovih novih koncepata ključno je za postizanje gospodarskog i socijalnog prosperiteta i očit je pokazatelj sposobnosti zemlje da održi održivi rast u skladu s najnovijim napretkom. U Hrvatskoj su ključne napredne tehnologije (KET-ovi) prepoznati kao jedna od dvije sveobuhvatne teme sposobne stvoriti najveću dodanu vrijednost i potaknuti*

*nastanak novih gospodarskih aktivnosti, povećanje produktivnosti hrvatskog gospodarstva i stvaranje novih i održivih mogućnosti zapošljavanja u Hrvatskoj strategiji pametne specijalizacije. Uz to, hrvatske znanstvene i istraživačke institucije imaju puno iskustva u projektima povezanim s KET-ovima koji financira Europska unija, i kao međunarodni projektni partneri, ali i samostalno. Najveća hrvatska snaga u proizvodnji i korištenju KET-ova su otvorena ekonomija i relativno visoka razina internacionalizacije nacionalnih tvrtki, kao i velik broj visokokvalificiranih radnika i kvalitetne infrastrukture sa znatnim ulaganjima u području prometa, telekomunikacija i energetike. Provedeno istraživanje ukazalo je na potrebu jačanja suradnje industrije i akademske zajednice na području istraživanja i razvoja, potporom malim i srednjim poduzećima u području KET-a i daljnjom edukacijom.*

**Ključne riječi:** inovacije, istraživanje i razvoj, ključne napredne tehnologije, međunarodna suradnja, ekonomski razvoj

**JEL:** O31, O32, O33, O19

## 1. Introduction

Key Enabling Technologies (KETs) provide the basis for innovation in a wide range of industries and due to their potential to help industry grow KETs are a priority for European industrial policy. Their impact on the EU economy is already considerable: in 2013, products enabled by KETs amounted to 953.5 billion euro, 19.2% of total EU-29 manufacturing. Research activity and higher education in Croatia did not stress topics related to KETs so far in their national strategic documents, plans and programmes. Unlike national acts, some sectorial strategic documents have policy measures dedicated to KETs, such as the Strategy of Education, the Science and Technology Strategy (2014), the Croatian Smart Specialization Strategy (2016-2020), the Strategy for Lifelong Career Guidance in the Republic of Croatia 2016-2020 and the Vocational Education and Training Development Programme (2016-2020). This paper gives the overview of Croatian regulatory framework and strategic plans related to KETs and the results of a research conducted to collect feedback on the general needs by Vocational Education and Training towards KETs. The aim of this paper is to analyse the current situation related to importance KETs in Croatia, with special emphasis on nanotechnology, biotechnology and advanced materials.

## 2. Previous research

KETs are recently recognised as an important field of scientific research through the Industry 4.0 concept. Fourth industrial revolution is characterised by the emergence of smart factories in which cyber-physical systems monitor physical processes and communicate with each other and human beings in real time. According to the Ciffolilli and Muscio (2018), KETs becomes increasingly important as a policy choices for future development.

Industry 4.0 was also a subject of the research made by Muscio and Ciffolilli (2019), who investigated the factors underlying the capacity to compete by integrating Industry 4.0 enabling technologies. According to them, regions that are more able to obtain EU funds by submitting competitive projects and becoming more central in research networks are also more likely to be characterised by a greater capacity to integrate Industry 4.0 technologies rather than focusing on one or few key research areas. Conversely, more peripheral regions are less capable of obtaining EU funds and are likely to have a more limited capacity to integrate Industry 4.0 technologies. However, national and regional governments may have an important role in facilitating catching up of their territories not only by reinforcing the local capacity to develop Industry 4.0 technologies but also by encouraging knowledge transfer via interregional and transnational cooperation.

The study prepared by Policy Department Economic and Scientific Policy, European Parliament (2014) examines the nature of KETs, and the drivers and barriers to their deployment. According to the Study, the development of KETs is strongly based on technology push and the development of advanced processes and products. Although some attention has been paid to the role and potential contribution of KETs to solving the grand challenges, there is both a need and an opportunity to link KETs and the grand challenges in a more direct manner. The KET concept is not yet widely applied beyond the level of the European Union, even though many Member States address some or all of the six technologies and some countries (*e.g.* Austria and Belgium) align their own agenda to EU priorities. There is considerable scope for countries to align their priorities and their policy timing more closely to the European KET agenda in order to benefit from potential synergies and policy complementarities and to develop combined funding strategies.

Montresor and Quatraro (2017) investigated the role of KETs in regional branching and analysed whether KETs knowledge could attenuate the effect that regional branching ascribes to technological relatedness, giving regions more scope for their technological diversification strategies. They found out that KETs have both, positive and negative effects – KETs negatively moderate the role of technological relatedness for regional specialization in new technological fields, but also KETs knowledge increases the number of new technological specializations. Their overall conclusion is that research results provide scientific support for the recent European Commission recommendation to plug KETs into the policy toolbox for smart specialization strategies inspired by regional branching.

According to Evangelista, Meliciani and Vezzani (2018), who also explored the specialisation of European Union (EU) regions in KETs, KETs could both enhance and hamper regional convergence. On the one hand, the high knowledge and R&D intensity of these technologies may suggest that they can better be exploited by technologically leading regions. On the other hand, their pervasiveness and high range of applications also in traditional industries, can make them a potential source of growth and competitiveness for technologically laggard regions that are able to accumulate competencies in these technologies.

Paci, Lalle and Chiacchio (2013) analysed the intensity of initiatives in the area of higher education and training that are important enablers for a new trend for innovation. In the paper, they analysed trends for innovation highlighting higher education and training as an important pillar for change; academia-industry collaborations presenting determinants and five initiatives for high skilled jobs; and European stakeholders' views regarding the manufacturing sector focusing the priority themes in the process of change. The main conclusion of their paper is that for the development of process for change, universities and research institutions of the European countries hold a prominent role and are main stakeholders for a responsible future.

Słowikowski *et al.* (2018) analysed the impact of the digital revolution in VET, with aim to develop an ICT based collaborative training incorporating online collaborative learning solutions to be used in the field connected with VET education. They recognized KETs related skills and competences as needed in the current labour market, since they represent a 19% of all EU 28 production (about 3.3 million jobs in 2013) and are connected with wide range of product applications such as developing low carbon energy technologies, improving energy and resource efficiency, and creating new medical products. They also have huge potential to fuel economic growth and provide jobs (Słowikowski *et al.*, 2018, pp. 020070-2-020070-3). The conclusion of their analysis is that further development of IT solutions, especially towards the use of artificial intelligence, Internet of things, human-machine communication and Industry 4.0 will force a new approach to the teaching process and cooperation, because the opportunities to acquire and use knowledge will be greater.

In Croatia, KETs related research was conducted by Prester *et al.* (2016), who investigated barriers to the implementation of KETs in Croatian companies. The research showed that in Croatia, 28% of surveyed companies do use some of the KETs.

### 3. Research methodology

The results of the research presented in this article are based on the desk analysis and data analysis further backed up with qualitative methods. Desk analysis included an in-depth review of the relevant scientific literature (books, articles) and available Internet sources. For the purpose of gathering the results of the relevant scientific research, scientific research platforms were extensively searched (*e.g.* Google Scholar, the Web of Science, Scopus, *etc.*) by key words such as “innovation, research and development, KETs, international cooperation, economic development, education”.

The results of desk analysis were enriched with the qualitative research methods out of which semi-structured questionnaires, in-depth interviews and structured workshops were conducted. Qualitative part of the research was conducted by gathering 27 answered surveys. Different stakeholders participated and provided an insight to the current situation: VET providers, students, enterprises and workers, local/regional authorities, *etc.* Out of 27 respondents who filled out the questionnaire, 10 completed the entire questionnaire, 8 mainly related to nanotechnology, 3 mainly related to biotechnology, and 2 mainly focussed on advanced materials. Four questionnaires met the content of the questionnaire related to both, nanotechnology and advanced materials.

### 4. Results and discussion

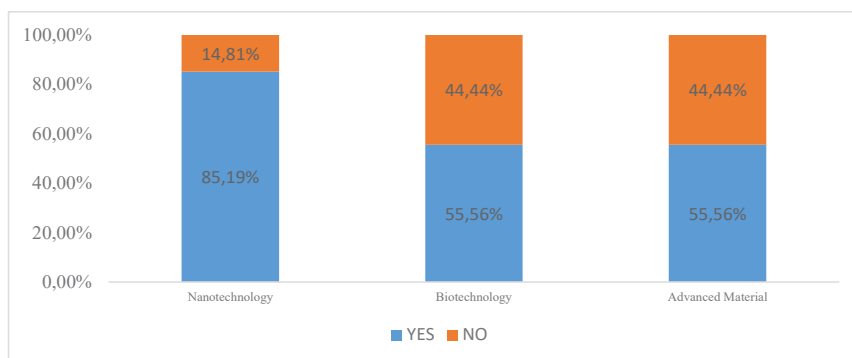
Although strategic framework for the development of KETs in Croatia is relatively scarce and fragmented, Croatian scientists gained lots of experience related to KETs through KETs related projects. However, the transfer of this knowledge to the Croatian economy is not at a satisfactory level and key obstacles are the lack of managerial and entrepreneurial knowledge and skills that would bring the achievements of nanotechnology, biotechnology and advanced materials into everyday practice in the industry and business sector.

Most of the respondents are university graduates (42.31%) and have postgraduate level of education (42.31%), followed by upper secondary education/training (11.54%) and secondary school (3.85%). None of the respondents selected primary school as their level of education. Of respondents who listed “University graduate” as the level of education, 5 pointed out the Faculty of Electrical Engineering, 2 the Faculty of Chemical Engineering and Technology, and one each the Graphic Faculty and the Faculty of Forestry. Others did not specify the name/level of degree.

Regarding to the number of employees in the company or institution, 44.44% of respondents said that they work/research in a company or institution with more than 250 employees, 40.74% in a company or institution with 51-250 employees and 14.81% in a company or institution with 11-50 employees. None of the respondents work or research in the company or institution with 10 or less employees.

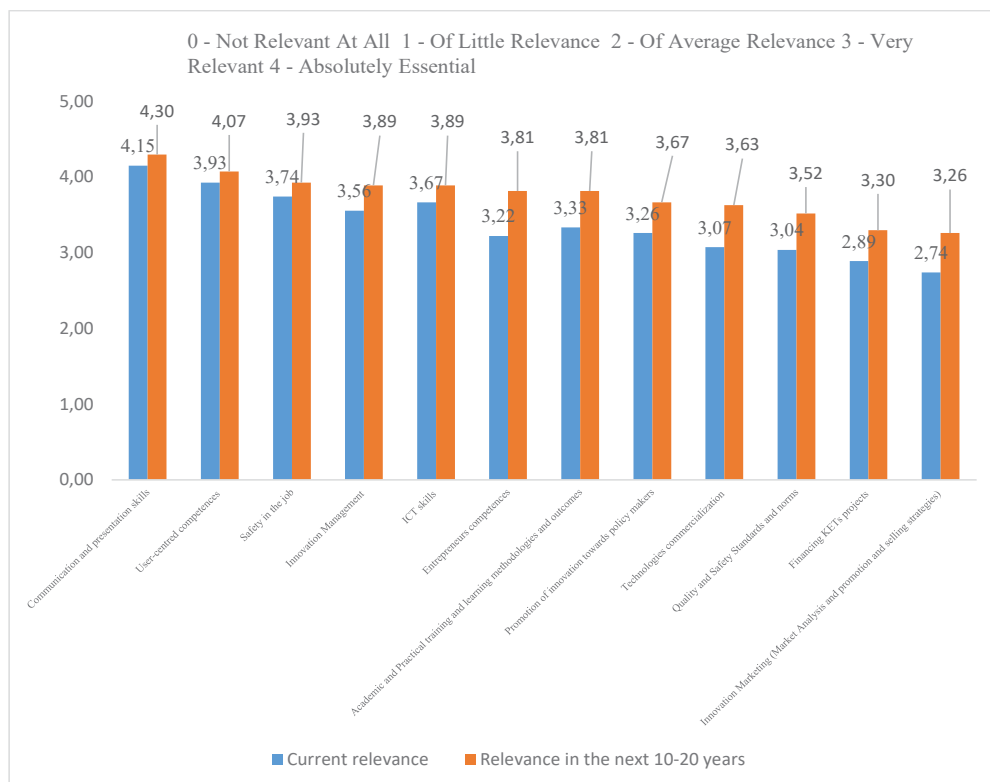
Most of the respondents, 18 of them (66.67%) are located in Zagreb, 3 (11.11%) in Varaždin, 2 (7.41%) in Slavonski Brod and Dubrovnik and one (3.70%) in Sveta Nedelja and Pula.

To the question if they are familiar with KETs or work with them, 85.19% respondents answered that they are familiar with nanotechnology, 55.56% are familiar with biotechnology and the same number of respondents are familiar with advanced materials.

Figure 1. *Recognition of KETs*

Source: Authors' own work

Half of the respondents have less than a year of prior experience in KETs, and one third has more than five years of experience in KETs. Three out of twenty-four respondents who answered this question have 3-5 years of experience in KETs and only one person (4.17%) has 1-3 years of experience in KETs. Research findings have shown that general skills and knowledge are of little relevance in present, especially financing KETs projects, innovation marketing and technologies commercialization, patents and other intellectual property rights. These skills, now designated as deficient, are also designated as necessary in the following 10-20 years.

Figure 2. *Importance and relevance of the general skills to the business/work*

Source: Authors' own work

The same questions were asked to the respondents, but now focused on those skills related to nanotechnology. Regarding the relevance of those skills and according to the respondents' answers, currently all skills are of average importance, in the long term (10-20 years) knowing the skills related to nanotechnology will be the key. According to the respondents, most relevant skills related to nanotechnology in the next 10-20 years will be energy at nanoscale, integration of nanotechnology to food, medicine and materials, and renewable nanomaterials and potential uses.

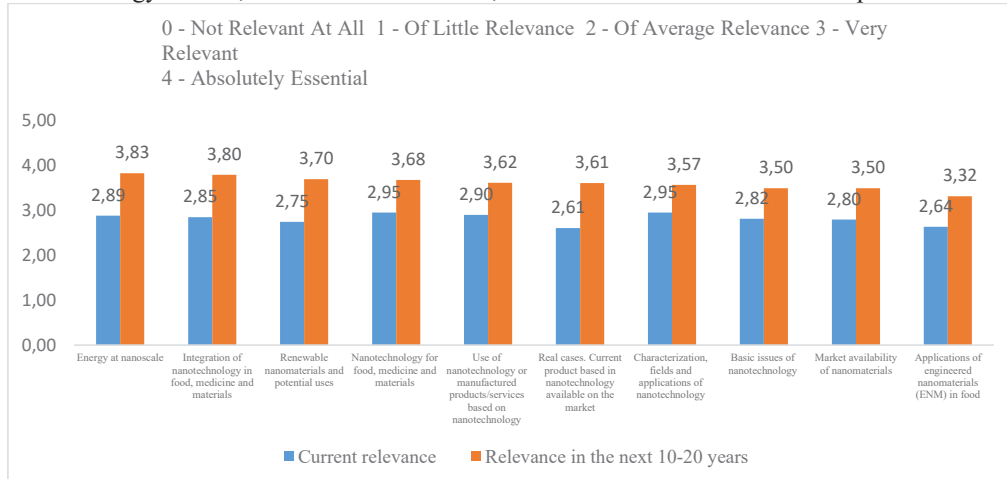


Figure 3. Importance and relevance of the skills to the business/work related to the nanotechnology

Source: Authors' own work

Separate section of this survey dealt with the knowledge on biotechnology. The results showed specifically that the respondents consider at this moment that almost every biotechnology skills are of average relevance for a business or work. In the long term they consider that these concepts will bear a higher relevance or even that they will be essential, especially in the case of industrial technologies for the production of biotechnological products, waste treatment and bioremediation and decontamination and energy production from biological sources (bioethanol, methane, biogas).

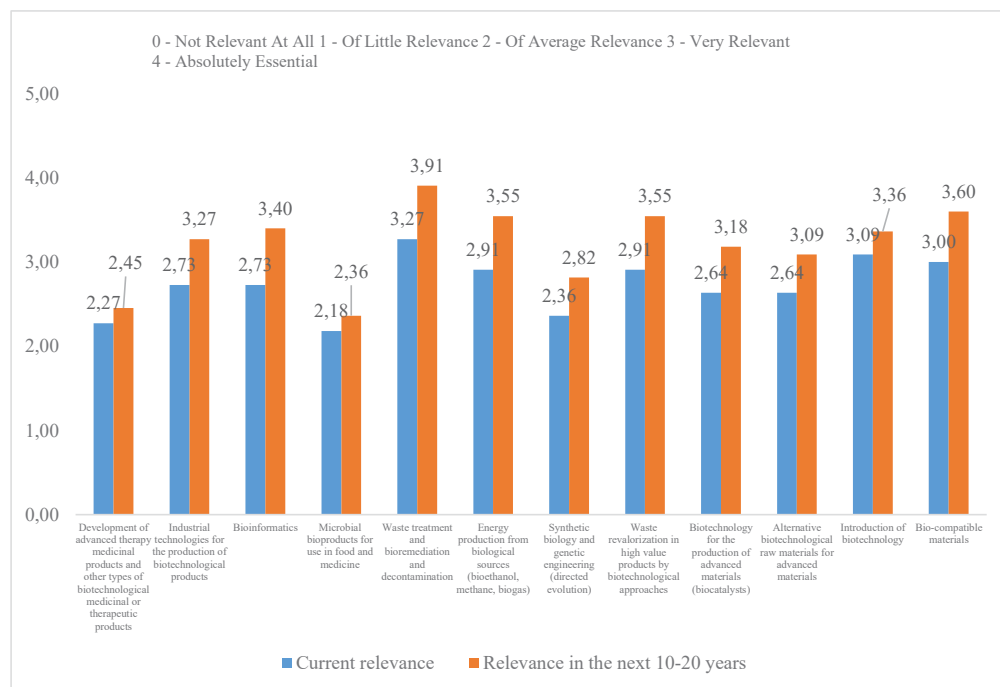


Figure 4. Importance and relevance of the skills to the business/work related to the biotechnology

Source: Authors' own work

Additionally, the survey focused on the data related to the last KET researched in the scope of the BRACKET project, advanced materials. The respondents were asked about the importance of the several skills related to advanced materials at present and in the long term.

Regarding the current relevance of skills related to advanced materials, this skill is above the two KETs previously analysed. All skills were classified as of average relevance with the exception of the manufacturing of materials with advanced properties, wood composites, the use of zeolite, fabric materials and natural minerals (in food, waste treatment, environmental protection, air pollution, *etc.*) and graphene and carbon-based materials. Most of the skills were pointed out as very relevant in the middle and long term.

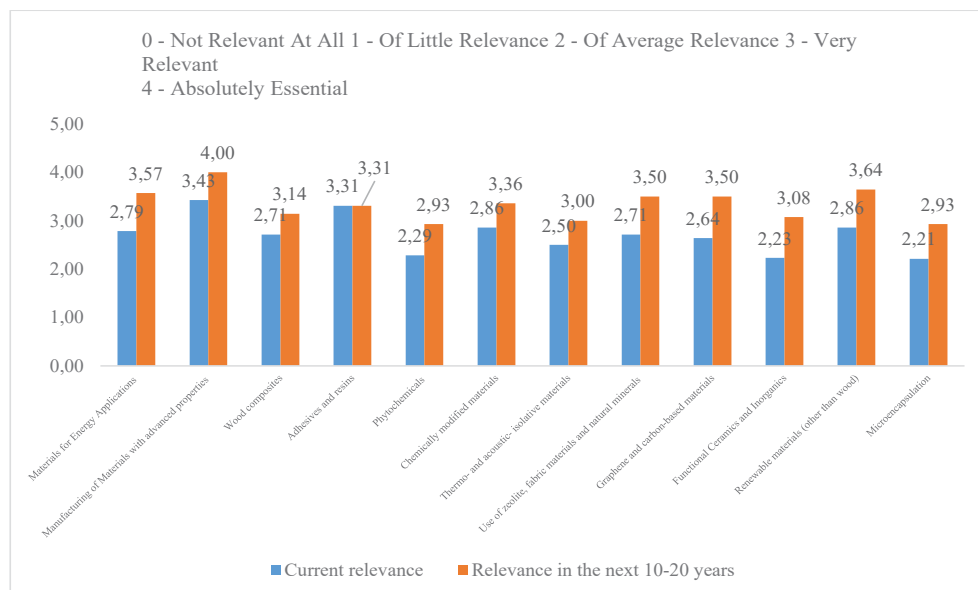


Figure 5. Importance and relevance of the skills to the business/work related to the advanced materials  
Source: Authors' own work

Finally, the respondents were asked to write down the three most relevant skills regarding KETs for the near future. Despite the wide range of opinions, the greatest number of votes was given to Financing KETs projects, Innovation management and Academic and practical training and learning methodologies and outcomes (e.g. the use of VET programs to improve knowledge of KETs). Technologies commercialization (Patents and IPR) and entrepreneurs' competences scored close to these skills.

## 5. Conclusion

KETs represent future of industry policies since they provide the basis for innovation. In Croatia, the opportunities they offer in boosting economic development and the ways to integrate KETs more strongly into the economy have been improperly explored. The research findings presented in this paper show that with regard to general skills, in order to make greater use of the opportunities that KETs provide, innovation management, communication and presentation skills, user-centred competences and safety on job should certainly be strengthened.

Regarding the skills related to nanotechnology and according to the respondent's answers, currently all skills are of average importance, but in the middle term, they will be very relevant; finally, in the long term knowing the skills related to nanotechnology will be essential.

Regarding biotechnology skills, the results showed that the respondents consider at this moment that almost every biotechnology skill is of average relevance for a business or work. In the middle term they consider that these concepts will bear a higher relevance or even that they will be essential, especially in the case of industrial technologies for the production of biotechnological products, waste treatment and bioremediation and decontamination and energy production from biological sources (bioethanol, methane, biogas); properties, wood composites, use of zeolite, fabric materials and natural minerals (in food, waste treatment, environmental protection, air pollution, etc.), and graphene and carbon-based materials. Most of the skills were pointed out as very relevant in the middle and long term.

The main conclusion of the research is that KETs will play a crucial role in industry and other policies in the near future. Moreover, KETs require well educated and specialised workforce, so their inclusion in educational system, especially VET is recognized as a key success factor.

Due to the high relevance of KETs in the near future and opportunities they provide, it is important to include them not only in educational system, but also in companies. Even though Croatian scientists have a lot of experience related to the KETs, the transfer of those knowledge and skills that would bring the achievements of nanotechnology, biotechnology and advanced materials into everyday practice and the contribution to the development of the economy is not sufficient. In the near future, it is crucial to include KETs in education system, to provide adequate knowledge related to them and to transfer that knowledge to the Croatian economy. In that way, the potential KETs have could be fulfilled and sustainable economic development could be achieved.

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## ENTREPRENEURIAL ORIENTATION OF THE COMPANIES IN BOSNIA AND HERZEGOVINA: THE IMPORTANCE OF CONTEXTUAL FACTORS

### PREDUZETNIČKA ORIJENTACIJA KOMPANIJA U BOSNI I HERCEGOVINI: ZNAČAJ KONTEKSTUALNIH FAKTORA

#### Abstract

*Entrepreneurial orientation (EO) represents a firm-level construct that captures innovativeness, proactiveness, and risk-taking of the existing companies. The main focus of this paper is to present the EO of 477 companies in Bosnia and Herzegovina and to compare EO between companies operating within different contextual factors. We used descriptive statistics and statistical testing to draw conclusions. Our paper presents the mean values of entrepreneurial orientation for each NACE industry category. In addition, our results confirm that there are statistically significant differences in entrepreneurial orientation between (a) the companies operating in a more competitive environment and the companies operating in a less competitive environment; (b) the companies with acquired ISO certificates and high level of TQM practices and the companies without ISO certificates and low level of TQM practices; (c) the companies operating in predominantly export-oriented markets and the companies operating in predominantly local markets; and finally (d) the companies located in Federation of Bosnia and Herzegovina and the companies located in Republic of Srpska. However, there are no statistically significant differences in entrepreneurial orientation between the older companies (older than two, five and ten years) and younger companies; nor between companies of different sizes. By analyzing organizational contextual factors, this paper identifies key variables that may play an important role in designing more complex structural models. Additionally, this paper presents the current state of entrepreneurial orientation of existing companies in Bosnia and Herzegovina.*

**Keywords:** entrepreneurial orientation, contextual factors, firm behavior, entrepreneurship, Bosnia and Herzegovina

**JEL:** L2

#### Sažetak

*Preduzetnička orijentacija predstavlja konstrukt na nivou firme koji najčešće obuhvata inovativnost, proaktivnost i spremnost na preuzimanje rizika. Glavni cilj ovog rada je prezentovati predzmetičku orijentaciju 477 kompanija u Bosni i Hercegovini i testirati razlike između kompanija koje posluju u okruženju s različitim kontekstualnim faktorima. Pri donošenju zaključaka koristili smo deskriptivnu statistiku i statističko testiranje. Ovaj rad daje prikaz prosječnih vrijednosti preduzetničke orijentacije po NACE industrijskim kategorijama. Pored toga, rezultati ove studije potvrđuju da postoji statistički signifikantna razlika u preduzetličkoj orijentaciji između: (a) kompanije koje posluju u više konkurentnijem*

*okruženju i kompanija koje posluju u manje konkurentnom okruženju; (b) kompanije koje imaju ISO certifikate i visok nivo TQM praksi i kompanija koje nemaju ISO certifikate i nizak nivo TQM praksi; (c) kompanija koje posluju u predominantno eksportno-orijentisanim tržištima i kompanija koje posluju na predominantno lokalnim tržištima; te konačno (d) kompanija koje posluju u Federaciji Bosne i Hercegovine i kompanija koja posluju na području Republike Srpske. Ipak, nisu pronađene statistički signifikantne razlike u preduzetničkoj orijentaciji između starijih kompanija (starije od dvije, pet i 10 godina) i mlađih kompanija, kao ni između kompanije različite veličine. Analizirajući organizacione kontekstualne faktore, ovaj rad identifikuje ključne varijable koje mogu igrati važnu ulogu u osmišljavanju kompleksnijih strukturalnih modela. Dodatno, ovaj rad prikazuje trenutno stanje preduzetničke orijentacije postojećih kompanija u Bosni i Hercegovini.*

**Ključne riječi:** preduzetnička orijentacija, kontekstualni faktori, ponašanje firme, preduzetništvo, Bosna i Hercegovina

**JEL:** L2

## 1. Introduction

For more than 30 years of research, the phenomenon of entrepreneurial orientation (EO) has been a driving force behind the organizational pursuit of entrepreneurial activities and a central focus of the entrepreneurship literature (Rauch *et al.*, 2009). As noted by Covin, Greene and Slevin (2006), knowledge accumulation about measurement, antecedents, and consequences of EO is substantial. The existing literature provides strong support that entrepreneurially-oriented firms perform better than more conservative firms (Anderson & Eshima, 2013).

An extensive meta-analysis study (Rauch *et al.*, 2009) have confirmed the positive relationship between EO construct and firm performance, emphasizing that further studies should focus their attention on the role of potential moderators: firm age, environmental dynamism, national culture, a strategy pursued, and organizational structure.

Given the importance of contingencies in explaining organizational effectiveness (Donaldson, 2001), the focus of this paper is to present the EO of 477 companies in Bosnia and Herzegovina and to examine if EO differs between companies with different contextual factors. To our knowledge, research addressing the entrepreneurial orientation of the firms in the context of Bosnia and Herzegovina is rather scarce. In line with this, and given that organizational contextual factors play an important role in predicting the behavior of the firm, in this paper we analyze and discuss the differences in entrepreneurial orientation between companies that differ in terms of a competitive environment, age, size, focus on quality, export-orientation and location. It is also worth noting that the business environment in Bosnia and Herzegovina faces several challenges (European Commission, 2019): lengthy and cumbersome market entry and exit regulations, large informal economy, high state influence on the economy, incomplete privatization process, very low labor force participation, and high unemployment rates.

## 2. Literature review

Generally, EO is seen as an organizational decision-making proclivity favoring entrepreneurial activities (Lumpkin & Dess, 1996). First devised by Miller (1983), and expanded afterward by Covin and Slevin (1989; 1991), EO relates to strategic decision-making practices, behavioral tendencies, and managerial philosophies that are entrepreneurial in nature. Under their conceptualization of EO, a firm that possesses a high level of EO is expected to exhibit similarly high levels of innovativeness, proactiveness, and a willingness to take risks (Anderson & Eshima, 2013). In that sense, three dimensions of EO introduced by Miller (1983) have been used consistently in the literature: innovativeness, risk-taking, and proactiveness. Innovativeness can be

understood as the company's desire to engage and support new ideas, novelty, experiments and creative processes that can ultimately result in new products, services or technological processes (Lumpkin & Dess, 1996). Risk-taking refers to the level of risky activities of a company, such as venturing into the unknown, borrowing heavily, or committing significant resources to ventures in uncertain environments. Proactiveness, on the other hand, can be defined as a company's relationship to market opportunities. Proactiveness refers primarily to the introduction of new products and services ahead of the competition and acting in anticipation of future demand (Rauch *et al.*, 2009).

Although a great deal of research has been done on the topic of EO globally, in the context of Bosnia and Herzegovina, we identified only two articles that address this issue. Palalić and Bušatlić (2015) analyzed the environment in which operated fast-growing enterprises and slow-growing enterprises on the small sample size (178 SMEs in Bosnia and Herzegovina), taking into account the dimensions of EO and performance (growth in sales and number of employees). Firstly, the authors have presented evidence that entrepreneurial orientation is more evident in fast-growing than in slow-growing enterprises. Researchers also reported a small to moderate significant correlation between EO dimensions and business performance. Petković and Sorak (2019) examined the level of EO and the influence of EO on business performances of SMEs in the entity Republic of Srpska. The results reveal that only 12.28% of sampled SMEs have high EO in all three dimensions; whereas risk-taking has been the least considered dimension (33.33% companies rated this dimension particularly high), followed by innovativeness (36.84%) and proactiveness (45.61%). The authors did not confirm the impact of EO on selected indicators of business performances, noting that these results should be interpreted with caution due to small sample size (57 SMEs).

Market competition is considered to be a key situational factor in the total number of factors that make up the company environment (Das *et al.*, 2000). Companies working in mature industries and hostile environments, where competition for resources and customers is intense, are more likely to benefit from EO (Lumpkin & Dess, 2001; Miller & Firesen, 1983; Covin & Slevin, 1989). Shirokova *et al.* (2016) provide evidence that companies benefit more from entrepreneurial behavior in hostile business environments with high market growth for their products and services, compared to other environmental configurations, while Kam-Sing Wong (2014) found a positive impact of environmental turbulence on three dimensions of EO. Hence, our first research question is *whether companies in a more competitive environment have a higher level of entrepreneurial orientation than companies in a less competitive environment*.

The International Organization for Standardization (ISO) first published international ISO standards in 1987 and has since become a major dimension of the quality movement and a key management framework for all types of organizations worldwide (Fonseca, 2015). With the newest version issued in 2015, ISO 9000:2015 has come close to TQM, largely eliminating the flaws and shortcomings of previous releases. Although certification of the quality management system (QMS) is optional, ISO certification plays a major role in international business and is a very visible substitute for the adoption and intensity of quality management systems. Quality certification may create a competitive advantage (Tari-Guilló & Pereira-Moliner, 2012; Wang, Chen, & Chen, 2012) or offer a means of differentiation (Walker & Johnson, 2009).

Also, Du *et al.* (2010) suggest that proactive firms tend to use legitimization via ISO certification to enhance firm growth. Hence, our second research question is *whether companies with a strong focus on quality have a higher level of entrepreneurial orientation than companies with a weak focus on quality*. In this context, ISO certification is used as a proxy for a focus on quality. But, the existing literature provides some evidence in support of a positive relationship between EO and TQM (Imran *et al.*, 2018; Sahoo & Yadav, 2017; Al-Dhaafri, Al-Swidi, & Yusoff, 2016).

Alsughayir (2016, p. 662) pointed out that “the implementation of TQM practices allowed for continuous improvements at all levels of an organization and it positively influences entrepreneurial orientation and market orientation”. Hence, our third research question is similar to the second. However, in the case of our third research questions, quality is considered as a more complex construct (TQM practices) than simply having an ISO certificate.

For the company, exports can be seen as an important factor in reducing costs, reaching new markets, and gaining experience for other forms of internationalization (Okpara, 2009). Simmonds and Smith (1968) as well as Roux (1987) have thought of the decision to export as an innovation, something similar to entrepreneurship. Ibeh and Young (2001, p. 567) suggest that exporting is an entrepreneurial act defined as “the process by which individuals either on their own or inside organizations pursue export market opportunities without regard to the resources which they currently control or environmental disincentives which they face.” By reviewing international literature, Kazem and Van der Heijden (2006) have concluded that exporters are likely to be more competitive than non-exporters. Furthermore, different authors confirmed a positive relationship between EO and export performance.

Analyzing 89 SMEs in Nigeria, Okpara (2009) has concluded that companies that adopted proactive orientation achieved higher performance, profitability, and growth compared to those that adopted a conservative orientation. On the other hand, results from Mostafa, Wheeler and Jones (2005) have revealed that companies with high entrepreneurial orientation are more committed to the Internet and have better export performance than firms with low entrepreneurial orientation. Hence, our fourth research question is *whether export-oriented companies have a higher level of entrepreneurial orientation than non-export companies.*

Regarding the age of the company as a contextual factor, Anderson and Eshima (2013) have empirically supported the argument that younger firms are better able to capture the value from entrepreneurial strategies in the form of higher organizational growth rates than their older peers. Their results are predicated on the notion that “younger firms, while lacking established routines and processes that may provide guidance and discipline in strategic decision-making, also possess structures and an organizing context that is more flexible and reactive than older firms. Furthermore, younger firms, while again perhaps lacking in quantity of market knowledge, may actually possess market knowledge of greater temporal salience. These advantages allow younger firms to pursue entrepreneurial opportunities with greater congruence to current market expectations, and therefore be better positioned to translate those opportunities into superior growth outcomes” (Anderson & Eshima, 2013, p. 413).

On the other hand, from the perspective of general ability to pursue entrepreneurial strategies, older firms may be better equipped to engage in innovation, proactiveness, and risk-taking by virtue of more established routines, structures, and processes that discipline companies actions and provide strategic purpose (Amburgey *et al.*, 1993; Henderson, 1999). However, Sørensen and Stuart (2000) note that innovation is path-dependent. By their knowledge, the company’s future entrepreneurial behavior is a function of those that occurred in the past. In that sense, older companies mostly base their entrepreneurial strategies on the previous market conditions that may be divergent to current conditions. Younger companies have more adaptability and strategic flexibility for new entrepreneurial initiatives (Van de Ven, 1986) and can exhibit greater outcomes than their older peers. Hence, our fifth research question is *whether younger companies have a higher level of entrepreneurial orientation than older companies.*

Although much more research on the topic of EO has been done in terms of small companies, the concept of entrepreneurship is valid for both SME initiatives and large corporations (Lumpkin & Dess, 1996). The entrepreneurial orientation is not only important for SMEs' survival and growth

but also affects the large companies' profitability. Generally, large companies face different challenges than SMEs, mostly because of the different organizational designs and management styles (Ambad & Wahab, 2013). The results of a meta-analysis in Rauch *et al.* (2009) study have shown that EO was significantly more important to company performance for micro-businesses than for small businesses. Large companies scored in between these two groups, but the difference was not statistically significant. Hence, our sixth research question is *whether smaller companies have a higher level of entrepreneurial orientation than larger companies*.

### 3. Research methodology

Based on the available data from the Financial–Intelligence Agency of Bosnia and Herzegovina; Agency for Intermediary, IT and Financial Services Banja Luka and Municipal Court of Brcko District, the size of the population was estimated to be 7,062 (excluding micro-enterprises). In the next phase, we gathered email addresses of 5,430 companies; whereas remaining companies had no official web site or email address. The data were collected in 2018 with a response rate of 12.6% (or 685 firms). But, our analysis was conducted on 477 usable manager responses. The sample is dominated by small companies (10 – 50 employees) with 70.4% of the total sample, followed by medium-sized companies (51 – 250 employees) with 23.7% and large companies (250+ employees) with 5.9%. In order to test the hypothesis, we used a survey design as a research strategy. The questionnaire was constructed based on the previously validated measurement models of EO (Covin & Slevin, 1989); competitive intensity (Jaworski & Kohli, 1993) and TQM (Santos-Vijande & Álvarez-González, 2007). EO represents a higher-order latent construct consisted of three first-order constructs: innovativeness, risk-taking, and proactiveness and measured by Likert scale from one to seven. The competitive intensity (CI) is a first-order latent construct consisting of six items; measured by a Likert scale from one to five. TQM is also a higher-order latent construct consisted of five first-order constructs: leadership, people, policy and strategy, processes and resources, and partnership. As EO, CI, and TQM are represented by latent constructs, we used confirmatory factor analysis (CFA) to test whether measures of constructs are consistent with a theoretical understanding of the nature of these constructs. As our aim was to analyze differences between several groups, we ran several statistical tests in STATA 15.1. Effect sizes were estimated by using Cohen's d: small effect size ( $d=0.2$ ); medium effect size ( $d=0.5$ ); large effect size ( $d=0.8$ ).

### 4. Results

The following table presents the mean values of entrepreneurial orientation for each NACE industry category. Also, this table provides mean values for each dimension of EO (innovativeness, risk-taking, and proactiveness) and competitive intensity. Industries with NACE codes of R, L, O, N and B should be interpreted with caution due to a small number of observations in these industries.

Table 1. *Entrepreneurial orientation of companies in Bosnia and Herzegovina*

	Industry	Obs	INNO	PROA	RISK	EO	CI
M	Professional, Scientific and Technical Activities	23	5.0	5.0	4.6	4.9	4.2
Q	Human Health and Social Work Activities	28	5.0	4.8	4.3	4.7	3.5
H	Transportation and Storage	11	4.8	4.7	4.3	4.6	4.6
I	Accommodation and Food Service Activities	15	4.1	4.5	5.0	4.5	4.1
K	Financial and Insurance Activities	21	4.7	4.6	4.2	4.5	4.3
J	Information and Communication	44	4.5	4.6	4.3	4.5	3.9
S	Other Service Activities	50	4.4	4.5	4.4	4.4	3.9
N	Administrative and Support Service Activities	2	4.5	4.7	4.0	4.4	2.8
F	Construction	62	4.1	4.6	4.4	4.4	4.2
C	Manufacturing	94	4.5	4.4	4.2	4.4	3.8

G	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	64	4.2	4.5	4.0	4.2	4.5
P	Education	15	3.8	4.6	4.4	4.2	4.0
R	Arts, Entertainment and Recreation	2	4.3	4.2	4.2	4.2	4.0
D	Electricity, Gas, Steam and Air Conditioning Supply	10	4.2	4.2	4.0	4.1	3.6
O	Public Administration and Defence; Compulsory Social Security	1	3.3	3.3	5.7	4.1	2.0
E	Water Supply; Sewerage, Waste Management, and Remediation Activities	18	3.7	3.8	4.1	3.9	2.5
A	Agriculture, Forestry, and Fishing	10	3.3	3.9	4.1	3.8	4.2
B	Mining and Quarrying	5	3.7	4.1	3.0	3.6	3.7
L	Real Estate Activities	2	3.2	3.7	3.5	3.4	4.6
	All Companies	477	4.3	4.5	4.3	4.4	4.0

Source: Authors' own work

Managers of the companies from Professional, Scientific and Technical Activities (M) industry rated their entrepreneurial orientation the highest, closely followed by Human Health and Social Work Activities (Q), Transportation and Storage (H), Accommodation and Food Service Activities (I), Financial and Insurance Activities (K) and Information and Communication (J). The average EO scores are very close in each of these industries. Also, the scores from these industries are higher than the industry average (4,4). On the other hand, Real Estate Activities (L), Mining and Quarrying (B), Agriculture, Forestry, and Fishing (A) and Water Supply; Sewerage, Waste Management and Remediation Activities (E) have the lowest average EO score. Overall, only 8.8% of managers indicated a very high level of EO (all observed variables within first-order EO latent constructs are above five) which is a relatively low percentage and similar to the results presented in Petković and Sorak (2019). In Table 2 we present the results of statistical tests in order to examine differences in entrepreneurial orientation between companies that differ in terms of a competitive environment, focus on quality (ISO certification and TQM practices), export-orientation, location, age, and size.

Table 2. *The results of t-test*

<i>Differences in Entrepreneurial Orientation between</i>	<i>n</i>	<i>Mean</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>	<i>Effect-size (Cohen's d)</i>
Low competitive intensity (CI<3)	57	4.10	1.05	475	2.06**	0.04	0.29
High competitive intensity (CI>3)	420	4.41	1.06				
No ISO acquired (ISO=0)	277	4.28	1.11	475	2.21**	0.03	0.20
ISO acquired (ISO=1)	200	4.50	0.97				
Low TQM (TQM>5)	233	4.14	0.99	475	4.83** *	0.00	0.44
High TQM (TQM<5)	244	4.60	1.08				
No export-oriented (ExO=0)	241	4.25	0.95	475	2.21**	0.03	0.25
Export-oriented (ExO=1)	236	4.51	1.15				
Republic of Srpska	114	4.09	1.16	475	3.31** *	0.00	0.36
Federation of Bosnia and Herzegovina	363	4.46	1.01				
Younger company (Age <2)	468	4.37	1.06	475	0.69	0.49	0.23
Older company (Age > 2)	9	4.62	0.96				
Younger company (Age < 5)	431	4.39	1.05	475	1.22	0.22	0.18
Older company (Age > 5)	46	4.19	1.15				
Younger company (Age < 10)	380	4.37	1.06	475	0.16	0.87	0.02
Older company (Age > 10)	97	4.39	1.08				
Smaller company (10-50 employees)	336	4.33	1.11	475	1.48	0.14	0.15
Larger company (>50 employees)	141	4.49	0.93				

\*\*\* p<0.01 \*\* p<0.05 \* p<0.1

Source: Authors' own work

Table 2 shows that companies in a higher competitive environment, companies with a strong focus on quality (in terms of ISO certification and TQM practices), export-oriented companies, and companies located in the Federation of Bosnia and Herzegovina have a higher level of entrepreneurial orientation than companies in opposed groups. These results are significant at 5%. On the other hand, our results have not shown statistically significant differences in entrepreneurial orientation between companies that differ in terms of age and size.

## 5. Discussion

In this paper, we examined whether the level of entrepreneurial orientation of the companies depends on the contextual factors. Such results are particularly useful when designing more complex structural models, but also in order to understand how companies differ in terms of EO. In order to achieve significant economic growth, it is important to have more companies that lean toward EO-focused behavior and, consequently, focus their growth on innovative products and services. Hence, our results shed some light on how companies differ in EO. Our results show that companies in a higher competitive environment, companies with a strong focus on quality (in terms of ISO certification and TQM practices), export-oriented companies, and companies located in the Federation of Bosnia and Herzegovina have a higher level of entrepreneurial orientation than companies in opposed groups. A higher level of EO in a more competitive environment is in line with previous research (Shirokova *et al.*, 2016; Kam-Sing Wong, 2014). These results might indicate, as noted in Lumpkin and Dess (2001), that the benefit of adopting EO is far more important compared to the less competitive and less hostile environment. In line with the reasoning of Covin and Slevin (1989), a high entrepreneurial strategic posture might contribute to the high performance of companies in a hostile environment, creating a stronger need to adopt EO in such environments. Companies with a strong focus on quality have a higher level of entrepreneurial orientation.

As Du *et al.* (2010) suggest, proactive firms tend to use legitimation via ISO certification to enhance firm growth. Also, EO was greater in companies with a high level of TQM. These results are in line with other authors (Imran *et al.*, 2018; Sahoo & Yadav, 2017; Al-Dhaafri, Al-Swidi & Yusoff, 2016) and imply the implementation of TQM practices positively influence the entrepreneurial orientation of the company. Regarding export orientation, EO was greater for export-oriented companies. Export-oriented companies, in general, should be more proactive because of international competition and must take more risks than locally-oriented companies. These results are in line with Mostafa, Wheeler and Jones (2005): companies with high entrepreneurial orientation are more committed to the Internet and have better export performance than firms with low entrepreneurial orientation. Finally, there was a difference in EO between companies located in different entities. EO was greater in the Federation of Bosnia and Herzegovina than in RS. This indicates that the business environment might be under the influence of different market forces, creating differences in the entrepreneurial orientation between two entities of Bosnia and Herzegovina.

Our results have not shown statistically significant differences in entrepreneurial orientation between companies that differ in terms of age and size. We considered several criteria for the age variable (older/younger than two, five and ten years), but no statistically significant results were obtained. In other words, companies of all ages and sizes are considering entrepreneurial orientation equally important for achieving outstanding results.

## 6. Conclusion

Our results confirm that there are statistically significant differences in entrepreneurial orientation between (a) the companies operating in a more competitive environment and the companies

operating within a less competitive environment; (b) the companies with acquired ISO certificates and high level of TQM practices and the companies without ISO certificates and low level of TQM practices; (c) the companies operating in predominantly export-oriented markets and the companies operating in predominantly local markets; and finally (d) the companies located in the Federation of Bosnia and Herzegovina and the companies located in Republic of Srpska. However, there are no statistically significant differences in entrepreneurial orientation between the older companies (older than two, five, and ten years) and younger companies; nor between companies of different sizes. We contribute to the existing literature by identifying potential moderators that might play an important role in examining the relationship between EO construct and firm performance (Rauch *et al.*, 2009). Therefore, we confirm that a competitive environment, focus on quality, export-orientation, and location might influence the level of EO. Future studies should consider these variables in more complex research designs. As noted by Kronsbein, Meiser and Leyer (2004), researchers should be fully aware of the context when examining the measured performance of their processes. The main limitation of the research is related to self-reported dimensions of EO, which might result in over-estimation of the EO in the context of Bosnia and Herzegovina. Further studies should focus their attention on an in-depth understanding of possible causes regarding differences in EO.

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## ARE BANK MANAGERS LESS PATIENT THAN SALES MANAGERS? RESEARCH PERSONALITY OF MANAGERS IN DIFFERENT WORKING ENVIRONMENTS

### DA LI SU BANKARSKI MENADŽERI MANJE STRPLJIVI OD MENADŽERA IZ OBLASTI TRGOVINE? ISTRAŽIVANJE LIČNOSTI MENADŽERA U RAZLIČITIM RADNIM OKRUŽENJIMA

#### Abstract

*The presumption of compatibility between the individual and the working environment is investigated within several models. Schneider's ASA model states that individuals are drawn to the work environment and essentially remain working in those organizations that fit their personality. Holland's RIASEC model assumes that the characteristics of the individual and the work environment are consistent as an important prerequisite for observed labor productivity. In such a constellation of relationships, it is justified to point out the expectation that managers are also included in this type of harmonization. When we look at a managerial role, it is clear that it has been elaborated through already well-known functions (planning, organizing, managing human resources, controlling and guiding). In this regard, we considered it interesting to examine the differences in the characteristics of the manager's personality, taking into account the field of work of the organizations they come from. The research was conducted on a suitable sample of BiH managers, coming from three different sectors, the financial service sector (bank managers and microcredit organizations,  $N = 50$ ), the trade sector ( $N = 49$ ) and the education sector (school directors;  $N = 50$ ). Personality traits were tested with the help of the adapted Big Five Inventory. The results of the analysis of variance show that there are significant differences in terms of expression of the dimension of neuroticism ( $F = 3.33$ ;  $df = 2$ ;  $p < 0.05$ ). Descriptive indicators and subsequent testing of differences have confirmed that a sample of managers coming from the financial sector clearly shows the emergence of higher levels of neuroticism compared to the remaining two groups of respondents. Potential reasons for such findings can be found in the specifics of the working environment of these managers as well as in the context of the time in which research data was collected.*

**Keywords:** personality traits, managers, working environment, types of organization

**JEL:** M5, M12, M54

#### Sažetak

*Pretpostavka o usklađenosti osobina pojedinca i radne okoline istražuje se u okviru nekoliko modela. Schneiderov tzv. ASA model (eng. attraction-selection-attribution) smatra da pojedince privlači, da prolaze proces selekcije te ostaju da rade u onim organizacijama koje odgovaraju njihovoj ličnosti, gdje upravo modalitet ličnosti čini osnovu kulture organizacije. Hollandov RIASEC model vodi se pretpostavkom o usklađenosti karakteristika pojedinca i radnog okruženja kao važnog preduslova zapažene radne produktivnosti. U takvoj konstelaciji odnosa opravdano je istaknuti očekivanje da i menadžere ubrajamo u tu vrstu usklađenosti. Kada posmatramo radnu ulogu menadžera, jasno se uviđa da je ista elaborirana kroz već poznate funkcije (planiranje, organizovanje, upravljanje ljudskim potencijalima, kontrolu i vođenje). S tim u*

vezi smo smatrali zanimljivim ispitati postojanje razlika u pogledu osobina ličnosti menadžera uzevši u obzir djelatnost organizacija iz kojih dolaze. Istraživanje je realizovano na prigodnom uzorku bh. menadžera, koji dolaze iz tri različita sektora, finansijski sektor usluga (menadžeri banaka i mikro kreditnih organizacije;  $N=50$ ), sektor trgovine ( $N=49$ ) i sektor obrazovanja (direktori škola;  $N=50$ ). Dimenzija ličnosti su ispitane uz pomoć adaptiranog Petofaktorskog inventara ličnosti (BFI-Big Five Inventory, John i sar. 1991). Rezultati provedene analize varijance govore da postoje relevantne razlike u pogledu izraženosti dimenzije Neuroticizma ( $F=3.33$ ;  $df=2$ ;  $p<0.05$ ). Deskriptivni pokazatelji i naknadni testovi ispitivanja razlika su potvrdili da se na ispitanoj uzorku menadžera koji dolaze iz finansijskog sektora jasno uočavaju ispoljavanja viših nivoa Neuroticizma u odnosu na preostale dvije grupe ispitanika. Potencijalne razloge takvih nalaza možemo tražiti u specifičnostima radnog okruženja ovih menadžera kao i u kontekstu vremena u kojem su prikupljeni podaci za istraživanje.

**Ključne riječi:** osobine ličnosti, menadžeri, radno okruženje, djelatnost organizacije.

**JEL:** M5, M12, M54

## 1. Introduction

After an almost 4 decade of deviation, the role of personality in explaining the managerial success had returned to the focus of authors in the 1980s. The conclusions of a study conducted by Kenny and Zaccaro (1983, as cited in Borman, Ilgen & Klimoski, 2003) indicate that leaders' personality explains between 48% and 82% of variance in the leadership development process. Hogan, Raskin and Fazzini (1990, as cited in Borman, Ilgen & Klimoski, 2003) have focused their study on the causes of management failures after the found that 70% of workers declared that the worst and most stressful thing in their job, is the supervisor.

The findings of earlier works by McCall and Lombardo (1983, as cited in Borman, Ilgen & Klimoski, 2003) and Hellervik, Hazuch and Schneider (1992, as cited in Borman, Ilgen & Klimoski, 2003) imply that an unsuccessful manager expresses the following traits: tight control, irritation, and exploitation. Similar conclusions were made in a study by Kaplan, Drath and Kofodimos (1991, as cited in Borman, Ilgen & Klimoski, 2003). Goleman (1998) points out that most bright, hard-working managers fail because they are arrogant, rough, selfish and lack emotional intelligence. Kirkpatrick and Locke (1991) have connected other traits with leader success: honesty, integrity, self-confidence, cognitive abilities, and knowledge. Leaders can fail because of personality and character disorders (Kaplan, 1991, Kets de Vries, 1988 as cited in Borman, Ilgen & Klimoski, 2003). Leaders who lack intelligence, good social skills, decision-making abilities, self-confidence, self-satisfaction, honesty, and ambition often fail.

Hogan, Curphy and Hogan (1994) have proposed a literature review that represented the Big Five Personality Model as a practical framework of summarizing the individual differences related to successful management. Their study shows a consistent relationship between leader success and problem coping (domination, orientation towards others, socialization), conscientiousness (integrity, responsibility), agreeableness and emotional stability (self-confidence, emotional control).

A study led by Judge *et al.* (2001 as cited in Schneider & Smith, 2004) was based on the examination of the relationship between Big Five, leadership development, management efficacy, and transformational leadership. They expected a negative relationship between neuroticism and leadership, a positive relationship between extraversion with energy and social interaction (all of which are leadership aspects). Furthermore, the hypothesized that openness to experience was positively correlated to charismatic/transformational leadership and that conscientiousness will have a positive correlation with charismatic/transformational leadership. A meta-analysis based on 275 correlations from 94 studies confirmed these hypotheses.

Judge *et al.* (2002) present a qualitative review of the perspective of leadership studying from the personality framework. They used the Big Five Personality model and based their results on 222 correlations from 73 different studies. They point out that the most consistent relationship is the one between Extraversion and leadership when taking into account the settings of selected studies and leadership criteria. Generally, Big Five Model and leadership are correlated with a multiple correlation of  $R = .48$ , which implies that a justified basis for studying leadership from the personality perspective exists.

The first relation concerns the theoretical assumptions about the fact that generally speaking, an individual chooses those work environment which suits their personalities. One of these assumptions is a multidimensional framework for understanding the relationship between the individual and organizational characteristics with workplace success, as was suggested by Schneider, Smiths and Sipe (2000).

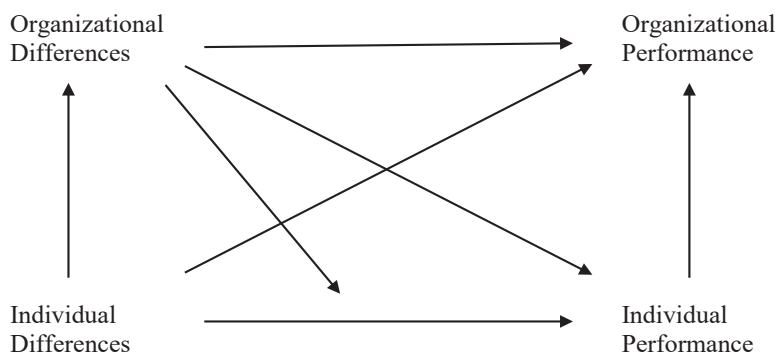


Figure 1. A multidimensional framework for understanding the relationship between individual and organizational attributes attributed to workplace success

Source: Schneider, Smits & Sipe, 2000

The essence of the suggested multidimensional model reveals that individual differences (personality traits) develop a direct relationship (one-way) not only with individual performance but with organizational performance and differences as well. Individual differences occupy a key position in the suggested model. In this study, the differences in relations between individual differences and organizational ones are the focus of interest, so attention will be aimed towards that part of the model.

In 1984, Schneider (as cited in Schneider & Smith, 2004) has already suggested that individuals are attracted to, become selected and in the end stay to work in environments that suit their personalities. Results of the Attraction-Selection-Attrition (ASA) cycle are organizations characterized by the modal personality, where the personality modality presents the foundation of the organizational culture. It is hard not to get the impression that Schneider had developed this idea from Holland (1985; as cited in Holland, 1997). Holland's theory (1997), which was based on the social learning theory, assumes a person-work environment fit. According to his typology, individuals can be characterized based on their similarities with six basic types. On the other hand, environments can be characterized by six ideal environment types.

For example, a realistic type will succeed in a realistic environment that provides opportunities, assignments, activities, and roles which fit the skills, interests, and values of a realistic individual. Stated more clearly, it is assumed –if everything stays equal – the person-environment fit leads to job satisfaction, career development stability, and achievements. A person-environment mismatch

leads to dissatisfaction, instability and low achievement. The determination of environment types is conducted by deriving the frequencies of different types of individuals who act in this environment. If the mentioned theoretical models are taken into account, the type of organization's area which acts as an organizational and social context in which the managers operate can present a factor of significant differentiation between the presence of manifested personality traits of managers. One can thus expect that the mentioned differences are present in a sample of bh managers.

## 2. Methods

### 2.1. Sample

The respondents who participated in this study were divided into three groups based on their organization's area of expertise (trade) and their work environment respectively. According to that classification, 50 managers participated from the finance services (banks, insurance companies, microcredit organizations,  $N_{\text{finance}} = 50$ ). Another 49 respondents came from the trade sector ( $N_{\text{trade}} = 49$ ), while 50 managers came from an educational environment ( $N_{\text{education}} = 50$ ).

The sample was homogenous based on the respondent gender, where 79 of them (53%) were male while the remaining 70 (47%) were female. Respondents who participated in this study came from Bosnia and Herzegovina.

### 2.2. Instruments

Personality dimensions of managers was studied using the BFI personality inventory (John, Donahue & Kentle, 1991). The translation and the empirical examination, with the permission of original authors, was conducted by the authors of this study.

BFI is an instrument which enables the (self)assessment of 5 fundamental personality dimensions: extraversion (E), agreeableness (A), conscientiousness (C), neuroticism (N) and openness (O). The inventory contains 44 items which were derived by factor analysis on a large sample of respondents. The assessment is done on a Likert scale from 1 to 5 which expresses the degree of how much does one agree or disagree with the statement (from 1 "fully disagree" to 5 "fully agree"). The task of the respondent is to write down how much he agrees/disagrees with a statement on a designated place.

On the samples from USA and Canada, the scale reliability, measured by Alpha coefficient, took up values between .75 and .90 (John *et al.*, 1991). Hampson & Goldberg (2006) have on a sample of middle-aged respondents recorded an average reliability (measured using the test-retest method) of .74. A similar value was recorded in this study. The reliability of the full scale, measured by the Alpha coefficient, was .72. This value of reliability, measured by the internal consistency coefficient, is acceptable (Fajgelj, 2003).

### 2.3. Procedure

The data from managers were collected individually and voluntarily. All respondents received suitable instructions for the applied instrument. The data collection process was conducted on one occasion, where managers filled the instruments that were intended for them.

## 3. Results

To test the hypothesis about differences in managers' personality traits expression (based on their organization's trade area) an analysis of variance was used, as well as suitable post-hoc t-tests.

Table 1. *Descriptive statistics for personality dimensions based on the type of organizations*

<i>Personality variables</i>	<i>Sector</i>	<i>N</i>	<i>M</i>	<i>SD</i>
Extraversion	Finance Service	50	30.14	5.21
	Trade	49	32.08	5.22
	Education	50	30.92	6.67
	Total	149	31.04	5.76
Agreeableness*	Finance Service	50	1299.60	228.60
	Trade	49	1315.64	235.04
	Education	50	1335.07	184.19
	Total	149	1316.64	216.06
Conscientiousness*	Finance Service	50	1424.66	347.09
	Trade	49	1568.80	417.29
	Education	50	1422.73	438.58
	Total	149	1471.41	405.86
Neuroticism	Finance Service	50	21.62	4.63
	Trade	49	19.88	4.68
	Education	50	19.12	5.50
	Total	149	20.21	5.03
Openness	Finance Service	50	35.58	4.75
	Trade	49	35.33	4.96
	Education	50	36.72	5.72
	Total	149	35.88	5.16

Note: \* - results on marked dimensions were transformed to satisfy the conditions for the use of analysis of variance

Source: Authors' own work

Analysis of variance shows that significant differences between the subsamples exist. Significant differences relate to the presence of emotional (in)stability, based on the respondent's organization type.

Table 2. *Analysis of variance for the personality traits based on the type of organizations*

<i>Source</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Extraversion	94.37	2	47.19	1.43	.243
Agreeableness	28062.59	2	14031.29	.29	.743
Conscientiousness	692460.19	2	346230.1	2.13	.122
Neuroticism	163.77	2	81.88	3.33	.038
Openness	54.59	2	27.29	1.02	.362

Source: Authors' own work

When trade is concerned, managers from the finance service organizations show higher levels of emotional instability than other respondents.

Table 3. *Descriptive statistics and values of post-hoc t-tests for areas of finance service and trade*

<i>Personality variables</i>	<i>Sector</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t-test</i>	<i>df</i>	<i>p</i>
Extraversion	Finance Service	50	30.14	5.21	-1.85	97	0.07
	Trade	49	32.08	5.22			
Agreeableness	Finance Service	50	1299.60	228.60	-0.33	97	0.74
	Trade	49	1315.64	235.04			
Conscientiousness	Finance Service	50	1424.66	347.09	-1.87	97	0.06
	Trade	49	1568.80	417.29			
Neuroticism	Finance Service	50	21.62	4.63	1.86	97	0.07
	Trade	49	19.88	4.68			

Openness	Finance Service	50	35.58	4.75	0.26	97	0.80
	Trade	49	35.33	4.96			

Source: Authors' own work

To determine which subsamples differ significantly in the personality dimensions, suitable t-tests were used.

Table 4. *Descriptive statistics and values of post-hoc t-tests for areas of trade and education*

	Sector	N	M	SD	t-test	df	p
Extraversion	Trade	49	32.08	5.22	0.96	97	0.34
	Education	50	30.92	6.67			
Agreeableness	Trade	49	1315.64	235.04	-0.43	97	0.67
	Education	50	1335.07	184.19			
Conscientiousness	Education	49	1568.80	417.29	1.70	97	0.09
	Trade	50	1422.73	438.58			
Neuroticism	Trade	49	19.88	4.68	0.73	97	0.46
	Education	50	19.12	5.50			
Openness	Education	49	35.33	4.96	-1.30	97	0.20
	Trade	50	36.72	5.72			

Source: Authors' own work

When the results from the tables (2, 3, 4) are analyzed, it is noticeable that the difference in the Extraversion dimension is present in the managers from finance service and trade areas.

Table 5. *Descriptive statistics and values of post-hoc t-tests for areas of finance service and education*

	Sector	N	M	SD	t-test	df	p
Extraversion	Finance Service	50	30.14	5.21	-0.65	98	0.52
	Education	50	30.92	6.67			
Agreeableness	Finance Service	50	1299.60	228.60	-0.80	98	0.42
	Education	50	1335.07	184.19			
Conscientiousness	Education	50	1424.66	347.09	0.02	98	0.98
	Finance Service	50	1422.73	438.58			
Neuroticism	Finance Service	50	21.62	4.63	2.45	98	0.02
	Education	50	19.12	5.50			
Openness	Education	50	35.58	4.75	-1.10	98	0.28
	Finance Service	50	36.72	5.72			

Source: Authors' own work

This difference lies on the border of statistical significance ( $t = 1.85$ ,  $p = .07$ ). The identified difference can be characterized as a tendency of higher extraversion expression in trade managers when compared to finance service managers. A similar situation can be found on the conscientiousness dimension. Respondents from the trade area had higher results than managers from the Finance service sector in said dimension. Trade managers tend to be more organized, goal-oriented, as well as reliable than managers in the finance service sector. However, it should be noted that the identified difference is on the border of statistical significance ( $t = -1.85$ ,  $p = .06$ ).

When the neuroticism or emotional stability dimension is concerned, it can be noticed that the finance service managers have shown higher results. Testing for the significance of this difference showed that the mentioned difference is on the border of significance ( $t = 1.86$ ,  $p = .07$ ). The difference implicates the tendency of finance service managers to be somewhat less adaptable on

new and stressful situations, and to generally have more coping with stressful situations difficulties than trade managers.

Respondents from the trade have shown somewhat higher results on the conscientiousness dimension when being compared to educational managers. Trade managers tend to be more organized, goal-oriented and reliable than managers from the education sector. It should be noted that the manifested difference is not statistically significant ( $t = 1.70, p = .09$ ).

Results from Table 5. show that a significant difference is present in the neuroticism dimension expression between the finance service and education managers. Managers from the finance service area have shown a significantly higher level of emotional instability when being compared to managers who come from the educational sector. The difference is statistically significant ( $t = 2.45, p < .05$ ). This finding is going to be discussed in later parts of this study.

The results of conducted analysis of variance have shown the there is a presence of significant differences in the results of neuroticism based on the organization's trade area. Post-hoc tests have helped to exactly determine which subsamples differ. In the study sample, managers from the finance service sector (banks, insurance companies, and microcredit organizations) show significantly higher levels of emotional instability when compared to educational managers ( $t = 2.45, p < .05$ ). Furthermore, their results on the neuroticism dimension are higher than the managers from the trade area. Although, this difference was not shown to be statistically significant, it should be noted that it is on the border of significance ( $t = 1.86, p = .07$ ).

#### 4. Discussion

The obtained results can be interpreted using different perspectives. Firstly, the theoretical assumptions suggest that the individual chooses those work environments which suit his personality. The theoretical framework for understanding the relationship between individual and organizational characteristics with work success, which was suggested by Schneider, Smiths and Sipe (2000), can serve as an interpretative framework for obtained results explanation.

Furthermore, individuals seek an environment that will enable them to express their skills, abilities, attitudes, and values. From the early development, people seek the environment which supports their characteristics. Also, the same environment through recruitment, selection, and other social mechanisms attracts certain types of individuals.

On the other hand, it is important to note that, according to Holland's perspective, the behavior of an individual (and behavior usually reflects the personality) is determined by the interaction of his/her's personality and the environment characteristics. By using this definition of the work context, an explanation can be provided for the finding that the managers from the finance service area (banks, insurance companies, and microcredit organizations) have significantly higher scores in the Neuroticism dimension when compared to other respondents.

Taking into account the way Holland (1997) defined personality types and work environments, it could be noted that the working environment of the finance service is closest to the conventional and enterprenuring type. The enterprenuring environment requests skills such as persuasion and manipulation of others. This work environment type enables the expression of behaviors oriented towards powers and material achievements. Occupations that are classified as enterprenuring have a tendency to involve working with people using different methods (leadership, persuasion) achieves organizational goals.

The conventional type requests skills that are directed towards the precise fulfillment of set standards. It enables expression of worry towards neatness and routine, a values organizational skills, conformism, and decision-making dependance. A combination of these two work environment types implicates that employees from Bosnia and Herzegovina that work in the finance service sector have the clearest definition of their job roles and the least amount of conflicts in the said role (Husremović, 2010). When compared to other sectors included in the study (public administration, production, education) employees in the finance service are the most satisfied with their managers, they observe them as righteous individuals who do not discriminate their employees based on gender and age, and encourage their employees to be more innovative. This perception of employees in the finance service sector implicates the great responsibility of their supervisor, *i.e.* managers.

When stress is added to the responsibility that managers in the finance service sector experience (additional stress caused by the economic situation), and the model of neuroticism development is considered, precisely named as the mathematical model of stress reaction (Savić, Knežević & Opačić, 2000), the explanation of higher neuroticism scores of finance service managers will become clearer. Namely, during data collection, in the informal parts of that process, finance service managers have reported that the instability of the financial market influences their job performance. The present change in the financial market led to changes in the interest rates on present and new bank loans as well as decreased interest for new assets. These changes caused the linear increase of the "pressure" on managers to accomplish their defined goals (which is the measure of their performance). If the "pressure" increase is observed through the neuroticism development model, then the differences based on sector area shown in the N scale scores will become clearer.

The mentioned model defines neuroticism as an organism's structural potential which influences the sensitivity for psychological stressors. The model integrates a wide range of study results in a consistent bio-psychological feedback mechanism between the stressful (hypothalamic-pituitary-adrenal, abbreviated PTA) axis and the memory system. The model introduces the  $\sigma$  (sigma) parameter – psychological stressors threshold, which is the inverse measure of the probability of experiencing a certain situation as stressful.

Results on the N scale would present a psychological measure of the psychological stressor sensitivity threshold (on the biological level it is equal to the basal cortisol level in the normal population). Shortly described, the model explains the development of Neuroticism in a way that higher stress causes cortisol secretion and stronger imprint of the negative experience in the memory system which often results in a lower threshold for future stressors. This model assumes that the stress outcome depends on the success of coping methods (the relationship between successful and unsuccessful coping experiences) and coping mechanisms are mostly dependent on Neuroticism. Present Neuroticism leads to more unsuccessful coping methods, which leads to negative self-evaluation with the consequence of being further neuroticism increase (Savić, Knežević & Opačić, 2000).

The duration of financial market instability is a characteristic of transitional economy and presents a long-term process, and therefore significantly higher results on the N scale observed in the finance service managers can be interpreted with neuroticism development, explained through the mathematical models of stress reaction.

One of the rare longitudinal studies of personality trait stability has shown that the neuroticism dimension tends to change (Hampson & Goldberg, 2006). The changes in the personality dimensions during adulthood are expectedly lower than during earlier life periods. By observing the personality changes through the Big Five model, the highest stability (during a 3-year period) was shown in extraversion and openness, while neuroticism and other dimensions showed lower

stability coefficients. Therefore, when compared to extraversion and openness, the neuroticism dimension shows a higher aptitude for change during adulthood. Almost the same conclusion was presented in a study by Sutin and Costa (2010). In a 10-year period on a sample of 297 respondents, this study has found the largest change in terms of neuroticism scores increase.

## 5. Conclusion

When the sector types are considered, the results found in this study on manifested personality dimensions indicate present differences between sectors which can be explained as tendencies and real (significant) differences. This study had shown that managers from the finance service areas (in this case banks, insurance companies, and microcredit organizations) express higher levels of adaptability, emotional instability and a higher likelihood to experience negative emotions when compared to other managers.

According to the person-environment fit approach, higher levels of neuroticism shown in the finance service managers subsample should not be given much importance because it is a case of fitting the person with the characteristics of the work environment. On the other hand, taking into account the findings which indicate that Neuroticism is a trait that is suspect to changes as well as the empirically confirmed neuroticism development model (mathematical model of stress reaction), it can be said that neuroticism development was caused by working in a highly stressful working environment.

It remains to be determined whether, in the case of finance service managers, the elevation in neuroticism is a reflection of their personality as such, or whether it is a consequence of working in a highly stressful environment. This assumption deserves additional verification that goes beyond the scope of our studies and is a legitimate recommendation for future research.

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## **TRANSFORMATIONAL LEADERSHIP, JOB AUTHONOMY AND WORK ENGAGEMENT IN BOSNIA AND HERZEGOVINA – AN EMPIRICAL STUDY**

### **TRANSFORMACIJSKO LIDERSTVO, AUTONOMIJA RADNOG MJESTA I UKLJUČENOST U POSAO U BOSNI I HERCEGOVINI – EMPIRIJSKA STUDIJA**

#### **Abstract**

*This paper focuses on transformational leadership, job autonomy, and work engagement in Bosnia and Herzegovina. These concepts have been widely studied across the world, however authors could find no such study for Bosnian labor market. Authors conducted an empirical study using a questionnaire as an instrument. The questionnaire consisted of four parts, 50 questions, dealing with three main concepts mentioned previously, in addition to demographic data. The data was collected from employees of BH Telecom, a leading telecommunications company in Bosnia and Herzegovina. A total of 286 complete responses were analyzed. Regarding work engagement, using the Kruskal-Wallis test, we found that there is a significant statistical difference in the average age between the respondents on different management levels. Regarding job autonomy, we conducted Kolmogorov-Smirnov test; it is the only variable that follows a normal distribution. Using the ANOVA test we found that this variable has a mean of 39.69, and a standard deviation of 11.72. We conclude that there is a relevant statistical difference in the mean values on the job autonomy scale for respondents working on different positions within the company. We analyzed five transformational leadership subscales and found that they are not following a normal distribution. The Kruskal-Wallis test concluded that for four out of five subscales there was no relevant statistical difference in mean values on the different subscales between respondents working in different positions within the company. A regression model was formulated to quantify the influence of the five subscales of transformational leadership and job autonomy, as independent variables, on work engagement as the dependent variable. According to the given data, statistically relevant independent variables for the prediction of work engagement as a dependent variable are: inspirational motivation and idealized influence attributed (charisma attributed) from the field of transformational leadership followed by job autonomy.*

**Keywords:** transformational leadership, job autonomy, work engagement, labor market

**JEL:** M5, D9

#### **Sažetak**

*Ovaj se rad usredotočuje na transformacijsko vodstvo, autonomiju na poslu i radni angažman u Bosni i Hercegovini. Ovi koncepti su široko proučavani diljem svijeta, ali autori nisu mogli naći takvo istraživanje za bosansko tržište rada. Autori su proveli empirijsku studiju, koristeći upitnik kao instrument. Upitnik se sastojao od četiri dijela, 50 pitanja, koja su se bavila trima glavnim konceptima koji su prethodno spomenuti, pored demografskih podataka. Podaci su prikupljeni od zaposlenika BH Telekoma, vodeće telekomunikacijske tvrtke u Bosni i Hercegovini. Analizirano je ukupno 286 potpunih odgovora. Što se tiče radnog angažmana, korištenjem Kruskal-Wallisovog testa, utvrdili smo da postoji statistički značajna*

*razlika u prosječnoj dobi ispitanika na različitim razinama menadžmenta. Što se tiče autonomije posla, proveli smo Kolmogorov-Smirnov test; to je jedina varijabla koja slijedi normalnu distribuciju. Pomoću ANOVA testa utvrdili smo da ova varijabla ima srednju vrijednost od 39,69 te standardnu devijaciju od 11,72. Zaključujemo da postoji relevantna statistička razlika u srednjim vrijednostima na skali autonomije za posao za ispitanike koji rade na različitim pozicijama unutar tvrtke. Analizirali smo pet transformacijskih podskala vodstva i ustanovili da oni ne slijede normalnu distribuciju. Kruskal-Wallisov test je zaključio da za četiri od pet podskala nije bilo relevantne statističke razlike u srednjim vrijednostima na različitim subskalama između ispitanika koji rade na različitim pozicijama unutar tvrtke. Formuliran je regresijski model za kvantificiranje utjecaja pet podskupa transformacijskog vodstva i autonomije posla, kao nezavisnih varijabli, na radno angažiranje kao zavisnu varijablu. Prema danim podacima, statistički relevantne nezavisne varijable za predviđanje radnog angažmana kao zavisne varijable su: inspirativna motivacija i idealizirani utjecaj (atribuirano karizmi) iz područja transformacijskog vodstva, nakon čega slijedi autonomija posla.*

**Ključne riječi:** transformacijsko vodstvo, autonomija posla, radni angažman, tržište rada

**JEL:** M5, D9

## 1. Introduction

Bosnia and Herzegovina is a country with a very specific job market. According to official European Union studies, Bosnia and Herzegovina had an employment rate of 43.2% at the end of 2015. As a comparison, the twenty-eight European Union countries had an average employment rate of 70.1% at the end of 2015. This means that at the end of 2015, 56.8% of those who are able to work (aged 20 to 64) were unemployed and looking for a job. At the same time, the average in the European Union was only 29.1%. Therefore, we can argue that the labor market in Bosnia and Herzegovina has serious challenges. For an individual seeking work on the market this means that it is very difficult to find employment. The entire situation described above produced a new phenomenon.

People are intensively migrating, leaving Bosnia and Herzegovina and moving to countries where they believe to have a better prospect for employment and quality of life. The migrations mostly include moving to countries that are members of the European Union. According to unofficial data released by certain nongovernmental organizations, between the beginning of 2013 and October 2017 more than 150,000 people migrated from Bosnia and Herzegovina to other countries.

The phenomenon includes all segments of society. Those who have a stable job mostly have very small chances to switch between jobs, or to advance their careers. Most of them feel fortunate to have a job, and try to safeguard it with all means necessary. Many of them face daily problems like non-paid overtime hours, working weekends, mobbing, etc. In such an environment many of them never get the chance to show their full potential, and in the end productivity suffers. Looking at the described situation on the job market in Bosnia and Herzegovina, authors focus on the importance of transformational leadership, job autonomy and work engagement in such an environment. Many studies on these aspects were concluded all over the world, however authors are not aware of such studies focusing on Bosnia and Herzegovina.

## 2. Previous research

Leadership is the antithesis of carrying out established policies. The term leadership implies movement, taking the organization or some part of it in a new direction, solving problems, being creative, initiating new programs, building organizational structures, and improving quality (Davis, 2003). Transformational leadership theory explains the unique connection between a leader and his/her followers that accounts for extraordinary performance and accomplishments for the larger group, unit, and organization (Bass, 1985). It involves inspiring followers to commit to shared

vision and goals for an organization or unit. Transformational leadership challenges followers to become innovative problem solvers, and uses coaching, mentoring, and provision of both challenge and support to develop their leadership capacity (Bass & Riggio, 2006).

MacKenzie, Podsakoff and Rich (2001) carried out a research on 477 sales agents working for a large national insurance company. Agents were mostly working on a commission basis selling multiple lines of life insurance. The findings of this study validated the basic notion that transformational leader behaviors influence followers to perform above and beyond the call of duty. Transformational leader behaviors showed strong direct and indirect relationships with the mediators and the criterion variables. At a minimum, this suggests that sales managers may be able to improve their effectiveness substantially by paying more attention to their transformational leadership behavior.

Transformational leadership is associated with superior team performance. It influences team potency and, consequently, team performance to a greater extent among teams that were higher in power distance, and separately, high in collectivism. A research conducted on 218 different financial service teams that were branches of a bank in Hong Kong and the United States showed similar interaction between transformational leadership and team values. This implies that basic principles of team functioning may hold across nations. To be able to use transformational leadership as a leader, you need to understand and establish conditions that support such leadership. The study suggests that one such enabling condition is team values. When a leader is being perceived as more transformational, collectivistic teams have particularly strong team potency, consequently, higher performance. Transformational leadership has a stronger impact on team potency in high power distance teams. This suggests that ambitious leaders may wish to instill respect for their authority while still attending to followers' needs and suggestions (Schaubroeck, Lam & Cha, 2007).

Job autonomy is a factor that motivates employees (Herzberg, Mausner & Snyderman, 1969). According to Leach, Wall, and Jackson (2003), job autonomy can be defined as a practice, or set of practices involving the delegation of responsibility down the hierarchy so as to give employees increased decision-making authority in respect to the execution and of their primary work tasks. Eaton-Walley and Lowe (2015) argue that in developing the skills required to assume greater autonomy and independence, organizational tenure plays a part. Tenure plays a part in the development of skills to support greater autonomy and independence. The decision to leave the organization is often related to the absence of fulfillment of the need for autonomy and independence. A study that sought to determine how job autonomy is related to work satisfaction and the intent to transfer from or leave the present work setting in the health-care industry found that employees with autonomy in both individual and organizational tasks have more positive work outcomes. They show more satisfaction and less intent to transfer or leave. The study also confirmed that job autonomy is related to higher educational level and permanent employment.

Among the staff of community health care centers, the benefits of employee job autonomy are better work satisfaction and less intent to leave (Lin *et al.* 2011). A study conducted by Lin and Ping (2016) found that higher perceived job autonomy leads to higher organizational commitment. The study also found that employees' perceptions of their job autonomy did not significantly predict the likelihood of them staying in the organization. Thompson and Protas (2005) argue that job autonomy has significant importance in employees' lives. Employees with higher levels of job autonomy (discretion over how the job is to be performed), are more likely to be satisfied with their job, family, and life in general; and are more likely to experience positive spillover between job and home.

Engagement is characterized by involvement, energy, and efficacy. It is the directly opposite from

burnout, which is characterized by cynicism, exhaustion, and ineffectiveness (Maslach & Leiter, 1997). A study research conducted among 201 telecom managers in the Netherlands concluded that work engagement tends to increase when job resources, like feedback, social support, opportunities for learning, and job control, increase. The study also concluded that changes in job demands, like emotional demands, work overload, and work-home interference, do not affect future levels of work engagement (Schaufeli, Bakker & Van Rhenen, 2009).

Salanova, Agut and Peiró (2005) argue that employees working in work units feel more engaged in work if they perceive the availability of organizational resources like training, autonomy or technology, used to remove obstacles at work. A study conducted by Sonnentag (2003) concluded that work engagement mediates the effects of recovery on proactive behavior, providing a positive effect of recovery on work engagement and proactive behavior. Higher level of work engagement during the subsequent work day are experienced by individuals who feel that they sufficiently recover during leisure time.

Bakker, Emerik and Euwema (2006), conducted a research study among 2,229 Royal Dutch constabulary officers, working in one of the 85 teams. Their multilevel analysis supported the proposition that team-level burnout and work engagement have unique effects on individual members' experiences of burnout and engagement. Respondents who worked in highly engaged teams reported higher levels of absorption, vigor, and dedication that were independent of the work conditions. Work engagement, as the presumed antipode of burnout, may crossover within work teams. Engaged workers communicate their positive attitudes, optimism, and proactive behaviors to their colleagues, and create a positive team climate. Independent of the demands and resources to which team members are exposed, the interaction between them facilitates feelings of energy and enthusiasm in individual members. Finally, the research concluded that work engagement among constabulary officers is a more prevalent group phenomenon than the experience of burnout. This of course results in positive consequences for team members.

### 3. Methodology

The questionnaire used for the empirical research of this study has four parts. The first three parts were designed to investigate one of the three main components of this thesis: work engagement, job autonomy and transformational leadership. The fourth part of the questionnaire deals with demographic data. A total sample of 286 valid responses was gathered.

Part one of the questionnaire was in charge of investigating work engagement. In itself it was made up of three parts of its own. The first part was designed to investigate the vigor element of work engagement, and it had six items. The second part was designed to investigate the dedication element of work engagement, and it was constructed from five items. And the third part, designed to investigate the absorption element of work engagement was constructed from six items.

This part of the questionnaire was made up from 17 items in total. Respondents, in this case BH Telecom employees, were given the chance to answer on a Likert scale from zero to six. The used questionnaire in this form was authored in 2002 by Schaufeli *et al.*

The second part of the questionnaire deals with questions related to job autonomy. This part had a fewer number of items than the first part, precisely 9 items. The respondents were again given the chance to provide answers on a Likert scale from one to seven. This part of the questionnaire was taken from Breaugh's work: "*Further Investigation of the Work Autonomy Scales: Two Studies*" (1999).

The third part of the research questionnaire was designed to deal with job autonomy issues. It

consists of 20 short items, and gives the respondents the chance to answer on a Likert scale from zero to four. In this part of the questionnaire, the Multifactor Leadership Questionnaire was used (MLQ – also known as the MLQ 5X) to estimate transformational leadership styles, precisely the four dimensions of transformational leadership. The questionnaire was originally authored by Bass in 1985. After that it went through several refinements (*e.g.* Hater & Bass in 1988) to get to the form that was used in this research study (Avolio, Bass & Jung, 1999).

The fourth part of the questionnaire was made up from demographic questions. It included four questions in total.

#### 4. Results and discussion

The table below presents the mean and standard deviation for the three subscales within the variable work engagement. Within the variable work engagement, three different subscales were analyzed: vigor, dedication, and absorption.

Table 1. *Kruskal-Wallis test results for work engagement*

	<i>Level of management</i>	$\mu \pm \sigma$	<i>K-W</i>	<i>df</i>	<i>P</i>
VIGOR	Low	26.53 $\pm$ 5.80	4.080	3	0.253
	Medium	27.18 $\pm$ 4.93			
	High	28.91 $\pm$ 6.70			
	Other	37.62 $\pm$ 15.56			
	TOTAL	39.69 $\pm$ 11.72			
DEDICATION	Low	20.71 $\pm$ 7.38	3.367	3	0.338
	Medium	21.86 $\pm$ 6.72			
	High	22.64 $\pm$ 7.90			
	Other	19.00 $\pm$ 7.76			
	TOTAL	21.06 $\pm$ 7.22			
ABSORPTION	Low	26.34 $\pm$ 6.27	2.365	3	0.500
	Medium	27.30 $\pm$ 5.86			
	High	27.73 $\pm$ 6.66			
	Other	26.31 $\pm$ 5.68			
	TOTAL	26.68 $\pm$ 6.12			
WORK ENGAGEMENT	Low	73.57 $\pm$ 16.77	2.895	3	0.408
	Medium	76.34 $\pm$ 14.78			
	High	79.27 $\pm$ 16.89			
	Other	70.92 $\pm$ 18.39			
	TOTAL	74.52 $\pm$ 16.27			

Source: Authors' own work

Analyzing all the relevant data we conclude that work engagement has a mean of 74.52 with a standard deviation of 16.27. The lowest mean work engagement value of 70.92 was recorded for respondents working in other positions, while the highest mean value of 79.27 was recorded for respondents working in the high management level. The results obtained using the Kruskal Wallis (K-W) test and the corresponding P-value ( $P > 0.05$ ) indicate that there is no statistically relevant difference in the mean values related to the work engagement aspect between respondents on different positions within the company, meaning on different management levels.

Table 2. ANOVA test for job autonomy

	Level of managment	$\mu \pm \sigma$	F test	df	P
JOB AUTONOMY	Low	38.11 $\pm$ 11.54	4.351	3	0.005
	Medium	42.16 $\pm$ 11.07			
	Hugh	47.73 $\pm$ 8.96			
	Other	37.62 $\pm$ 15.56			
	TOTAL	39.69 $\pm$ 11.72			

Source: Authors' own work

Job autonomy as a variable has a mean of 39.69 with a standard deviation of 11.72. The lowest mean job autonomy value of 37.62 was recorded for respondents working in other positions. The highest mean job autonomy value was recorded for the group of respondents working in high management positions. The mean value for this group was at 47.73. The results of the ANOVA *i.e.* F-test and the corresponding p-value ( $p < 0.05$ ) that there is in existence a relevant statistical difference in the mean values on the job autonomy scale for respondents working on different positions within the company, meaning on different management levels.

Table 3. Kruskal Wallis test for transformational leadership

	Level of management	$\mu \pm \sigma$	K-W	df	P
INTELLECTUAL STIMULATION	Low	13.02 $\pm$ 2.70	8.285	3	0.040
	Medium	13.25 $\pm$ 2.31			
	High	14.82 $\pm$ 1.17			
	Other	11.77 $\pm$ 2.86			
	TOTAL	13.10 $\pm$ 2.58			
IDEALIZED INFLUENCE BEHAVIORS	Low	12.28 $\pm$ 2.48	7.372	3	0.061
	Medium	12.43 $\pm$ 2.65			
	High	13.82 $\pm$ 2.99			
	Other	11.08 $\pm$ 3.52			
	TOTAL	12.33 $\pm$ 2.62			
INSPIRATIONAL MOTIVATION	Low	11.03 $\pm$ 3.12	3.893	3	0.273
	Medium	11.74 $\pm$ 2.66			
	High	12.00 $\pm$ 2.61			
	Other	10.31 $\pm$ 4.35			
	TOTAL	11.25 $\pm$ 3.05			
IDEALIZED INFLUENCE ATTRIBUTED	Low	12.09 $\pm$ 2.50	2.329	3	0.273
	Medium	12.45 $\pm$ 2.51			
	High	12.55 $\pm$ 3.62			
	Other	11.77 $\pm$ 3.42			
	TOTAL	12.20 $\pm$ 2.59			
INDIVIDUALIZED CONSIDERATIONS	Low	12.11 $\pm$ 2.58	6.156	3	0.104
	Medium	12.82 $\pm$ 2.35			
	High	13.55 $\pm$ 1.81			
	Other	12.23 $\pm$ 3.14			
	TOTAL	12.39 $\pm$ 2.54			
TRANSFORMATIONAL LEADERSHIP	Low	60.52 $\pm$ 10.82	6.248	3	0.100
	Medium	62.68 $\pm$ 10.14			
	High	66.73 $\pm$ 9.03			
	Other	57.15 $\pm$ 13.67			
	TOTAL	61.27 $\pm$ 10.78			

Source: Authors' own work

The mean for transformational leadership has a value of 61.27 with a standard deviation of 10.78. The lowest mean for this subscale was recorded for respondents working in other positions, and it is 57.15. On the contrast, the highest mean for the same scale was recorded for respondents working in high management positions. The value of the mean is 66.73. The results of the Kruskal-Wallis (K-W) test and the correspondent p-value ( $p > 0.05$ ) indicate that there is no relevant statistical difference in mean values in the variable transformational leadership between respondents working in different positions within the company, meaning on different management levels.

In order to investigate the existence of interdependence between the subscales within transformational leadership, the subscales within work engagement, and job autonomy a correlation matrix was created.

Table 4. *Correlation matrix*

		VIG	DED	ABS	JAU	INST	IIB	INMO	IIA	INCO
VIG	Correl. Coeff.	1.000	0.609	0.532	0.456	0.423	0.364	0.546	0.524	0.382
	P-significance		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Sample (n)	285	285	285	285	285	285	285	285	285
DED	Correl. Coeff.		1.000	0.585	0.494	0.333	0.300	0.499	0.396	0.353
	P-significance			0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Sample (n)		285	285	285	285	285	285	285	285
ABS	Correl. Coeff.			1.000	0.321	0.335	0.289	0.416	0.450	0.358
	P-significance				0.000	0.000	0.000	0.000	0.000	0.000
	Sample (n)			285	285	285	285	285	285	285
JAU	Correl. Coeff.				1.000	0.274	0.276	0.424	0.310	0.283
	P-significance					0.000	0.000	0.000	0.000	0.000
	Sample (n)				285	285	285	285	285	285
INST	Correl. Coeff.					1.000	0.620	0.593	0.542	0.552
	P-significance						0.000	0.000	0.000	0.000
	Sample (n)					285	285	285	285	285
IIB	Correl. Coeff.						1.000	0.593	0.488	0.476
	P-significance							0.000	0.000	0.000
	Sample (n)						285	285	285	285
INMO	Correl. Coeff.							1.000	0.672	0.507
	P-significance								0.000	0.000
	Sample (n)							285	285	285
IIA	Correl. Coeff.								1.000	0.510
	P-significance									0.000
	Sample (n)								285	285
INCO	Correl. Coeff.									1.000
	P-significance									
	Sample (n)									285

Legend: VIG – vigor, DED – Dedication, ABS – Absorption, JAU – Job autonomy, INST – Intellectual stimulation, IIB – Idealized influence behaviors (charisma behaviors), INMO – Inspirational motivation, IIA – Idealized influence attributed (charisma attributed), INCO – Individualized considerations.

Source: Authors' own work

According to the results from the correlation matrix, we can argue that there is a significant statistical correlation between all variables within all three areas: transformational leadership, work engagement, and job autonomy. The first strong identified correlation is the correlation between vigor and dedication. Then, there is the correlation between vigor and job autonomy, as also the correlation between vigor and inspirational motivation.

Also, one of the stronger correlations is the correlation between dedication and absorption, then the correlation between dedication and job autonomy, and the correlation between dedication and inspirational motivation. Within transformational leadership in existence are correlations between intellectual stimulation and idealized influence behavior (charisma behaviors), and between inspirational motivation and idealized influence attributed (charisma attributed).

To quantify the influence of the five subscales of transformational leadership and job autonomy as independent variables on work engagement as the dependent variable, below are shown the results of a hierarchical multiple regression analysis, to be able to formulate an adequate regression model. After specifying the model we will move to the estimation of coefficients and parameters of the model. Apart from the parameters of multiple regression, an assessment of the model of the hierarchical multiple regression was performed.

After entering the independent variables into the first block, from the field of transformational leadership (idealized influence behavior, intellectual stimulations, inspirational motivation, individualized considerations, idealized influence attributed), the model as a whole explains 37.60% of the variance of work engagement. After entering independent variables into the second block from the field of job autonomy, the model as a whole explains the 45.90% of the variance.

According to the values of the R Square Change which amounts 0,084 ( $0,084 \cdot 10 = 8.4\%$ ), introducing variables in the second block, they explain the extra 8.4% variance of work engagement which is statistically significant towards Sig. F Change value in that line amounts 0.000 (*i.e.*  $P < 0.05$ ).

Table 5. *Significance testing of the model as a whole*

	<i>Model</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
1	Regression	28253.562	5	5650.712	33.575	.000 <sup>b</sup>
	Residual	46955.582	279	168.300		
	Total	75209.144	284			
2	Regression	34537.546	6	5756.258	39.345	.000 <sup>c</sup>
	Residual	40671.598	278	146.301		
	Total	75209.144	284			

Source: Authors' own work

According to the results of the F-test and the correspondent p-value (Sig.) model as a whole, *i. e.* model with both variable block is statistically important ( $p = 0.000$  *i.e.*  $p < 0.05$ ).

According to the data from the table above, for the prediction of work engagement as a dependent variable, statistically important independent variables are: inspirational motivation and idealized influence attributed (charisma attributed) from the field of transformational leadership, and after that job autonomy. The named predictors have a P-value (Sig.) less than 0.05, on the basis of what we concluded their importance. Through the coefficient  $\beta_1 = 1.280$  we can conclude that the score unit increase on the subscale inspirational motivation produces a 1,280 incline of the score in the field of work engagement. The mentioned regression coefficient is statistically significant.

The value of coefficient  $\beta_2 = 1.380$  indicates that the score unit increase on the subscale idealized influence attributed (charisma attributed) produces a 1.380 incline of the score in the field of work engagement. This regression coefficient is also statistically significant.

In the end  $\beta_6 = 0,447$  indicates that the score unit increase on the scale of job autonomy leads to a 0.447 increase of the score in the field of work engagement. The named regression coefficient  $\beta_6$  is statistically significant. The value of the determination coefficient (R Square) after introducing in

the first block has a value of 0.376 which means that with this all the 37.60% of deviations are explained. Further, by including important predictor variables in the second block into the model it comes to a rise of the value of the determination coefficient to 0.459. This drives us to a conclusion that with the introduction of predictor variables into the model the unexplained (residual) deviation value declines. As a consequence, this produces an incline in the explained (regression) sum of squares deviation, and in the end the incline in the value of the determination coefficient.

Table 6. *Assessment of the regression parameters and the test of their significance*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	25.377	4.731		5.364	0.000
	Intellectual stimulation	0.074	0.437	0.012	0.169	0.866
	Idealized influence behaviors	0.139	0.396	0.022	0.352	0.725
	Inspirational motivation	1.875	0.377	0.351	4.971	0.000
	Idealized influence attributed	1.435	0.415	0.228	3.459	0.001
	Individualized considerations	0.634	0.404	0.099	1.570	0.117
2	(Constant)	18.026	4.552		3.961	0.000
	Intellectual stimulation	0.061	0.407	0.010	0.150	0.881
	Idealized influence behaviors	-0.001	0.369	0.000	-0.002	0.998
	Inspirational motivation	1.280	0.363	0.240	3.523	0.000
	Idealized influence attributed	1.380	0.387	0.220	3.566	0.000
	Individualized considerations	0.543	0.377	0.085	1.443	0.150
	Job autonomy	0.447	0.068	0.322	6.554	0.000

Source: Authors' own work

## 5. Conclusion

The Kruskal-Wallis test concluded that for four out of five subscales there was no relevant statistical difference in mean values on the different subscales between respondents working in different positions within the company. Only the subscale intellectual stimulation showed a relevant statistical difference in mean values on the subscale intellectual stimulation between respondents working in different positions within the company. The conclusion for the entire transformational leadership variable was that there is no relevant statistical difference in the mean values in the variable transformational leadership between respondents working in different positions within the company. A regression model was formulated to quantify the influence of the five subscales of transformational leadership and job autonomy, as independent variables, on work engagement as the dependent variable.

According to the given data, statistically important independent variables for the prediction of work engagement as a dependent variable are: inspirational motivation and idealized influence attributed (charisma attributed) from the field of transformational leadership, and after that job autonomy. The results of this research clearly point out that leaders who provide meaning and challenge to their followers' work, those who communicate optimistically about the future (inspirational motivation) and leaders who displays a sense of power and confidence and are able to reassure others that they can overcome obstacles (idealized influence attributed), can positively influence a follower's work engagement. The research also showed that there is a positive correlation between job autonomy and work engagement, where more job autonomy leads to higher levels of work engagement.

This research is limited in terms of a sample coming from a large corporation in Bosnia and Herzegovina and thus is not representative for the entire labor market in the country. Further research on small and medium companies would yield an interesting basis for the review of the

overall market. Furthermore, it would be interesting to see any differences in manufacturing industry, as BH Telecom is a services oriented company.

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## LOCAL POLICIES TO ATTRACT UNIVERSITY STUDENTS TO TOWNS AND CITIES: EXAMPLES FROM POLAND, CZECH REPUBLIC AND UKRAINE

### LOKALNE POLITIKE PRIVLAČENJA STUDENATA U GRADOVE: PRIMJERI POLJSKE, ČEŠKE REPUBLIKE I UKRAJINE

#### Abstract

*Discussions on the role of higher education institutions present them as playing an essential role in creating intellectual potential and providing the valuable backup for innovation processes, which shape local economy based on knowledge. For some towns and cities, higher education institutions and academic functions may be seen as one of the most important factors stimulating local development. This applies especially to those which, due to their location or functions, are characterised by less favourable development conditions and to those which struggle with economic, social and demographic problems. Therefore, some universities and local governments have made efforts to attract potential students to the university and the towns and cities and provide programs aimed at encouraging them to stay and work local after graduation. The aim of the article is to analyse local strategies focused on attracting students to cities and those programmes which encourage them to stay and work local after graduation. In the article some results of research conducted among representatives of city councils and higher education institutions in Opole in Poland, Karvina in the Czech Republic and in Ternopil in Ukraine are presented. The results show that some towns and cities which have not experienced the decline of number of students do not conduct local strategies attracting potential students to take up studies and policies increasing graduates retention. Opposite situation have occurred in those towns and cities which experienced shrinking number of students and depopulation.*

**Keywords:** students migration, local policy, local strategies for attracting students, graduates retention policies

**JEL:** I25, J11, J18

#### Sažetak

*Rasprave o ulozi visokoobrazovanih institucija ukazuju na ključnu ulogu ovih institucija u stvaranju intelektualnog potencijala i pružanju značajne podrške za inovacijske procese, koji oblikuju lokalnu ekonomiju baziranu na znanju. U pojedinim gradovima, visokoškolske ustanove i akademske funkcije smatraju se jednim od najznačajnijih faktora koji podstiču lokalni razvoj. To se posebno odnosi na one institucije koje zbog svog položaja ili funkcija karakterišu nepovoljniji razvojni uslovi i one koji se bore sa ekonomskim, socijalnim i demografskim problemima. Stoga su pojedini univerziteti i lokalne samouprave uložili napore da privuku potencijalne studente na univerzitet i pruže im programe koji imaju za cilj da ih podstaknu da ostanu i rade na lokalnom nivou nakon diplomiranja. Cilj rada je analizirati lokalne strategije usmjerene na privlačenje studenata u gradove i one programe koji ih podstiču da ostanu i rade na lokalnom nivou nakon diplomiranja. U radu su prezentovani rezultati istraživanja provedenih među predstavnicima gradskih vijeća i visokoobrazovnih institucija u Opoleu u Poljskoj, Karvini u Češkoj i Ternopilu u Ukrajini. Rezultati pokazuju da neki gradovi koji nisu iskusili pad broja studenata ne provode lokalne strategije privlačenja potencijalnih studenata na studije ni politike značajnijeg zadržavanja diplomanata. Suprotna situacija zabilježena je u onim gradovima koji su imali smanjen broj studenata i stanovnika.*

**Ključne riječi:** migracije studenata, lokalna politika, lokalne strategije privlačenja studenata, politike zadržavanja diplomanata

**JEL:** I25, J11, J18

## 1. Introduction

Endogenous factors are thought to be main drivers of development of many modern cities (Nagy 2016, Capello 2009). However, some – facing insufficiency of own resources – compete in attracting the missing factors that enable their current and future development (Smętkowski 2018). Without doubt, one of the most important resources that fosters development of cities is the human capital (Mincer 1981, Storper, 2010, Florida 2002). It acquires special significance within the scope of possibilities of shaping long-term development of cities affected by problems that result from location, their functions or historical circumstances. In all of this, universities located in cities that educate professionals and attract students to cities perform a vital role (Bender 1988, Addie, Keil & Olds 2015). In the case of problematic cities, the pillar of university education is one of the few foundations ensuring their functioning and guaranteeing further development.

The academic function of cities and their role in local economy of urban centres make this issue of fundamental importance for local authorities. Thence, they often undertake activities aimed at attracting students to cities, as well as retaining them in the city after graduation. All initiatives undertaken by actors of the local social, economic and political scene definitely result from the awareness that “there is more and more empirical evidence to show that highly skilled people are an important determinant of economic growth” (Venhorst, Van Dijk & Van Vissen 2010).

Taking above mentioned into consideration, the author of this paper focused on local policies conducted by the authorities of academic cities and on activities undertaken by universities, the main task of which is to attract students to cities and to universities and to encourage them to stay in the city after graduation. The purpose of the paper is to identify specific activities carried out by cities chosen for the purpose of the study and their universities, as well as to analyse similarities and differences within the scope of the conducted policies, dependant on the size of the city, demographic situation and the number of students. The author of the paper uses results of empirical studies carried out among local authorities and governing bodies of selected universities in three cities: Karvina in the Czech Republic, Opole in Poland and Ternopil in Ukraine.

The structure of this paper is as follows: first of all, a review of literature is presented with respect to activities, programmes or policies aimed at attracting students to academic cities and encouraging them to stay in these cities after they have completed their tertiary-level education. Next, the criteria of selection of specific cities for analysis are described and the adopted methodology of the conducted studies are presented. Subsequently, the author sets forth brief characteristics of the selected centres and shows most important findings of studies related to the analysed issue. The paper ends with major conclusions.

## 2. The literature review

Scientific publications related to the issue analysed in the study may be divided at least into three groups: the first one focuses on studies pertaining to factors determining study-oriented migrations, the second brings together results of studies devoted to factors determining retention of university graduates in cities and the third one focused on the local strategies aimed at attracting students and retaining university graduates in academic cities.

The review of literature should commence with the presentation of results of studies devoted to factors that determine the academic centres choices process among students. The large body of

literature indicate that one of the most important factors is not so much universities by themselves, but the quality of educational services (Wächter 2002, Darchen & Tremblay, 2010). Costs of living in an academic city are equally important (Mixon, 1992), along with the distance between the intended place of study from the place of residence (Lankford & Taylor, 1971). It is also indicated in literature that an important drivers for migration to academic cities as a place of study are not only the current cities features, but also their amenities in the broader time horizon. According to the literature the employment opportunities and the differences in wages level between a specific city and the place of residence of educational migrants also plays a role (Faggian, McCann & Sheppard, 2006), along with attractiveness of the academic centre as such, understood quite broadly (Jończy, Rokita-Poskart & Tanas, 2013).

Another group of publications refers to the issue related to the factors determining retention of university graduates in academic cities. They include hard and soft factors which decide about the choice of the place of residence (Lundberg & Jolanki, 2016). In the case of the first group, namely hard factors, it is worth mentioning studies indicating the very important role of the situation on the labour market (Hansen & Niedomysl, 2009; Venhorst, Van Dijk & Van Vissen, 2010; Rokita-Poskart, 2018, Jończy, Rokita-Poskart & Tanas, 2013). Study results show that not only the sole possibility of finding work is important, but work that is consistent with qualifications, offering prospects of professional development, as well as well-paid (Rokita-Poskart, 2018). Other causes determining settlement attractiveness indicated in the literature include prices of real properties and broadly understood costs of living in a city, as well as access to crèche and kindergarten services and paediatric services (Whisler, Waldorf & Mulligan, 2008). Some studies show that slightly less important factors that testify to settlement attractiveness include availability of transport network and traffic congestion (Grant & Kronstal, 2010). On the other hand, whilst analysing the role of soft factors, broadly understood quality of life, proximity of recreational areas or sentiment to the city or the region are listed as one out of four most important factors influencing retention of highly qualified population in the city (Grant & Kronstal, 2010; Lepawsky, Phan & Greenwood, 2010). It also turns out that a factor determining the decision to stay in an academic city after graduation is the existence of interpersonal contacts. Contacts established not only in the course of studies are particularly important, but also at the moment of commencement of education in a secondary school in the city (Kodrzycki, 2001), along with networks among students and employers created during the course of studies (Huffman & Quigley, 2002).

Yet another group of studies tackles the issue of local and regional policies pertaining to attracting students to cities and absorption of university graduates. Publications devoted to this issue focus, in particular, on the analysis of specific programmes that encourage youth to study in the city and help with retention of young people in the city or the region by local governments. One of the most important elements determining whether a city will attract young people is operation of higher education institutions in such city. Some local authorities, in a situation when a city did not perform academic functions before, undertake activities focusing on support for establishment of higher education institution, which could be an important factor causing migration of young and talented people to such centre (KPMC, 2014). City authorities also compete for students with the use of typical communication channels - via promotion of the city and the academic atmosphere that pervades it in the mass media (Zinck Stagno, 2012; Rutter, Roper & Lettice, 2016).

Another group of publications that refers to the activities undertaken by local and regional authorities, as well as by non-governmental organisations aimed at retaining university graduates in the city, are studies that focus on a number of programmes supporting university graduates at the labour market. In this place, it is necessary to mention, for example, a study analysing the programmes of formal and substance-related support within the scope of procuring funds from the European Union, programmes facilitating matches between graduates and vacancies in the region (University UK, 2017), programmes that offer financing of internship and professional practice for

students and graduates (CampusPhilly, 2015), as well as activities aimed at procuring investors who could offer work and thus help in retaining university graduates in the city or the region. Last but not least, there are also initiatives oriented at support for university graduates in conducting own business in the academic city (University UK, 2017). Such instruments as tax exemptions for graduates who decide to reside in the academic city also play a role with respect to the possibilities of increasing retention of university graduates (Rappa, 2012).

### 3. Determinants for selection of urban centres and study methodology

The studies which results are presented in this paper were conducted in three cities: Karvina located in the Czech Republic, Opole in Poland and Ternopil located in Ukraine. Selection of these cities was conditioned by at least three issues. One of the most important criteria was different size of cities measured with the number of residents. The author of the paper assumed that another criteria would be also significant, namely a peripheral location and the fact that the regions in which they are located are inhabited by native populations (in the case of Poland and the Czech Republic - the Silesian population, and in the case of Ukraine - the population of Polish origin). The choice consisted in the assumption that the common features of cities may generate a number of social, economic and demographic problems, which measurably limit the possibilities of development of regions and cities forming regional and local centres. In these circumstances, the incoming students and policies of local government authorities can be the factors stimulating improvement of the broadly understood economic and demographic situation. Another important factor that led to the comparison of the three centres was the fact that the author of the paper have conducted empirical studies in Opole on the impact of students on the economic situation of the centre, and completed two foreign internship programmes in Karvina and in Ternopil, which also formed a part of the studies.

Empirical research was carried out as interviews with the use of a structured interview questionnaire as a the research tool. It consisted of several questions pertaining to the socio-demographic and economic situation of selected cities, programmes and activities undertaken by the authorities of municipalities and higher education institutions aimed at encouraging newcomers to study in the city and at selected universities, as well as incentives targeted at university graduates, intended to retain them in the city. The questionnaire also included questions pertaining to the respondents' overall evaluation of impact of students arriving in the city on the social, demographic and economic situation of selected centres. The study was carried out in city offices among representatives of local government authorities or in units responsible for municipal policy and city promotion. A decision was also made to interview university authorities where the author of the study completed academic internship.

### 4. Characteristics of selected cities

The selected cities may be characterised with respect to their location, demographic situation, functions, including their academic features (Table 1).

Table 1. *Information about the number of inhabitants and number of students in selected cities in 2017*

	Karvina (Czech Republic)	Opole (Poland)	Ternopil (Ukraine)
Population	54,500	128,000	217,400
Number of students	2,100	20,200	33,500

Source: Author's own work

The first city to be analysed is Karvina, a poviat centre located in the Silesian and Moravian region, in the north-eastern part of the Czech Republic, right by the Polish border. Karvina is located approx. 30 km from the centre of the region, Ostrava. It is one of the main mining centres in the Czech Republic. This is also related to the typical industrial and/ or post-industrial character, where

the dominant sector of employment of residents is still the mining industry. Faced with the prospect of gradual liquidation of the mines, the city is burdened with a very important task of successive provision of residents employed in the mining industry with jobs in other sectors of the local economy. The above-listed development determinants create depopulation problems: Karvina has been observing a decreasing number of residents for years - in the study year it amounted to 54,500 residents. Apart from the above-listed features, Karvina also plays the role of an academic city; in the city there is located one department of the Silesian University in Opava, where approx. 2,100 students were studying at the moment when the research was conducted.

The second city analysed in the study is Opole, the capital of the Opolskie Province, one of 16 Polish provinces. It is located in-between two other metropoleis, namely Wrocław and Katowice, in the south-western part of the country. The dominant sector of employment for city residents are services and industry. One of the most serious development problems of the city is the large scale of migration of young people to larger centres in Poland and abroad. The above-listed determinants affected the decreasing population of Opole (Heffner, Klemens & Solga 2019): the number of residents in the year of the study was 128,000. Opole also functions as an academic centre: five higher education facilities are located in the city and approx. 20,000 students study there.

The last of the selected cities is Ternopil: the administrative seat of the Ternopil District, located in the eastern part of Ukraine. It is located at a distance of approx. 150 km from Lviv and Ivano-Frankivsk. It is considered to be an important industrial and communication centre of the modern Ukraine. Ternopil, as compared to other cities, is characterised by much smaller loss in the number of residents: in the year of the study, their number amounted to 217,400. Ternopil, apart from functioning as the capital of the region, is also an academic centre, where four higher education institutions are located with 33,500 students.

It seems that the common features of the selected cities is the presence of national or ethnic minorities, which - on the one hand - may be a pro-development factor, but on the other may slow down such development. Another characteristic feature is the dropping number of residents; in particular, this refers to Karvina and Opole, their academic status and the decreasing number of students. On the other hand, a feature differentiating the selected cities is their size measured by the number of residents.

## 5. Results of studies pertaining to local strategies conducted by cities and universities

The analysis of study results has to start with activities undertaken by authorities of academic cities and authorities of selected universities aimed at encouraging students to commence studies in the city/ at the university.

They are presented in Table. 2.

Table 2. *Activities aimed at attracting students to the city/ university*

	Activities undertaken by City Office	Activities undertaken by universities
<b>Karvina (CZ)</b>	<ul style="list-style-type: none"> <li>• Business Gate, AD Tech;</li> <li>• grants for student initiatives;</li> <li>• ongoing dialogue between students and city authorities;</li> </ul>	<ul style="list-style-type: none"> <li>• visits at high schools;</li> <li>• marketing activities: Internet (website and Facebook), billboards.</li> </ul>
<b>Opole (PL)</b>	<ul style="list-style-type: none"> <li>• activities as part of the Opole Campus Programme;</li> <li>• marketing activities: Internet (website and Facebook), billboards;</li> <li>• support for laureates of school competitions; <ul style="list-style-type: none"> <li>• scholarships for best students;</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• visits at high schools</li> <li>• marketing activities: Internet (website and Facebook), billboards;</li> <li>• educational fairs (including the International Educational Fair);</li> <li>• establishment of study majors at the request of local entrepreneurs;</li> <li>• recruitment of students from abroad.</li> </ul>
<b>Ternopil (UA)</b>	<ul style="list-style-type: none"> <li>• marketing activities: Internet (website and Facebook), radio, TV, billboards;</li> <li>• recruitment of students from abroad; <ul style="list-style-type: none"> <li>• Student Council;</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• visits at high schools;</li> <li>• marketing activities: Internet (website and Facebook), billboards, radio, TV;</li> <li>• recruitment of students from abroad;</li> </ul>

Source: Author's own work

It transpires that a common element of activities undertaken by the academic cities and higher education institutions are typical promotional activities with the use of traditional and modern communication channels. Almost all representatives of cities and analysed universities indicated marketing activities primarily focused on maintenance of websites, advertisements available on-line and profiles at social networking sites.

All representatives of universities also indicated direct visits at secondary schools encouraging potential students to choose a specific university and promotional activities aimed at foreign students. When analysing the study results, one may get an impression that representatives of offices of the examined cities focus their activities on creating an adequate atmosphere in the city centred on students (grants for student initiatives, scholarships, student councils), which would induce new people to study in the city. In the case of two cities, namely Karvina and Opole, it is possible to notice the significance of additional activities targeted at students. In Karvina, Business Gate was set up: a programme of the city and the university, which consists in a townhouse near the university which was renovated and made available to students; this is a place where the best students have the opportunity of pursuing projects for large companies located in the region. In the case of Opole, a local programme called "Opole Campus" has been conducted for several years; it is a set of integrated activities aimed at potential students, persons who are currently studying, as well as university graduates. It focuses on scholarship support for school competition laureates who decided to study in Opole and foresees scholarship grants for best students.

Other activities undertaken by local and university authorities include incentives for university graduates to stay in the city (Table 3).

Table 3. *Activities focused on retention of university graduates in the city*

	Activities undertaken by City Office	Activities undertaken by universities
<b>Karvina (CZ)</b>	<ul style="list-style-type: none"> <li>• creation of new image of the city;</li> <li>• attracting investors to the city, job agency;</li> <li>• subsidies for residential investments;</li> </ul>	<ul style="list-style-type: none"> <li>• Business Gate</li> </ul>
<b>Opole (PL)</b>	<ul style="list-style-type: none"> <li>• incentives for investors who create work places consistent with profile of graduates' education;</li> <li>• "Start-up in Opole" initiative;</li> <li>• apartments for specialists;</li> </ul>	<ul style="list-style-type: none"> <li>• Academic Career Office;</li> <li>• job agency;</li> <li>• organisation/ participation in Work Fairs</li> </ul>
<b>Ternopil (UA)</b>	<ul style="list-style-type: none"> <li>• attracting investors to the city, job agency;</li> <li>• city promotion;</li> </ul>	<ul style="list-style-type: none"> <li>• job agency;</li> <li>• cooperation of university with entrepreneurs within the scope of offering graduate internship</li> </ul>

Source: Author's own work

As part of the conducted studies it was noted that authorities of academic cities and university authorities are aware of the huge significance of the situation on the local labour market as a factor testifying to settlement attractiveness. Such conclusion follows from the fact that all cities focus their activities on attracting investors who could offer jobs which are directly relevant to the education of university graduates, whereas universities are setting up departments/ divisions that allow for mediation in finding work by university graduates.

Other activities focus on creation of an image of a city characterized by a high quality of life - this was emphasised particularly strongly by the representatives of the Karvina city office. Representatives of the city indicated that Karvina is seen as a typical mining town, which is rarely considered a good place to live. Thence, activities are carried out to change the image of the city. City authorities are convinced that a change in image of Karvina will make the potential residents aware that this is not only a good place for work, but also for settlement. The case is similar for Ternopil. The city office plans activities promoting the city among native and foreign students with the aim of making them aware that Ternopil may be perceived as a good place of residence.

On the other hand, Opole has recently introduced another element to the Opole Campus programme, which consists in apartments in discounted prices offered to university graduates whose qualifications are demanded on the local labour market. This is meant to encourage persons who are graduating to tie their future with Opole.

## 6. Discussion and conclusion

The paper presents activities conducted by selected cities and universities aimed at encouraging potential students to study in the city/ at a selected university and encouraging university graduates to settle in the city. The findings from this study make several contributions to the current literature. The first of them, most general in nature, is that in spite of the fact that the city and university authorities seem to be aware of the demographic and economic potential embedded in students and despite the fact that they conduct activities aimed at attracting students or retaining university graduates, the undertaken initiatives are hardly can be named as an element of local policy. A more accurate determination of the conducted activities is a strategy that brings together proper methods, means and tools for performing specific activities.

When analysing the collected research material, it may be stated that in principle only one of the analysed cities implements a formal programme: it is conducted by the authorities of the Opole academic centre and called “Opole Campus” which main assumptions result from the city development strategy. In other cases, the described activities can be perceived as a set of tools that are not always sufficiently consistent to deserve the name of strategies or formal programmes. It also seems that activities conducted by local governments and universities do not always form a coherent whole and sometimes seem to be copied by various institutions. Performance of joint activities relying on cooperation of various actors of the socio-political scene might offer better results.

One more significant findings to emerge from this study is that the diversified instruments used by the cities are results from their size and the current trends pertaining to the number of residents and students. This is visible particularly when comparing the situation of Karvina and Opole with Ternopil. In the case of the first two cities, the majority of activities aimed at potential students and potential residents were intensified only in the face of a dropping number of students and residents. This also have taken place in the face of shortages of employees with a specific education profile or skills on the local labour market. In general, therefore, the case of Ternopil seems to be very interesting.

At the moment of conducting the study, the problems described above which are clearly observed in Opole and Karvina, have not yet been perceptible in Ternopil or have not been well recognized. First of all, this probably results from the presence of a relatively large group of foreign students who, to a certain degree, perform a substitutive role with respect to the decreasing number of native students. Secondly, the fact that at the moment of conducting the study foreign emigration which did not include such high number of residents as nowadays may also be of importance for perceiving the situation at the local labour market and the demographic situation of Ternopil. Thence, smaller scale of emigration of residents did not generate so many problems there as they had done in Poland or in the Czech Republic, which have been participating in the free movement of employees for a long time. In Ukraine, regulation of emigrations to the West Europe resulted from the contemporary legal provisions, which were amended at the beginning of 2017. The new regulations allow the citizens of Ukraine to stay for a maximum of 90 days in the European Union without the necessity of procuring permits. It seems that if the study was repeat today, the results might be slightly different.

Presented study has shown that another conclusion may be drawn from the above: the initiatives carried out by local authorities are also conditioned by the scale and the awareness of threats resulting from long-term foreign migration and depopulation processes.

Taken together, these presented analyses suggest that not all cities have the possibility of procuring new residents in such a simple manner as it is done by cities that perform academic functions. In their case, it is important not only to attract students to the city, but also to encourage them to reside in the city after their graduation. The presented findings show that activities undertaken by authorities of these cities and authorities of universities are aimed to serve this very purpose. This study has raised important questions how the initiatives and programme should be conducted by the local authorities to meet needs of students and university graduates. Yet first and foremost, they have to originate from consistent activities carried out by various actors of the socio-political scene.

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**REDUCING BARRIERS FOR TOURISM ENTREPRENEURSHIP  
DEVELOPMENT IN FUNCTION OF LOCAL ECONOMIC DEVELOPMENT**

**SMANJENJE BARIJERA ZA RAZVOJ PODUZETNIŠTVA U TURIZMU U  
FUNKCIJI DOPRINOSA LOKALNOM EKONOMSKOM RAZVOJU**

**Abstract**

*There is a widespread agreement that entrepreneurship contributes to economic development which is why it is in the focus of the most policy makers who have recognized the importance of fostering entrepreneurship in (local) economic development. The economy of the city of Tuzla in the 20<sup>th</sup> century was based on industrial production and locally available natural resources (salt, coal, iron and alike). Recognizing tourism as an opportunity, a number of projects have been implemented since 2003, that contribute to tourism and thus local economic development. Local economic investment initiatives for tourism can boost tourist demand and increase property value, and thus improve the sustainability of surrounding and inland businesses. Further development and increase of tourism revenue requires diversification of tourist offer, creation of package of services and stronger promotion of cultural, sports, spa, health, business and congress tourism. Creating new services and/or packages of services in the tourist offer, requires the engagement of existing, but also the involvement of a significant number of new entrepreneurs and new business ventures. Number of business ventures in tourism in Tuzla in the period 2012-2017 is increased by 5%, while this growth rate stagnated after 2017. Objective of this research is to identify barriers faced by entrepreneurs in tourism in Tuzla which will be used as basis for creation of recommendations for policy makers at the local level aimed at the sustainability and development of existing and establishment of new business ventures in the field of tourism, and thus local economic development.*

**Keywords:** entrepreneurship, tourism, local economic development, entrepreneurship development support policies, barriers to entrepreneurship development

**JEL:** L26, J11

## Sažetak

*Široko je rasprostranjen stav da poduzetništvo doprinosi ekonomskom razvoju zbog čega je poduzetništvo u fokusu većine donosilaca politika koji su prepoznali značaj poticanja razvoja poduzetništva u svrhu ostvarenja doprinosa lokalnom ekonomskom razvoju. Privreda Grada Tuzla se u 20. stoljeću bazirala na industrijskoj proizvodnji zasnovanoj na prirodnim resursima koje područje grada posjeduje (so, rude i dr.). Sa prepoznavanjem mogućnosti razvoja turizma, od 2003. godine implementiran je niz projekata koji doprinose razvoju turizma a time i lokalnom ekonomskom razvoju. Lokalne inicijative u pogledu ekonomskih ulaganja za potrebe razvoja turizma mogu pospješiti potražnju posjetilaca i povećati vrijednosti imovine, te tako poboljšati i održivost okolnih poslovnih subjekata i poslovnih subjekata u unutrašnjosti. Dalji razvoj i povećanje prihoda od turizma zahtijeva diverzifikaciju turističke ponude, kreiranje paketa usluga te jaču promociju kulturnog, sportskog, banjskog, zdravstvenog, poslovnog i kongresnog turizma. Kreiranje novih usluga i/ili paketa usluga u turističkoj ponudi zahtijeva angažman postojećih turističkih radnika, ali i uključivanje značajnijeg broja novih preduzetnika i novih poslovnih poduhvata. Broj poslovnih subjekata u turizmu na području grada Tuzla u periodu 2012-2017. se povećao za 5%, dok je navedeni rast nakon 2017. godine zaustavljen. Cilj ovog istraživanja jeste identificirati barijere sa kojim se suočavaju preduzetnici u oblasti turizma na području grada Tuzla, što će biti osnova za izradu preporuka za donosiocje politika na lokalnom nivou vlasti čija implementacija bi doprinijela očuvanju i razvoju postojećih ali i osnivanju novih poslovnih poduhvata u oblasti turizma, a time i lokalnom ekonomskom razvoju*

**Ključne riječi:** poduzetništvo, turizam, lokalni ekonomski razvoj, politike unapređenja poduzetništva, barijere za razvoj poduzetništva

**JEL:** L26, J11

## 1. Introduction

Entrepreneurship experiences increasing interest of researchers in recent decades, especially its relationship and influence on economic development. Bosma *et al.* (2009, p. 7) state that entrepreneurship is an important force shaping the changes in the economic landscape and that entrepreneurs drive innovation, they speed up structural changes in the economy and force old incumbent companies to shape up, thereby making an indirect contribution to productivity. Entrepreneurship is one of the main growth and new employments generators in most of the economies of developed countries (Umihanić *et al.*, 2009, p. 25). Many efforts are made in order to create entrepreneurship development support program that will have the greatest effect on development of business ventures and thus economic development (Markuš & Omerović, 2019, p 1).

Bosnia and Herzegovina is now considered as one of the fastest growing tourist destinations in Europe. Compared to a decade ago, there are three times as many tourists coming to BiH today (Agency for statistics BiH, 2019). However, according to the World Travel and Tourist Council (2018) contribution of travel and tourism to GDP (% of GDP) for Bosnia and Herzegovina was 10.2 %, though Bosnia and Herzegovina contribution of travel and tourism to GDP (% of GDP) fluctuated substantially in recent years, it tended to increase through 1999 - 2018 period ending at 10.2 % in 2018 and it is on the 77<sup>th</sup> place among 175 countries. This implies the potential that tourism have for economic development of the country.

Local economic investment initiatives for tourism can boost tourist demand and increase property value, and thus improve the sustainability of surrounding and inland businesses (EU, 2013). Tourism entrepreneurship is believed to flourish in an environment where the social, economic and political conditions serve as a motivational force, but such activity needs to be supported by the community and governing bodies (Hollick & Braun, 2005, p.3). This is the reason why it is important to analyse barriers that entrepreneurs in tourism face in order to undertake activities related to removing those barriers and enhance economic development. This study is implemented

on relevant sample of tourism businesses in city of Tuzla. In previous century economy of this city was relying on traditional industrial production (production of salt, coal and alike). Tourism development has been increasing since 2003, when the first salt lake was opened. Since then, Tuzla experiences growth of number of tourists as well as entrepreneurs in tourism but it still lacks comprehensive tourist offer that will retain tourists for larger number of days. New and improved tourist offer requires engagement of existing, but also the involvement of a significant number of new entrepreneurs and new business ventures. At the other hand, number of business ventures in tourism in Tuzla in the period 2012-2017 is increased by 5%, while this growth rate stagnated after 2017. In this study we present research results on barriers faced by tourism entrepreneurs in Tuzla, as well as review of recommendations for policy makers at the local level and other stakeholders created on basis of empirical research results.

## 2. Theoretical framework

Entrepreneurship is the process by which individuals pursue opportunities without regard to resources, they currently control for the purpose of exploiting future goods and services (Barringer & Ireland, 2016, p. 6). Entrepreneurship occurs when an individual act to take advantage of a profit opportunity that presents itself in the economy (Holcombe, 2003, p. 1.). There is a widespread agreement that entrepreneurship contributes to economic development (Acs & Szerb, 2006; Audretsch, 2007), which is why it is in the focus of the most policy makers who have recognized the importance of fostering entrepreneurship in (local) economic development. In a general sense, local economic development (LED) can be defined as the process by which public, business and non-governmental sector partners work collectively to create better conditions for economic growth and employment generation (Varol, 2010, p. 98).

As one of the world's largest economic sectors, travel and tourism creates jobs, drives exports, and generates prosperity across the world (World Travel & Tourism Council, 2018) at the same time contributing to local economic development.

Tourism entrepreneurship refers to the activities of the major group of stake-holders of this service sector primarily designed for the effective and profitable interaction of demand for and supply of tourism products; at the same time assuring competitive professionalism and gainful socio-economic status (Megu, 2007, p. 15). Entrepreneurship is a crucial factor in the evolutionary redirection of tourism products and increasing competitiveness (Hjalager, 2010, p. 4).

Analysis of the barriers for entrepreneurs in the field of tourism are of great importance in the context of the size and importance of the tourism sector. In context of entrepreneurship and starting a new businesses, tourism is important because of the lack of barriers to entry accompanied by the very low skill base of industry entrants. According to Hollick and Braun (2005, p.1.) characteristics of micro tourism operators include: (a) differences in motivators in business start-up. Tourism operators often consciously reject opportunities for economic and business growth in favour of lifestyle choice and perceptions of independence; micro and small tourism enterprises have been described as 'gap-fillers' or constrained entrepreneurs which do not display evidence of significant process or product innovation due to extreme seasonality of visitor flows and the uncompetitive nature of the industry in general (c) entrepreneurship as defined by operators is generally confined to marketing applications: achievement by effective communication or attaining power by taking risks or having good luck.

Given the attractiveness of the study area, an abundance of barrier analysis for entrepreneurs and business success is very rich. The variety of entrepreneurship barriers may depend on the industry sector, the region, or the type of company (Martins *et al.*, 2004, p. 19) and may be related to psychological, economic, political, or cultural factors (Kouriloff, 2000, p. 73).

According to Jafarnejad *et al.* (2013, pp. 210-211) these barriers are categorized in four groups based on literature review and expert opinion as: financial, scientific-educational, policymaking and cultural barriers. Barriers for entrepreneurs can vary depending of the development phase of business and transition context (ECSB, 2005). Additionally, according to typology of entrepreneurship, different types of barriers are identified for female entrepreneurship, youth entrepreneurship etc.

With the advent of mass tourism and globalization, the tourism sector is given a global context, which has a significant impact on the barriers that entrepreneurs face in this field. The above limitations are diverse and can in principle have an impact on (1) individual tourists and (2) sectors within the tourism supply and/or sectors closely related to tourism; the second category of limitations with an impact on tourism-related sectors can be seen as those related to license requirements, import policies, restrictions on FDI; tax and exchange rate policies; employment policies for strangers; environmental policies, air traffic policies; obsolescence of tourism products, restrictions on access to information, restrictions on security issues in the midst of terrorism, etc. (Gržinić, 2018, p. 52).

The low entry barriers to the tourism and hospitality business place constraints on the finance and knowledge of the owners of the small firms (Morrison, 1996; Ateljević *et al.*, 1999). Shaw and Williams (1990) observe that many tourism businesses have little capital and weak management and that they are resistant to change or advice.

### 3. Empirical research

#### 3.1. Methodology

Research on barriers for tourism entrepreneurs in Tuzla was conducted in July and September 2019 with aim to identify barriers that existing entrepreneurs in tourism at the area of city of Tuzla are facing in order to create recommendations and implement activities that would contribute to removing those barriers for enhancing growth of existing tourism enterprises as well as to encourage establishment of new tourism businesses. These would improve tourist offer of Tuzla and contribute to (local) economic development of the city, Tuzla Canton and Bosnia and Herzegovina.

Research included 34 tourism entrepreneurs from Tuzla, 62% limited liability companies, 23% of crafts and 15% associations that are carriers of development of social entrepreneurship in tourism of Tuzla. According to Pollock (2016, p. 8), the need and opportunity for social entrepreneurship within the global tourism and hospitality sectors is systemic, strategic and tactical; involvement of the social entrepreneurship concept in the field of tourism as the way to achieve higher social objectives (employment, economical strengthening of long-term unemployed persons, work integration and social inclusion of marginalized groups) implies business model innovations for tourist service providers towards social and environmental sustainability. Most of sampled enterprises have 1 to 3 employees, with average number of employees of 12 persons.

Tourism as the field of business activities does not have specific standard classification and its sections are distributed over different statistical areas in Bosnia and Herzegovina. This is one of the limitations of this research. Tourism industry is mostly defined as the set of industries which facilitate tourists by providing infrastructure and products and services and make possible travelling for different purposes and travelling to places of leisure and business interests (Market Width, 2019). According to the World Travel and Tourism Council (2019) this industry includes accommodation, transportation, entertainment and attractions. Taking in consideration these facts authors defined fields of business activities related to tourism. Number of tourism entrepreneurs that were included in the research by field of business activity is presented in Table 1.

Table 1. *Field of business activity and number of entrepreneurs included in the research*

<i>Field of business activity</i>	<i>Frequency</i>	<i>%</i>
Trade of souvenirs and other tourist products	9	26.5
Tourism, hospitality, tourism services	14	41.2
Production of tourism products (souvenirs <i>etc.</i> )	6	17.6
Other (photo/video production, creative industry, IT focused on tourism products, <i>etc.</i> )	5	14.7%

Source: Authors' research

For the purpose of the research authors created questionnaire with barriers that were classified in six groups according to literature review on barriers in entrepreneurship with special focus on tourism, and taking in consideration specifics of the environment in which research was implemented (local context *etc.*). Barriers were grouped in following way: (1) barriers related to registration of business and its management (2) barriers related to access to finance (3) barriers related to business infrastructure (4) barriers related to access to information and advisory services (5) barriers related to finding adequate work force and (6) barriers related to acquiring required knowledge and skills for successful business start up process and management of business. Every group of barriers were split in several statements (a total of 47 statements were defined in six categories). Use of the Likert scale allowed authors to measure attitudes and to get insight in the degree of compliance of the entrepreneur with certain statement (1 – strongly disagree, 5 - strongly agree). Results of the Likert's scale are useful when authors want to put the answer into context.

### 3.2. *Data analysis*

Data analysis was performed through several steps. First, the data examination was performed using SPSS 22.0 and mean and standard deviation were calculated for each statement in order to get insight in capturing entrepreneurs' intensity of agreement with statement. In analysis i.e. identification of main barriers we selected only statements that had mean value of 4 and higher, and they are presented in following table.

Table 2. *Main barriers for sampled entrepreneurs in tourism*

<i>Statement</i>	<i>Category</i>	<i>Mean</i>	<i>SD</i>
Absence of specialized educational programs in the field of project management.	6- Acquiring required knowledge and skills for successful business start up process and management of business	4.41	0.957
Products, offers of banks (financial institutions) are not adapted to our working conditions and our business.	2 - Access to finance	4.35	1.15
<i>Statement</i>	<i>Category</i>	<i>Mean</i>	<i>St.d.</i>
Absence and / or low number of loan products aimed for entrepreneurs.	2 - Access to finance	4.26	1.31
Absence of specialized educational programs in the field of taxes and contributions.	6- Acquiring required knowledge and skills for successful business start up process and management of business	4.24	1.08
The education system does not provide adequate entrepreneurial knowledge and skills.	6- Acquiring required knowledge and skills for successful business start up process and management of business	4.18	1.19
Absence of specialized educational programs in the field of market research.	6- Acquiring required knowledge and skills for successful business start up process and management of business	4.15	1.08
Difficult access to relevant information on procedures for acquiring professional occupations for certain business.	4 - Access to information and advisory services	4.15	0.89

Business registration costs are high.	1 – Business registration and management	4.12	1.36
Inability to retrain and retrain staff.	5 - Finding adequate work force	4.12	1.15
Absence of specialized educational programs in the field of business negotiation.	6- Acquiring required knowledge and skills for successful business start up process and management of business	4.12	1.07
High costs of using available advisory services.	4 - Access to information and advisory services	4.07	0.98
Short loan repayment period for starting a business.	2 - Access to finance	4.03	1.38
Government institutions do not protect businesses that regularly pay taxes from those that do not, putting them in uncompetitive position.	1 – Business registration and management	4.00	1.23

Source: Authors' research

On the basis of the research results presented at Table 2, it can be concluded that tourism entrepreneurs in Tuzla mostly lack opportunities to gain and improve necessary skills for business development. Out of 13 identified barriers with average grade of 4.00 and higher, 5 (38.5%) of them are related to absence of education from the field of entrepreneurship and specialized educational programs in certain field (project management, taxes and contributions, market research, business registration). Tourism entrepreneurs are aware of the opportunities to apply for grants or other forms of support to their business growth and sustainability but they lack information and skills to apply and use those funds and opportunities. This is the reason why the barrier related to lack of specialized educational programs in the field of project management has the highest grade (4.41).

Access to finance is well known barrier for all entrepreneurs in Bosnia and Herzegovina which is confirmed with this research. If we consider the rank of presented barriers, two related to access to finance are ranked as second and the third one. High level of agreement is identified with the statements: Products, offers of banks (financial institutions) are not adapted to our working conditions and our business (4.35) and Absence and/or low number of loan products aimed for entrepreneurs (4.26). This situation is especially problematic in case of entrepreneurs registered as crafts, since they are considered as physical persons and in that way are categorized in the risk group for bank loans. At the other hand, grants and investments in Bosnia and Herzegovina are mostly focused on unemployed persons to register their own business with low number of those aimed at support to existing entrepreneurs. Among most important barriers with which entrepreneurs face in relation to access to finance is also short loan repayment period for starting a business (4.03).

Research results implied difficulties with which entrepreneurs face when starting a business, and which relates to access to relevant information on procedures for acquiring professional occupations for certain business and high level of business registration costs. According to relevant laws that regulate field of crafts in Federation of Bosnia and Herzegovina, entrepreneurs who want to register craft need to have special occupation defined by law, and according to attitudes of sampled tourism entrepreneurs it is hard to find adequate information on how to obtain certain occupation in order to be able to start a craft business if potential entrepreneurs has different one. Tourism entrepreneurs indicated difficulties to retrain and retrain staff as well as to use available advisory services, because of the high costs. The last barrier with average grade of 4.0 relates to unfair (disloyal) competition as deceptive business practice that causes economic harm to registered tourism businesses that regularly pay taxes and contributions while governments, according to entrepreneurs included in the research, do not protect them from those which do not pay these obligations.

Aforementioned attitudes of tourism entrepreneurs in Tuzla create valuable insight in barriers with which tourism entrepreneurs face, that make more difficult to entrepreneurs to ensure sustainability and growth of their businesses and in that way motivate new entrepreneurs in this field to enter into entrepreneurial activity. These results are also valuable policy implications that should lead to

planning and implementation of measures and activities aimed at improvement of tourism entrepreneurship and by that local economic development of city of Tuzla as well as Bosnia and Herzegovina.

#### 4. Recommendations for improvement of tourism entrepreneurship

Based on the results presented above, authors provide a set of recommendations which implementation would contribute to the removing of barriers for tourism entrepreneurship development and in that way to local economic development of city of Tuzla. Recommendations are mainly directed towards local level governments in city of Tuzla but as well as to all relevant stakeholders which aim is to support development of entrepreneurship and tourism.

##### *Recommendation 1: Create and implement educational programs for strengthening entrepreneurial capacities and skills.*

According to attitudes of tourism entrepreneurs included in the analysis, creation and implementation of specialised educational programs from different fields (project management, market research etc.) are of the highest importance and priority for the purpose of tourism entrepreneurship development in Tuzla. These programs should be formed on the basis of additional needs assessment of entrepreneurs for the purpose of estimating specifics topics and outcomes that would contribute to development of skills and knowledge of entrepreneurs. Additional measure that could be implemented in this aspect are subventions for entrepreneurs to use educational programs in field of interest that could be implemented through special incentive government programs etc.

##### *Recommendation 2: Support and initiate inclusion of entrepreneurial education in all types and levels of educations*

Recognising the importance of education in national development, the policy makers have placed an unprecedented focus on a recently identified concept in the field of education across all levels named as 'entrepreneurial skill development through education (Gautam & Singh, 2015, p 1.). This approach should be followed by all entity and cantonal level governments in BiH in order to foster entrepreneurship in all its forms. Local level governments which scope of authority does not involve formal education should start initiatives for inclusion of entrepreneurship education within formal education at all levels. Additionally, different support programs for implementation of entrepreneurial education within informal and non-formal education should be created and developed.

##### *Recommendations 3: Ease access to finance for entrepreneurs*

Access to finance is well known barrier for entrepreneurs in Bosnia and Herzegovina. This research additionally implied the need for opening of the dialogue with commercial banks about easing the procedures and conditions for loans by entrepreneurs, especially those which are registered as crafts. Besides loans, various supportive financial instruments should be created and implemented that would foster growth of existing entrepreneurs. Credit-guarantee schemes, incentive grants programs, as well as investment instruments should be implemented or their creation supported.

##### *Recommendation 4: Continuous needs assessment analysis*

Activities aimed at improvement of the state of tourism entrepreneurs should be continuous and long term, since ad hoc short-term policies and activities cannot have long term results. This is the reason why continuous needs assessment analysis should be implemented in order track effects of implemented support activities and measures as well as to receive continuous insight in barriers with which tourism entrepreneur face. Findings of continuous needs assessment should be basis for creation of entrepreneurship development support policies.

#### 5. Conclusion

In the last few decades, the main structural change in economic trends has been reflected in the growing amount of services, that is, the significant participation of the tertiary economic sector, in particular through tourism and all its forms. By using the saltwater resources to build a unique

saltwater lake complex Panonika, the city of Tuzla made certain turn in the development of the economy, placing a significant focus on tourism development. In addition to the salt lakes complex, Tuzla tourism is based on other forms of tourism, such as: cultural, historical, sports, recreational, spa, health, business and congress, which together with the salt lakes make unique tourist offer (Grad Tuzla, 2018, p. 14).

In relation to this, significant role in economic development of Tuzla have businesses that operate in the field of tourism. Number of business ventures in tourism in Tuzla in the period 2012-2017 is increased by 5%, while this growth rate stagnated after 2017. According to Levie and Autio (2011), it is not the supply of entrepreneurs that constitutes the key bottleneck to economic dynamism, but rather, the activities toward which entrepreneurial individuals channel their efforts. This is the reason why identification, analysis and work on removing of barriers that existing entrepreneurs face is of great importance for fostering entrepreneurship development, in this particular case tourism entrepreneurship.

This study showed that tourism entrepreneurs in city of Tuzla have barriers in access to adequate programs for gaining skills and knowledge from different fields that will enhance their capacities to grow and develop their businesses. Access to finance is recognised as the second most important barrier which removal would contribute to fostering of tourism entrepreneurship. Implementation of suggested recommendations would certainly contribute to tourism entrepreneurship development in Tuzla and finally local economic development. Recommendations for further research include analysis of specific needs of individual entrepreneurs related to identified barriers.

Additionally, research could be implemented on larger sample of tourism businesses from different parts of Bosnia and Herzegovina in order to get insight in barriers for tourism entrepreneurship development in the country, and creation of recommendations that could be implemented by all levels of government as well as other stakeholders in tourism. Contribution and possibilities for development of social entrepreneurship in tourism is another implication for further research in this field.

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## CONTEMPORARY MANAGEMENT CONCEPTS IN CURRENT PUBLIC ADMINISTRATION REFORM IN BOSNIA AND HERZEGOVINA

## SAVREMENI MENADŽMENT KONCEPTI U REFORMI JAVNE UPRAVE U BOSNI I HERCEGOVINI

### Abstract

*In the past two decades, there has been a demand for an increased public sector organizations efficiency, effectiveness, transparency and accountability, which imposes the need to find and apply an appropriate managerial approach in this sector. Public sector organizations in BiH are exposed to different trends that impose a change in the way these organizations are managed. The globalization process has significantly contributed to the intensification of organizational change in the public sector. However, in BiH, the transition process, as well as other trends in the environment, influenced the inevitability of applying new ways of governance in these organizations. Moreover, these changes are requested solely from a financial point of view - in the context of rationalizing consumption. However, the key requirement for public sector organizations is to increase organizational efficiency, adequate human resource management, improve knowledge, improve services and other aspects of managing these organizations with respect to social responsibility, which is a significant determinant of the performance of these organizations. Finding the right governing concept in the public sector is not an easy task for any country, especially for a transitional country like BiH. The traditional, bureaucratic way of managing these organizations needs to be changed, increase the flexibility of these organizations and increase their efficiency. Management by results (MBR) is the result of the evolution of different managerial concepts, in particular the improvement of the management concept towards goals, and is a management strategy aimed at implementing appropriate organizational changes, improving organizational operations in order to improve the efficiency of these organizations. We present the results of a survey conducted in public administration in BiH to explore the possibility of applying the aforementioned concept. The research results imply that with the current organizational and managerial characteristics of public administration, it is not possible to implement this concept.*

**Keywords:** contemporary management concepts, management by results, public sector management, public administration, BiH

**JEL:** D02, H11, L20

## Sažetak

*Protekle dvije decenije nameće se zahtjev pred organizacije u javnom sektoru za povećanom efikasnošću, efektivnošću, transparentnošću i odgovornošću, što nameće neophodnost iznalaženja i primjene odgovarajućeg menadžerskog pristupa u ovom sektoru. Organizacije u javnom sektoru u BiH, ali i u drugim zemljama u okruženju izložene su uticaju različitih trendova, koji nameću promjenu načina upravljanja ovim organizacijama. I globalizacijski proces je značajno doprinio intenziviranju organizacijskih promjena u javnom sektoru. Međutim, u BiH je i proces tranzicije, kao i drugi trendovi u okruženju, uticao na neminovnost primjene novih načina upravljanja u ovim organizacijama. U javnosti se često o navedenim promjenama govori isključivo sa finansijskog aspekta-u kontekstu racionalizacije potrošnje. Međutim, ključni zahtjev, kada su u pitanju organizacije u javnom sektoru, jeste povećanje organizacijske efikasnosti, adekvatno upravljanje ljudskim resursima, unapređenje znanja, unapređenje usluga i drugi aspekti upravljanja ovim organizacijama, uvažavajući društvenu odgovornost, koja predstavlja značajnu determinantu djelovanja ovih organizacija. Iznalaženje odgovarajućeg upravljačkog koncepta u javnom sektoru nije jednostavan zadatak niti za jednu državu, a posebno ne za tranzicijske zemlje, poput BiH. Potrebno je provesti organizacijske promjene koje trebaju omogućiti napuštanje tradicionalnog, birokratskog načina upravljanja ovim organizacijama, povećati fleksibilnost ovih organizacija i povećati njihovu efikasnost. Menadžment pomoću rezultata, odnosno Management by results (MBR) predstavlja rezultat evolucije različitih menadžmentskih koncepata, a posebno unapređenje koncepta upravljanja prema ciljevima te predstavlja menadžment strategiju koja je usmjerena ka provođenju odgovarajućih organizacijskih promjena, unapređenju organizacijskih operacija, sa ciljem unapređenja efikasnosti ovih organizacija, pri čemu je efektivnost, odnosno ostvarivanje rezultata, temeljni fokus. U ovom radu su prezentirani rezultati istraživanja, koje je provedeno u javnoj upravi u BiH, sa ciljem ispitivanja mogućnosti primjene ovog koncepta. Rezultati istraživanja impliciraju da uz trenutna organizacijska i upravljačka obilježja javne uprave nije moguća implementacija ovog koncepta.*

**Ključne riječi:** savremeni menadžment koncepti, menadžment prema rezultatima, menadžment u javnom sektoru, javna uprava, BiH

**JEL:** D02, H11, L20

## 1. Introduction

The past two decades, imposes a demand to the public sector organisation for an increase of efficiency, effectiveness, transparency and accountability. These requirements impose the necessity of finding and applying appropriate management approach in this sector. Public sector organizations in Bosnia and Herzegovina (BiH), as well as in other surrounding countries, are exposed to different trends that impose a change in the way these organizations are managed.

The globalization process has significantly contributed to the intensification of organizational change in the public sector. In the public about these organizational and managerial changes in our society are often discussed solely from a financial point of view - in the context of rationalizing consumption. However, the key requirement when it comes to organisations in the public sector is to increase organizational efficiency, adequate human resource management, improving knowledge, improving services, and other aspects of the management of these organizations.

Finding the proper management concept in the public sector is not a simple task for any country, and especially for transition countries like BiH. Organizational changes need to be made for the purpose of abandoning a traditional, bureaucratic way of managing these organizations, and increase the flexibility of these organizations and increase their efficiency.

## 2. Theoretical framework of the research

Modern time is marked by globalization processes, which had certain implications in the area of the public sector. Significant changes have taken place when it comes to management in the public sector. New concepts of management in the public sector have emerged which represent a significant change compared to the traditional and applied approaches of management in the public sector. One of these concepts is a new public management, however other concepts have found their application in the public sector. This question is especially important for transitional countries such as Bosnia and Herzegovina, because it requires a thorough change of management in the public sector.

Grünning (2000) stated that during the last two decades, management concepts are increasingly applied in the public sector, on this statement point authors Aucoin (1990) and Behn (1995) as well. Starting from the premise that thesis of the authors Bovaird and Löffler (2009) states that the management of public sector organizations requires involvement of all stakeholders in order to improve the effectiveness of these organizations, it can be concluded that there is no requirement that certain elements of familiar management concepts apply on public sector organizations.

As causes of the development of modern concepts of management of public sector organizations can be pointed out: an increase of public organizations, the differentiation of public organisations, professionalization of the public sector, restriction force in the public sector and informatization of the sector. Therefore, the management of public sector organizations has determined a whole series of factors that affect the efficiency and effectiveness of these organizations, and therefore in theory there is no universal approach to management of these organizations. Various different concepts have been developed that apply in various countries around the world. It raises the question which of these concepts can be applied in organizations in the public sector in BiH? Observing the evolution of different management approaches to the management of organizations in the public sector goes from Planning, Programming and Budgeting System - PPBS to the concept of the Programme Management by Activity - PMBA, and the need had arose for development of more contemporary concepts of managing these organizations.

The different concepts known in the theory of management, such as Management By Objectives - MBO and the version of this concept of Management by Results - MBR represent the management cycles that are directed towards monitoring the achievement of objectives and results that the organization achieves. The focus of the managing organizations in the public sector, the emergence of these concepts is placed on the activities, processes, human resources and results. Management By Results (MBR) Management By Results (MBR) is the result of the evolution of different management concepts, and especially the promotion of the concept of management according to objectives. This concept represents a management strategy that is directed towards implementing appropriate organizational change, improving organizational operations with the aim of improving the efficiency of these organizations where the effectiveness or achievement of results is a fundamental focus.

Mayne (2007) in his research concluded that the implementation of the concept of Management By Results is primary organizational issue more than operational issue, thereby pointing out that its application requires significant changes throughout the organization and method of management, and is not just an issue of measurement. The primary purpose of this concept is the improvement of organizational efficiency and effectiveness through adequate management of all resources, organisational learning and monitoring achievement of plans and results. According to De Groff (2009) this concept of management integrates principles of management corporations and

management of public administration, primarily in terms of accountability or defining responsible performance measures for the purpose of achieving goals and results. Poister (2003) stated that measurement of performance as a management tool was presented and introduced in the management of organizations in the public sector for the purpose of improving the accountability of these organisations but also their effectiveness and efficiency.

This concept of management is a relatively authoritative way of managing according to Bartscher (2012), the concept of who is oriented and characterised by a systematic transformation of planning goals into instrument management. According to this author an application of this concept implies that employees participate very little in decision-making. Goleman (2000) in his article published in the *Harvard Business Review* on the basis of a survey conducted among 3000 managers, points out that authoritative leaders mobilize employees according to the vision or ultimate goal of the organization.

Therefore, it can be concluded that this concept can find application in public administration, which generally is characterized by a high level of bureaucracy and formalization and low level of delegating authorization and decentralisation. The authors Castellano and Roehm (2001) point out that the concept of Management By Results - MBR represents an approach that is used in order to synchronise goals of the organization with the objectives of the employees and their behaviour, and MBR represents a cycle that incorporates different stages of the cycle.

This cycle starts by planning, and then continues through the implementation of activities and management of the incentives system related to the achievement of objectives and results, and it ends with the evaluation of achieved planned objectives that is the evaluation of the results. Therefore, we can say that this concept incorporates elements of strategic management as well, since it requires determining of the strategic orientations of the organization, setting of the long-term goals, implementation of the activities for the purpose of achieving these goals, and evaluation and control of the achieved goals. An element of this management concept are the people, their motivation, knowledge and skills, and other organizational aspects such as organizational structure, organizational culture, communication, actions of informal groups, and especially the characteristics of the managers of the organization and his leadership qualities, social responsibility and other aspects.

According to Werner (2003) of managing for results that constitute the MBR management cycle: establishing the development intervention profile (analysis of mission and goals and stakeholders, determine governance structure, roles and responsibilities), building of results-based logic model with stakeholders (determine appropriate stakeholder participation, understand the results chain and articulate expected results, know why, what, from whom and how you want things to be done, use logical model to illustrate causality), development of risk management plan (identification of assumptions in the logic model, risk analysis of assumptions and elaboration of risk mitigation strategies), preparing of performance review plan (determining performance measurement, management audit and evaluation requirements, select performance indicators, complete measurement plan and estimate performance review costs), measuring performance and reporting (develop data collection instruments and system, establish baseline data and set performance targets, collect and analyse performance and risk data, fulfill internal and external reporting requirements) and appraisal of performance information (diagnosis of performance shortcomings, design and development of solutions and use of performance information for organisational learning). This model was the basis for development of research instrument for the purpose of the research study presented in this paper.

In this paper, we have tried to answer the question of whether the current organisational and management characteristics of the organizations in the public sector enable the implementation of the concept and the organizational changes which are necessary in order to meet the assumptions for the application of this concept in the mentioned organisations, in order to ultimately increase the efficiency and effectiveness of these organisations.

### 3. Research methodology

In order to find answers to the question of whether the current organizational and management characteristics in organizations of the public sector to enable the application of the concept of MBR a research has been conducted a which was based on the implementation of a research survey. Employees and public servants in public administration organizations were surveyed during the survey. In accordance with the needs of research, an appropriate sample have been established which covered 150 respondents. The survey was conducted in-person and electronically, and the total number of returned questionnaires is 104 filled questionnaires, which represents a rate of return of 69.33%. The survey included 104 respondents, of different gender, age, place of work and different lengths of service. Questionnaire which was used in this research was designed based on the Werner MBR model, and consisted of seven sections, where six sections incorporated questions related to the management process and organisational characteristics of respondents and one section with question related to the respondents' profile.

### 4. Research results

In the following table is presented the number and structure of the respondents according to gender and age.

Table 1. *The structure of respondents according to gender and age*

Age	Male		Female		Total	
	F	%	F	%	F	%
18-30	9	15.25	5	11.11	14	13.46
31-40	23	38.98	19	42.22	42	40.38
41-50	16	27.12	11	24.44	27	25.96
51-60	8	13.56	9	20.00	17	16.35
over 60 years of age	3	5.08	1	2.22	4	3.85
Total	59	100.00	45	100.00	104	100.00

Source: Authors' research

According to the research results, presented in the table, out of total number of 104 respondents, 59 were male and 45 were female respondents. Among the male respondents the most common were respondents between the age of 31-40 (38.98%), while among the female respondents the most common respondents are between 31-40 years of age (42.22%). In the following table are presented the respondents according to gender and education background.

Table 2. *The distribution of responses about characteristics of organization*

Characteristics of the organization	Strongly agree	Agree	Kind of agree	Disagree	Strongly disagree	M	SD
	%	%	%	%	%		
The functioning of the organization is in accordance with the defined vision	32.69	37.50	26.92	1.92	0.96	3.99	0.88
The functioning of the organization is completely aligned with defined mission	26.92	39.42	29.81	3.85	0.00	3.89	0.85
Employees are introduced with a defined vision and mission of the organization	25.00	29.81	28.85	13.46	2.88	3.61	1.09
Your organization is characterized by application of rules and procedures, strict hierarchy, formal communications, small number of teams	20.19	35.58	34.62	8.65	0.96	3.65	0.93
Your organization is characterized by inflexible organizations, the organization has difficulties to adapt to change, organizations don't follow the external environment	10.58	13.46	27.88	31.73	16.35	2.70	1.21
Your organization is characterized by the following features: strictly defined working day, strict control, narrowly defined work tasks	17.31	27.88	42.31	11.54	0.96	3.49	0.95
Decisions in the organization make employees who belong to the top-management without the involvement of subordinates	16.35	31.73	37.50	13.46	0.96	3.49	0.96
The organization is implementing a continuous assessment of employees and their working performance	17.31	20.19	34.62	20.19	7.69	3.19	1.17
In the organization, an assessment of the working performance is used as the basis for determination of salaries and allowances on salaries, and career promotion	12.50	15.38	31.73	30.77	9.62	2.90	1.16
Employees receive feedback on the assessment of the working success and quality of work delivery	12.50	27.88	31.73	24.04	3.85	3.21	1.07
Employees receive work assignments and responsibilities based on the needs and plans of the organization (service, division, etc.)	22.12	40.38	28.85	7.69	0.96	3.75	0.92
Plans in the organization make employees who belong to the top-management (managers, superiors, etc.) without the involvement of subordinates in the process	21.15	39.42	25.96	11.54	1.92	3.66	1.00

Source: Authors' research

As can be seen in the table above, all of the responses implicate a moderate degree of agreement with the most statements related to organizational mission, vision. Received responses also imply that employees in the public administration are not included in decision making process, that they receive assignments and tasks to be completed but are not evaluated and compensated based on their performance.

Table 3. *The distribution of responses about goals and tasks in organization*

Characteristics of the organization	Strongly agree	Agree	Kind of agree	Disagree	Strongly disagree	M	SD
	%	%	%	%	%		
Mission and vision have been clearly formulated as well as the goals and outcomes who have been placed in front of organization	29.81	45.19	21.15	3.85	0.00	4.01	0.82
Feedback are being used when making plans and setting goals for the next period, formulating new projects, etc.	22.12	49.04	23.08	5.77	0.00	3.88	0.82
Mapping stakeholders (interest and influence groups) is a technique that is used for identification and analysis of stakeholders.	11.54	28.85	36.54	14.42	8.65	3.20	1.10
Management structures have the authority to respond to findings and find new solutions to overcome perceived problems.	19.23	38.46	36.54	4.81	0.96	3.70	0.87
The organisational structure is aligned with the set objectives and it enables their achievement	25.00	28.85	38.46	6.73	0.96	3.70	0.95

Roles and tasks inside the organization have been clearly defined ranging from teams to individual tasks of the organization members	28.85	34.62	27.88	7.69	0.96	3.83	0.97
Organizations works with stakeholders on strengthening of its capacity.	13.46	22.12	39.42	14.42	10.58	3.13	1.15
Organization management implies that the work is organised in teams	26.92	35.58	28.85	6.73	1.92	3.79	0.98
Teams contribute to the identification of work tasks, and analyse necessary changes.	30.77	35.58	21.15	9.62	2.88	3.82	1.07

Source: Authors' research

When it comes to determining the goals and tasks in organizations of the public sector the results presented in the table above indicate that public administration organisations have defined a mission statement, set goals and use information from previous period when developing new plans. The respondents also indicated that public administration mostly does not map their stakeholders and include them in strengthening the organization. In order to determine the possibility of building model based on logic results in public sector organizations, respondents were offered the 7 statements with which the respondents agreed or disagree.

Table 4. *The distribution of responses about building of results-based logic model*

<i>Building of results-based logic model with the stakeholders</i>	<i>Strongly agree</i>	<i>Agree</i>	<i>Kind of agree</i>	<i>Disagree</i>	<i>Strongly disagree</i>	<i>M</i>	<i>SD</i>
	%	%	%	%	%		
Involvement of stakeholders in the activity of the organization allows the expansion of knowledge and database	16.35	50.00	22.12	5.77	5.77	3.65	1.01
In the management process and throughout the organization, a cause-and-effect relationship is created between the organization and stakeholders	19.23	40.38	30.77	2.88	6.73	3.63	1.04
The participation of stakeholders strengthens responsibility for the purpose of achieving results and increasing commitment to achieving results and outcomes	20.19	35.58	31.73	6.73	5.77	3.58	1.07
Organization management is based on the data collection, building information and testing connection between collected information.	27.88	42.31	25.00	4.81	0.00	3.93	0.85
In order to set a logical connection between activity and outcomes, an organization management is looking for answers to key questions: Why implement activities? What we expect from the activities? Who will be the ultimate beneficiaries? What we expect of whom? How do we achieve that?	19.23	46.15	32.69	1.92	0.00	3.83	0.76
The organization uses the key interest groups in partnerships for the development of the logical model of organization management and activities	23.08	34.62	37.50	3.85	0.96	3.75	0.89
Organization management uses plans that develop and set goals solely for the purpose of budget preparation of the organization	25.00	34.62	35.58	3.85	0.96	3.79	0.90

Source: Authors' research

The respondents mostly agree upon the thesis that involvement of stakeholders in organizational activities contributes to expansion of its knowledge and they moderately agree that involvement of stakeholders affects organizational commitment towards achieving goals and results.

Table 6. *The distribution of responses about construction of management plan*

Construction of risk management plan	Strongly agree	Agree	Kind of agree	Disagree	Strongly disagree	M	SD
	%	%	%	%	%		
In the organization, during defining key activities and developing of a logical model, an analysis of external and internal risk factors is carried out. Also, during analysis have been taken in account presumption for carrying out activities and setting goals and outcomes.	19.23	49.04	24.04	7.69	0.00	3.80	0.84
Organization in the framework of preparing the risk management plan performs a risk analysis assumptions of the logical model	13.46	49.04	25.00	10.58	1.92	3.62	0.92
The organization makes the strategy of risk reduction with the aim of assessing the probability of occurring unwanted events and minimising those probabilities	15.38	44.23	28.85	11.54	0.00	3.63	0.88
The organization regularly makes risk management plan and avoidance of risk	18.27	31.73	36.54	13.46	0.00	3.55	0.94

Source: Authors' research

The research results of the development and existence of the risk management plan in sub-organizations of the public sector indicate that the respondents are familiar with risk management. However, the results also indicate that respondents did not completely agree with the statements in the questionnaire and that some level of risk analysis is done when setting goals and defining activities even though organisations mostly do not have plans for risk avoidance.

Table 7. *The distribution of responses about development of plan effectiveness*

Development of plan effectiveness	Strongly agree	Agree	Kind of agree	Disagree	Strongly disagree	M	SD
	%	%	%	%	%		
The organization regularly draws up plans and projects during planning activities and it also comprises a review of the effectiveness plan of the organization	16.35	53.85	24.04	5.77	0.00	3.81	0.78
Analysis, audits and assessments are the basic tools that organization uses during measurement of the success of development projects	18.27	39.42	32.69	8.65	0.96	3.65	0.91
The company uses basic criteria for measuring success and monitors costs of impact assessments, i.e. risks	22.12	48.08	24.04	5.77	0.00	3.87	0.83

Source: Authors' research

The results about development and existence of plan effectiveness in the public sector organizations which are presented in the table above are sufficient to conclude that public administration organizations mostly do have plans and use basic criteria for measuring success and impact assessment.

In order to investigate to which extent measuring effectiveness and reporting is process that takes place in public sector organizations, respondents were offered 10 statements with which respondents agreed or disagreed. As can be seen in the table cca. 78% of respondents agree that these organizations define the way of measuring performance and effectiveness, however the results are different when it comes to defining appropriate sources of data and performance indicators and performance measurement.

Table 8. *The distribution of responses about measurement effectiveness and reporting*

<i>Measuring effectiveness and reporting</i>	<i>Strongly agree</i>	<i>Agree</i>	<i>Kind of agree</i>	<i>Disagree</i>	<i>Strongly disagree</i>	<i>M</i>	<i>SD</i>
	%	%	%	%	%		
The organization determines the way of measuring the performance and effectiveness management	16.35	61.54	20.19	1.92	0.00	3.92	0.66
The organization identifies appropriate sources of data and methods for data collection	19.23	60.58	18.27	1.92	0.00	3.97	0.67
The organization performs the selection of appropriate indicators of performance, which are continuously monitored	24.04	40.38	28.85	6.73	0.00	3.82	0.88
Organization after identifying appropriate indicators makes a measure performance plan	22.12	41.35	30.77	4.81	0.96	3.79	0.88
Analysis of performance and risk leads to understanding of shortcomings in the performance of development projects.	13.46	45.19	34.62	5.77	0.96	3.64	0.82
The organization's management uses performance data in order to control the effectiveness of lower-level managers and to control the performance of managers in terms of their responsibility	11.54	34.62	50.00	3.85	0.00	3.54	0.75
In addition to the reporting and monitoring plan, the organization also develops a performance monitoring cost plan for the purpose of minimizing these costs	19.23	30.77	43.27	6.73	0.00	3.63	0.87
The organization develops adequate instruments and systems for data collection	20.19	34.62	40.38	4.81	0.00	3.70	0.85
The organization regularly collects data and analyses data about performance and risk assessment	12.50	39.42	43.27	4.81	0.00	3.60	0.77
The organization continuously makes up internal and external reports based on data analysis of achieving performance	14.42	45.19	34.62	5.77	0.00	3.68	0.79

Source: Authors' research

The results in Table 9, about information feedback, indicate that public administration organizations mostly do investigate underperformance and the ways to solve it.

Table 9. *The distribution of responses about information feedback*

<i>Information feedback</i>	<i>Strongly agree</i>	<i>Agree</i>	<i>Kind of agree</i>	<i>Disagree</i>	<i>Strongly disagree</i>	<i>M</i>	<i>SD</i>
	%	%	%	%	%		
The organization and its management regularly perform diagnosing underperformance	22.12	37.50	31.73	8.65	0.00	3.73	0.91
On the basis of the collected information on the achievement of performance, management of the organization determines the way of solving and developing adequate solutions for the purpose of eliminating these deficiencies	21.15	42.31	31.73	4.81	0.00	3.80	0.83
An organization, in the context of performance control, only produces a performance report	7.69	40.38	37.50	9.62	4.81	3.37	0.94

Collecting feedbacks, audits, measuring the success of the adaptation, and other information about the performance of organization management is used for the purpose of improving the management and organizational learning	25.00	36.54	35.58	0.96	1.92	3.82	0.89
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Source: Authors' research

## 5. Discussion and conclusion

The research results indicate that public administration organizations are mostly functioning in alignment with defined mission and vision. They are characterized by formal procedures and rules and are dominantly bureaucratic with centralized decision making and planning. Even though, public administration organizations must identify their dominant stakeholders and understand their interests and expectations results indicate that identification and mapping of stakeholders is insufficient in these organizations in BiH and they are not used in order to strengthen the commitment to achieving organizational goals. These results can be partially explained with the fact that public administration today in BiH still have some characteristics of the socialist system form the past. Having in mind that BiH is a transition country it is obvious that public administration in BiH still needs to implement management changes.

Various causes have contributed to development of modern management concepts in the public sector. It can be concluded that MBR as a management concept can find application in public administration, which generally is characterized by a high level of bureaucracy and formalization and low level of delegating authorization and decentralisation, in order to synchronise goals of the organization with the objectives of the employees and their behaviour. The aim of the research was to determine whether under current organizational characteristics and management practices it is possible to implement MBR as a new management concept in the public administration in BiH. Based on the results which have been presented in the paper it can be concluded that the answer to this question is negative.

Analysis of the results related to organizational characteristics and that dimensions of the organizational structure in public administration (centralisation, formalisation, flexibility, control) leads us to conclusion that these organizations are characterised by strict application of rules and procedures, hierarchy and formal communication, these organizations are not flexible and slowly adapt to changes and higher management levels make the most decisions. Implementation of MBR requires that all stakeholders be included in the planning process and development of results-based logical model. According to results of the study there is a moderate level of agreement with the involvement of stakeholders in these processes in the public administration.

The results also indicate that there is a relatively low level of awareness that involvement of stakeholder strengthens accountability and commitment to achieving goals and results. Measuring of results represents the basis of the MBR concept and results related to this set of questions imply that clear benchmarks for performance evaluation of employees and organization have not been defined. The obtained results also lead us to conclusion that there is no logical connection between activities and performance established by management. Having in mind that public administration organizations are characterized by formal organization and control, mostly written top-down communication, centralization, an autocratic leadership style and organizational and managerial characteristics described by research results we can conclude that a management concept like management by results can't be implemented in public administration in BiH. It is necessary that governments as policy makers implement organizational changes in order to create conditions for implementation of contemporary management concepts in the public administration.

The results of this research can be used for further analysis in order to determine key factors for MBR implementation in the public sector and to determine which organizational changes should be implemented.

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## EFFECTS OF EMOTIONAL INTELLIGENCE ON STUDENTS' ENTREPRENEURIAL INTENTION

### UTJECAJ EMOCIONALNE INTELIGENCIJE NA PODUZETNIČKU INTENCIJU STUDENATA

#### Abstract

*Emotional intelligence is a series of interconnected emotional, personal, and social competencies and skills which affect someone's ability to successfully manage their circumstances in any given environment. It impacts every aspect of human life, and thus, entrepreneurial intention itself. Entrepreneurial intention is defined as a state of mind which allows an individual to strive towards starting a new business venture or creating a new value driver in an already established business. Research conducted on two Faculties of Economics in Bosnia and Herzegovina revealed that elements of emotional intelligence have a positive impact on entrepreneurial intention among college students of the first cycle degree programme.*

**Keywords:** emotional intelligence, entrepreneurial intention, entrepreneurship

**JEL:** L26, D91

#### Sažetak

*Emocionalna inteligencija je niz međusobno povezanih emocionalnih, ličnih i društvenih kompetencija i vještina koje utječu na sposobnost uspješnog upravljanja vlastitim životom u bilo kojem okruženju. Ona utječe na sve aspekte ljudskog života, pa tako i na poduzetničku intenciju, koja predstavlja stanje uma u kojem osoba teži stvaranju novog poslovnog poduhvata ili novog pokretača vrijednosti unutar postojećeg preduzeća. Istraživanje provedeno na dva ekonomska fakulteta u BiH pokazalo je pozitivan utjecaj elemenata emocionalne inteligencije, na poduzetničku intenciju studenata prvog ciklusa studija.*

**Ključne riječi:** emocionalna inteligencija, poduzetnička intencija, poduzetništvo

**JEL:** L26, D91

#### 1. Introduction

Despite being essentially a psychological term, emotional intelligence has recently become the subject of management research, in terms of both theory and practice. This includes studying its impact on different aspects of a company, namely its operation, as well as the creation of the company itself.

According to theoretical and numerous other research, emotional intelligence influences every aspect of one's life, including professional life as well. Therefore, a significant amount of research in the past two decades has been oriented towards investigating the impact of emotional intelligence on both existing and early-stage companies.

This research paper will be focusing on the impact of emotional intelligence as well, albeit in the context of entrepreneurship. The goal of this paper is to examine which intrinsic motivators affect one's decision to become an entrepreneur, or more precisely, does emotional intelligence determine entrepreneurial intention, and if so, to what extent.

## 2. Emotional intelligence

In the early 1990s, psychologists Salovey and Mayer were the first ones to introduce the term “emotional intelligence” (Salovey & Mayer, 1990). However, the concept was widely criticized among other psychologists, seeing that it brought additional confusion to an already controversial field of intelligence studies (Ilić, 2008).

Despite being the most deserving of giving scientific credibility to the term, Salovey and Mayer (1990) failed to popularize the concept of emotional intelligence. It was only when Goleman published his book in 1995 called *Emotional Intelligence: Why It Can Matter More Than IQ*, that emotional intelligence became accepted in the scientific community. Since then, emotional intelligence has become the focal point of study for many social science researchers (Ilić, 2008).

Throughout the years, researchers have offered numerous definitions of the term, with Salovey and Mayer's (1990) definition being the most prevalent one in the academic realm. In 1990, they defined emotional intelligence as a type of social and personal intelligence which contributes to an accurate appraisal of emotion in oneself and in others, as well as the ability to discern that information and use it to guide one's thoughts and behaviours (Mortan *et al.*, 2004).

In the opinion of Bar-On (1997), emotional intelligence is a series of interrelated emotional, personal, and social competencies and skills that influence one's ability to successfully manage their circumstances in any given environment.

As mentioned by Mayer, Salovey and Caruso (2000), emotional intelligence is comprised of two parts: emotion and intelligence. An emotion is a feeling or a reaction which occurs as a response to a certain situation, either real or imagined. On the contrary, intelligence pertains to one's ability to engage in various forms of reasoning.

Regardless of how it is defined, emotional intelligence greatly affects every aspect of human life. Studies have shown that emotional intelligence has a substantial impact on major life outcomes, such as improved psychological health and well-being (Schutte *et al.*, 2007), along with fulfilling social relationships (Lopes *et al.*, 2004). Furthermore, previous research indicates that emotional intelligence is a good predictor of work performance (O'Boyle *et al.*, 2011), work commitment, job satisfaction, as well as job involvement (Carmeli, 2003).

However, as explained by Goleman (2001), emotional intelligence by itself is not a guarantee of a successful life, but merely a platform for developing emotional competencies through which exceptional work results can be achieved.

In addition to various definitions, there are also a number of different models of emotional intelligence. One of them, established by Petrides (2009), can be seen in Figure 1.

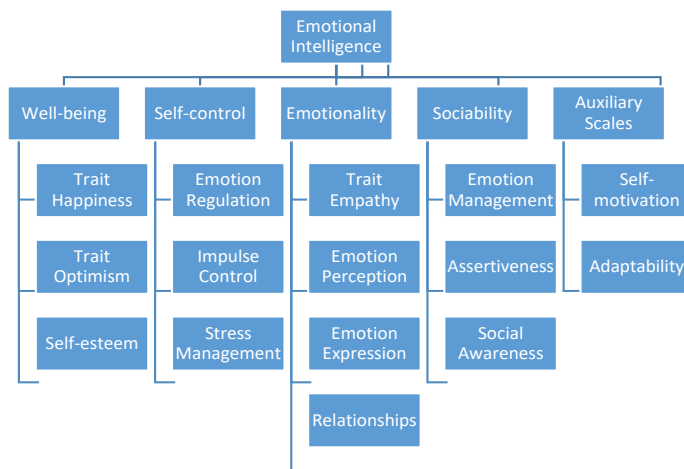


Figure 1. *Emotional intelligence*

Source: Petrides, 2009

Adaptability allows an individual to be compromising and inclined to accommodate to new conditions, while assertiveness relates to being straightforward, honest, and determined to fight and advocate for oneself. If an individual has a clear estimate of their own, as well as other people's feelings, it's referred to as emotion perception. Being capable of successfully conveying their feelings to others is defined as emotion expression, whereas being capable of affecting other people's feelings is called emotion management. Emotion regulation pertains to one's ability to effectively control their emotions (Petrides *et al.*, 2007).

Proper impulse control implies that an individual is more thoughtful and less likely to give in to temptation. Emotional intelligence also correlates with being able to build meaningful and high-quality relationships. Self-esteem relates to being successful and self-confident, while self-motivation pertains to being driven and tenacious, which makes an individual less likely to give up when faced with challenges. Social awareness is a quality typical of proficient networkers with excellent social skills. Stress management applies to one's ability to endure pressure and effectively handle stressful situations (Petrides *et al.*, 2007).

Trait empathy is associated with being able to comprehend various situations from other people's perspectives. Being joyful and pleased with one's life is referred to as trait happiness while being confident and hopeful about life is described as trait optimism. (Petrides *et al.*, 2007)

In addition to the aforementioned model, a questionnaire on emotional intelligence (Trait Emotional Intelligence Questionnaire) has also been developed. It consists of 153 claims which relate to 15 previously mentioned determinants (scales) of emotional intelligence and has been translated to over 25 world languages. There are also several other forms of this instrument, including a short form, as well as forms for adolescents and children (Mijatović, 2018).

### 3. Entrepreneurial intention

In modern society, entrepreneurship is a significant source of economic growth, economic flexibility, employment, innovation, promotion of products and service quality, and competition (Hisrich, Langan-Fox & Grant, 2007). As a multi-dimensional concept, it can take place in any type of organization and relate to a number of separate contexts, such as economic, managerial, laboural, or technological.

According to Chell (2008), entrepreneurship is the process of identifying and pursuing available opportunities, while taking into account alienable and inalienable resources currently controlled in order to create value.

Entrepreneurship relates to entrepreneurial intention, which is defined as the amount of interest an individual has in engaging in new business ventures. (Souitaris, Zerbinati & Al-Laham, 2007)

Wu & Wu (2008) define entrepreneurial intention as a state of mind in which a person aspires to create a new company or a new value driver within an existing company. In other words, entrepreneurial intention is the driving force behind entrepreneurial activities.

As with emotional intelligence, different authors have different opinions on the amount and types of elements of entrepreneurial intention, resulting in various models. The model of entrepreneurial intention presented by Linan in his paper, is in fact a configured model already previously introduced in the work of Krueger and associates in 1993 (Liñán & Chen, 2006).

According to this model, entrepreneurial intention is directly affected by three motivational factors, which are as follows:

- Attitude towards the behavior, which is defined as the extent to which a person is inclined to follow an entrepreneurial career (*i.e.*, has a positive or negative appraisal in regards to being an entrepreneur) (Ajzen, 2002).  
This includes both affective (it feels good and is pleasant) and evaluative (it will benefit me more and is more lucrative) considerations (Liñán & Chen, 2006).
- Perceived Social Norms, which aims to assess the impact of social surroundings on whether or not an individual will carry out his or her entrepreneurial behavior. Specifically, it refers to “reference people”, which could either approve or disapprove of one's decision to start a business (Ajzen, 2001).
- Perceived Behavioral Control which is defined as the perception of how easy or difficult it is for a person to become an entrepreneur, which makes it very similar to the concept of perceived self-efficacy (Bandura, 1997).

#### **4. The impact of emotional intelligence on entrepreneurial intention – a review of previous research**

In an article published in Harvard Business Review in 1998, Goleman focused primarily on the importance of emotional intelligence at work. (Ilić, 2008). Based on his research on skills that contribute to business excellence, which included 181 workplaces in 121 companies, Goleman (1998) came to a conclusion that as many as 67% of skills considered essential for good work performance are based on emotional capabilities.

The correlation between emotional intelligence and positive workplace outcomes was thoroughly examined by Lopes *et al.* (2006). Research results indicated that emotional intelligence strongly correlates to affect, attitudes, ratings of interpersonal facilitation, and to various indicators of work performance. This is further corroborated by a longitudinal study conducted by Snarey and Vaillant (1985), in which they concluded that an individual's ability to cope with stress and failure, manage their emotions, and be friendly with other people, has a greater impact on their work performance, compared to their IQ. Therefore, after taking into account various samples in numerous real-world domains, it is safe to conclude that emotional intelligence represents a substantial predictor of significant outcomes. Apart from the aforementioned outcomes that emotional intelligence can predict, there are also several others that are not mentioned in these studies. For instance, some authors believe that emotional intelligence is an important predictor of entrepreneurship (Chell, 2008).

Zampetaskis, Beldekos and Moustakis (2009) suggest that entrepreneurial behavior is affected by emotional intelligence in two different ways. The first one includes self-evaluation of emotional efficacy, which means that employees with high self-perceived emotional intelligence could have a higher tolerance threshold for stress and stressful situations. The second one refers to people with high emotional intelligence, which implies they also have higher affectivity with proactive and creative tendencies, all of which promotes their entrepreneurial behavior.

Ahmetoglu, Leutner and Chamorro-Premuzic (2011) also studied the correlation between emotional intelligence and entrepreneurship. They found a link between emotional intelligence and entrepreneurial behavior and success, with regards to individual discrepancies in an entrepreneurial personality, different personality traits, and demographics. In particular, they examined whether emotional intelligence could positively predict entrepreneurial behaviors and accomplishments. Additionally, they examined if personality measures such as Core Self-Evaluation (CSE) and Measure of Entrepreneurial Tendencies and Abilities (META) could also positively predict entrepreneurial activities.

According to Salvador (2008), emotional intelligence can impact the perception of entrepreneurial self-efficacy. Salvador's research determined that some dimensions of emotional intelligence have a substantial positive correlation with entrepreneurial self-efficacy.

Mortan *et al.* (2014) conducted research including 394 volunteer college students at the University of Valencia (Spain, 51.7%) and the University of Coimbra (Portugal, 48.3%), aged 18-35. Their research showed that entrepreneurial intention is indirectly affected by emotional intelligence, mediated by entrepreneurial self-efficacy.

## 5. Model of research

The focal point of this scientific paper consists of two variables: entrepreneurial intention (a dependent variable) and emotional intelligence (an independent variable).

Accordingly, the subject of this research paper is the relationship between emotional intelligence and entrepreneurial intention of college students in Bosnia and Herzegovina.

For the purpose of this research, emotional intelligence will be observed through five elements (determinants) which are as follows: well-being, self-control, emotionality, sociability and independent aspects, whereas entrepreneurial intention will be observed using three following elements (determinants): attitudes towards entrepreneurship, subjective norms and entrepreneurial self-efficacy.

There are a number of indicators identified for each determinant, which can be seen in Table 1.

Table 1. *Variables and indicators*

Variables		Well-being	Self-control	Emotionality	Sociability	Independent Aspects	Attitudes Towards Entrepreneurship	Subjective Norms	Entrepreneurial Self-efficacy
Indicators	1	Trait Happiness	Emotion Regulation	Trait Empathy	Emotion Management	Adaptability	The Appeal of an Entrepreneurial Career	Immediate Family Support	Acquired Entrepreneurial Knowledge
	2	Trait Optimism	Impulse Control	Emotion Perception	Assertiveness	Self-motivation	Prevailing Advantages of Entrepreneurship	Support from Close Friends	Willingness to Take Risks
	3	Self-esteem	Stress Management	Emotion Expression	Social Awareness	-	Utilizing Entrepreneurial Opportunities	Support from the Environment	A Sense of Basic Preparedness
	4	-	-	Relationships	-	-	-	-	-

Source: Petrides (2007) & Linan (2006)

The proposed research model is presented in Figure 2. The central research hypothesis reads: The level of emotional intelligence has a significant and positive impact on the intensity of entrepreneurial intention.

Along with the central research hypothesis, the following working hypotheses can be formulated as well:

- H<sub>1</sub>*: There is a positive relationship between sociability, as a component of emotional intelligence, and entrepreneurial self-efficacy, which is an element of entrepreneurial intention.
- H<sub>2</sub>*: There is a positive relationship between well-being, as a component of emotional intelligence, and entrepreneurial attitudes towards entrepreneurship, which is an element of entrepreneurial intention.
- H<sub>3</sub>*: There is a positive relationship between emotionality, as a component of emotional intelligence, and subjective norms, which is an element of entrepreneurial intention.

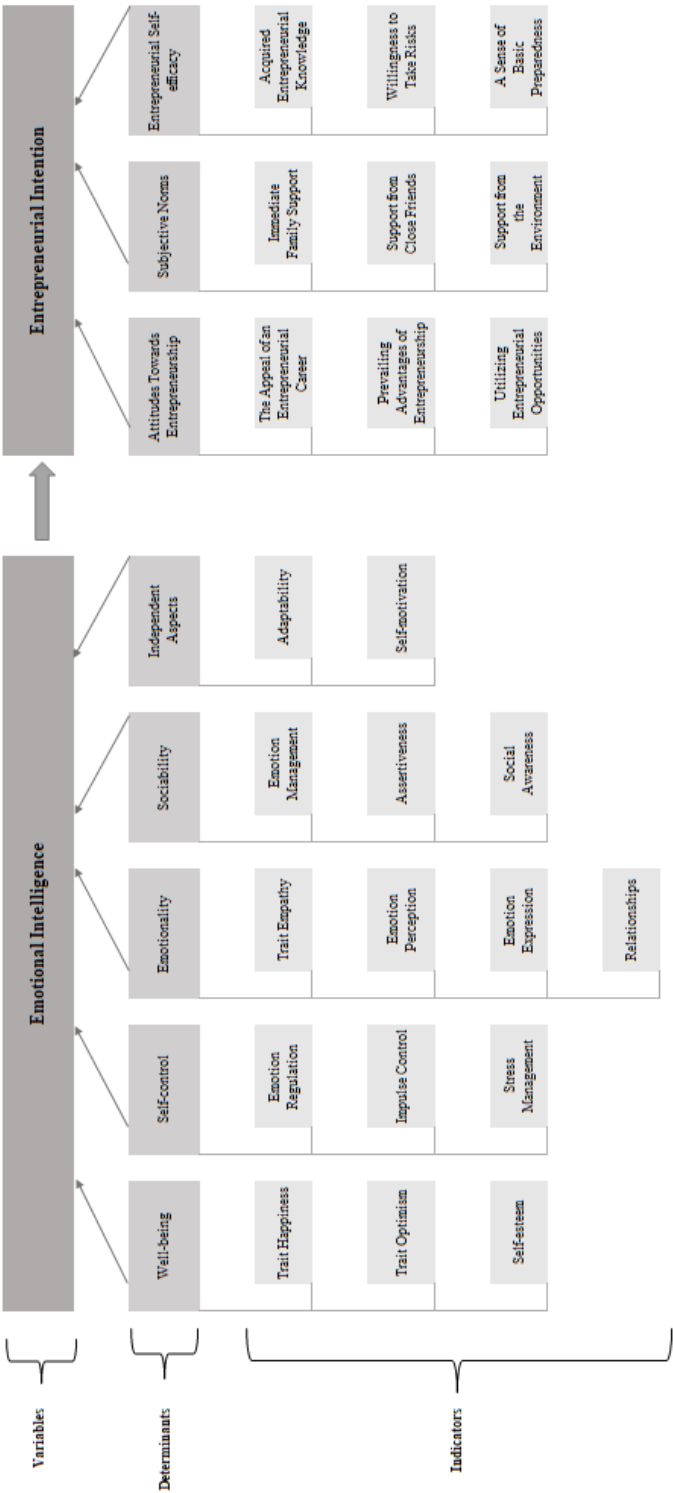


Figure 2. Proposed research model

Source: Authors' research

### 5.1. Model results

Test research has been conducted on 150 college students on two faculties in Bosnia and Herzegovina: Faculty of Economics at the University of Zenica and Faculty of Economics at the University of Bihać. 111 out of 150 questionnaires were properly filled out and subsequently analyzed. 35% of surveyed students are male, while 65% of them are female. All respondents are aged between 20 and 29 and all of them are enrolled in the first cycle degree programme. 22% of respondents are second-year students, 37% are third-year students, and 41% of surveyed students are enrolled in the fourth year of the first cycle degree programme. The results for the first working hypothesis H<sub>1</sub>, are presented in Table 2, which shows support for the model.

Table 2. *Correlations – 1*

		Sociability	Willingness to Take Risks	A Sense of Basic Preparedness	Acquired Entrepreneurial Knowledge
Sociability	Pearson Correlation	1	.216*	.280**	.260**
	Sig. (2-tailed)		.023	.003	.006
	N	111	111	111	111
Willingness to Take Risks	Pearson Correlation	.216*	1	.451**	.483**
	Sig. (2-tailed)	.023		.000	.000
	N	111	111	111	111
A Sense of Basic Preparedness	Pearson Correlation	.280**	.451**	1	.558**
	Sig. (2-tailed)	.003	.000		.000
	N	111	111	111	111
Acquired Entrepreneurial Knowledge	Pearson Correlation	.260**	.483**	.558**	1
	Sig. (2-tailed)	.006	.000	.000	
	N	111	111	111	111

\*. Correlation is significant at the 0.05 level (2-tailed). \*\*. Correlation is significant at the 0.01 level (2-tailed).

Source: Authors' research

As evident from Table 2, the dependent variable “entrepreneurial self-efficacy” (exhibited using the following indicators: willingness to take risks, a sense of basic preparedness, and acquired entrepreneurial knowledge), positively correlates with the independent variable “sociability”. The results for the second working hypothesis, H<sub>2</sub>, are provided in Table 3.

Table 3. *Correlations – 2*

		Well Being	The Appeal of an Entrepreneurial Career	Utilizing Entrepreneurial Opportunities	Prevailing Advantages of Entrepreneurship
Well-being	Pearson Correlation	1	.249**	.235*	.248**
	Sig. (2-tailed)		.008	.013	.009
	N	111	111	111	111
The Appeal of an Entrepreneurial Career	Pearson Correlation	.249**	1	.572**	.515**
	Sig. (2-tailed)	.008		.000	.000
	N	111	111	111	111
Utilizing Entrepreneurial Opportunities	Pearson Correlation	.235*	.572**	1	.483**
	Sig. (2-tailed)	.013	.000		.000
	N	111	111	111	111
Prevailing Advantages of Entrepreneurship	Pearson Correlation	.248**	.515**	.483**	1
	Sig. (2-tailed)	.009	.000	.000	
	N	111	111	111	111

\*\*.. Correlation is significant at the 0.01 level (2-tailed). \*. Correlation is significant at the 0.05 level (2-tailed).

Source: Authors' research

It is apparent from Table 3 that the dependent variable "attitudes towards entrepreneurship" (displayed by the following elements: the appeal of an entrepreneurial career, prevailing advantages of entrepreneurship, and utilizing entrepreneurial opportunities), positively correlates with the independent variable “well-being”. Research results relating to the third working hypothesis, H<sub>3</sub>, can be seen in the following Table 4.

Table 4 *Correlations – 3*

		Emotionality	Immediate Family Support	Support from Close Friends	Support from the Environment
Emotionality	Pearson Correlation	1	.181	.204*	.190*
	Sig. (2-tailed)		.057	.032	.046
	N	111	111	111	111
Immediate Family Support	Pearson Correlation	.181	1	.778**	.634**
	Sig. (2-tailed)	.057		.000	.000
	N	111	111	111	111
Support from Close Friends	Pearson Correlation	.204*	.778**	1	.726**
	Sig. (2-tailed)	.032	.000		.000
	N	111	111	111	111
Support from the Environment	Pearson Correlation	.190*	.634**	.726**	1
	Sig. (2-tailed)	.046	.000	.000	
	N	111	111	111	111

\*. Correlation is significant at the 0.05 level (2-tailed). \*\*. Correlation is significant at the 0.01 level (2-tailed).

Source: Authors' research

As can be seen from Table 4, the dependent variable "subjective norms", (demonstrated using the following indicators: immediate family support, support from close friends, and support from the environment), positively correlates with the independent variable "emotionality".

## 6. Conclusion

This research paper is the first scientific work to be conducted on this research model, with the goal of investigating the correlation between emotional intelligence and entrepreneurial intention. In regards to the limitations of this study, the research focused entirely on college students, in order to understand their preferences towards being an entrepreneur, as opposed to being an employee. However, taking into account the target population, *i.e.* economy students that have recently been studying entrepreneurship, it cannot be precisely determined whether their intention will persist in the future, or is it just a result of ongoing entrepreneurship education.

The second limitation pertains to the disregard of other factors, such as entrepreneurial background, financial situation, uninspiring entrepreneurial environment, complicated start-up procedures, etc., owing to the fact that in this instance, emotional intelligence was observed separately, as a single determinant of entrepreneurial intention.

Bearing in mind that the studied model is a complex one, more research is planned to be conducted in the future in order to further test this model. Succeeding research will be focused on determining the individual impact of every stated variable of emotional intelligence, as well as testing the model on other target populations.

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## THE IMPACT OF TECHNOLOGICAL CHANGES ON EMPLOYEE RESISTANCE TO CHANGE IN MODERN ORGANIZATIONS

### UTJECAJ TEHNOLOŠKIH PROMJENA NA POJAVU OTPORA KOD ZAPOSLENIKA U SAVREMENIM ORGANIZACIJAMA

#### Abstract

*The purpose of this paper is to point out the impact that technological change has on the emergence of employee resistance in business organizations. Since the last century, there has been a revolution in technology and its use in the workplace. Business organizations have recently been facing processes of change and development, which aims to increase their ability to survive, grow and adapt to new business conditions, and is a particular challenge to foster employee collaboration and reduce resistance to introduction of new technological solutions. Implementing technological change into business processes and how employees adopt and apply them in the workplace is not always a simple process. Resistance to change affects the speed at which innovations are adopted, as well as attitudes, productivity, quality and employee relationships. In today's turbulent times, innovation in business is necessary to achieve a competitive advantage. New technologies contribute these constant advancements and bring about a wealth of new investment opportunities and a more favorable business environment, not only in countries that developed modern technologies but also in many developing economies. The aim of the paper is to analyze through the literature the importance of understanding the impact of technological change on the appearance of employee resistance to change so that the process can be successfully and properly implemented. The importance of successful technological change is multiple and contributes to increasing competitiveness and maximizing the profits that a business organization makes.*

**Keywords:** technological changes, business organization, resistance to change, competitiveness, profit

**JEL:** L10, M20

#### Sažetak

*Svrha ovog rada je ukazivanje na utjecaj koji tehnološke promjene imaju na pojavu otpora kod zaposlenika u savremenim organizacijama. Od prošlog stoljeća do danas došlo je do revolucije u tehnologiji i njejoj upotrebi na radnom mjestu. Poslovne organizacije se u novije vrijeme suočavaju sa procesima promjena i razvoja, a što ima za cilj da poveća njihovu sposobnost preživljavanja, rasta i prilagodbe novim uslovima poslovanja, te je svojevrsan izazov kako podstaknuti saradnju kod zaposlenika te smanjiti otpor prema uvođenje kod novih tehnoloških rješenja. Implementacija tehnoloških promjena u poslovne procese i način na koji zaposlenici iste usvajaju i primjenjuju na radnom mjestu nije uvijek jednostavan proces. Otpor na promjene utječe na brzinu kojom se usvaja inovacije, kao i na stavove, produktivnost, kvalitetu i odnose među zaposlenicima. U današnjim turbulentnim vremenima inovativnost u poslovanju je neophodna u postizanju konkurentske prednosti. Upravo nove tehnologije omogućavaju ta konstantna napredovanja i donose pregršt novih prilika za ulaganja i stvaranje povoljnijeg poslovnog okruženja, ne samo u zemljama sa najsavremenijim tehnologijama, već i u mnogim ekonomijama u razvoju i nastajanju. Rad ima za cilj da kroz analizu literature pokaže koliko je važno razumjeti utjecaj tehnoloških promjena na pojavu otpora kod zaposlenih, kako bi taj proces mogao biti uspješno i pravilno implementiran. Rezultati istraživanja pokazuju*

*da je značaj uspješne promjene tehnoloških promjena višestruk i doprinosi rastu konkurentnosti maksimiziranju profita koji poslovna organizacija ostvaruje.*

**Ključne riječi:** tehnološke promjene, poslovna organizacija, otpor na promjene, konkurentnost, profit

**JEL:** L10, M20

## 1. Introduction

The information technology revolution has had dramatically change jobs and many routine and manual tasks have been automated, replacing workers. By contrast, new technologies complement non-routine, cognitive, and social tasks, making work in such tasks more productive. Technological advancement above that change the organizational policies and strategies (Hampel & Martinsons, 2009). As the next wave of technological change (big data and cloud technology) has started to emerge in the workplace, Morgan (2014) notes, there are many fascinating things happening in the world of technology that are impacting on work. In this modern world of high-technology changes, technological advancement will continue to accelerate the future. But what need to be emphasised is that unsuccessful information technology adoption originates from too much focus on technology implementation and too little focus on employees need for adoption.

Change produces anxiety and uncertainty. When changes are instigated, all employees get affected. Changes threatening the financial security and identity of employees may be resisted (Cooper, 2015). As a result, resistance to change often occurs. Employees resistance to change is one of the most perplexing and contumacious problems in the majority of the institutions when a new change is introduced. Technological change is mainly related to innovation change where something is new for the organizations generating or adopting new products, processes, and practices (Keifer *et al.*, 2014).

In any organization, most of challenges are generated by competition, advanced technology, enhancing employee efficiency and repaid growth, new leadership and management (Madsen, Miller and John, 2005). New technology is not only essential for company or government, it is also important for nation. Bussines organisations cannot run with old technologies. Technology increase human performance when human or employees use technology for the benefits of the organization and use with ethical values (Imran, 2014, p. 3). Many researchers have studied the relationship between technological change and Human Resource Development (HRD) practices indicating that the latter will need to be adopted in order to minimize resistance to change (Folger & Skarlicki, 1995; Lundvall & Nielsen, 2007). Basyal and Seo (2016) taking experts opinion also showed that employees' resistance to change could be the one of the major problems of implementing technology change. Therefore, this paper focuses on identifying the reasons for resistance to technological change and strategies to overcome such resistance in modern organisations.

## 2. Technological changes in modern organisations

The term technology change refers to overall process of invention, innovation and diffusion of technology or processes (Jaffee *et al.*, 2002). Technological change is a most important initiator that allows people to do innovative things that have not been done before or would have done in a less efficient manner, but also very helpful for all walks of society and asserted that these changes are more evolutionary than revolutionary in nature, thus creating more job opportunities than the opportunities that they eliminate (Hascic, Johnstone & Michel, 2008).

Organisational change is generally related to information technology. Technological change as a type of organisational change can take many forms, changes may occur in for example (Kearns, 2004):

- Service delivery – the development of new types of services to customers including those based on new technologies and communications facilities, this might be an organisations response to changing customer needs and market trends; the business need to compete on the same level as its competitors (BS1400-2, 2003)
- Business processes – reengineering a business process to use new technology for financial gain (Hammer, 1990), this might be classified as a “push” change factor if the organisation is reacting to its competitors and wants to gain competitive advantage.
- People systems – changes in roles, responsibilities and working relationships; requirements for retraining based on new technologies.
- Structures and facilities – establishment of new organisations, agencies and partnerships to facilitate the development and delivery of IT facilities. This type of change might be an organisations response to changing customer needs
- Technologies – the implementation of new IT infrastructures to support internal and external communications and information sharing for competitive advantage. Technological change can be driven both internally and externally. Heiss and Jankowsky (2001) point out however that establishing or reengineering processes to link technology resources and company objectives is a major challenge.

The term technology change refers to overall process of invention, innovation and diffusion of technology or processes (Jaffee *et al.*, 2002). According to Mark (1987), introduction of new technology has become vital in all sectors so as to reduce cost and compete with the national and internal markets. Johnstone and Michel (2008) are of the view that technology change is a most important initiator that allows people to do innovative things that have not been done before or would have done in a less efficient manner. Another group of analysts (Hascic, Johnstone & Michel, 2008) expressed the view that technological changes are helpful for all walks of society and asserted that these changes are more evolutionary than revolutionary in nature, thus creating more job opportunities than the opportunities that they eliminate.

Globalization, restructuring and new technology developments in each and every sector has brought tremendous changes in all aspects of business and human lifestyles. One of the major changes that took place in business is change technology. Technology innovation or change has an important influence on organizational performance. There is a close relationship between technology change, human resource management and organizational performance. Change in technology has been identified to have both positive and negative effects on employees work performance and attitude (Alameri, 2013, p. 34).

### 3. Employee resistance to technological changes

Managers and employees detect the change in different ways. While senior executives see change as an opportunity to overcome problems and improve their careers in a positive sense, middle-level managers do not welcome well the change very much. Change is destructive and unexpected for them, and this can disrupt the balances (Strebel, 1996). Resistance resulting against change can be assessable as a destructive force working in the interests of competing firms (Smollan, 2011). Kotter and Schlesinger (2008) stated that managers should be aware of four common situations in which people are motivated to show resistance to change: narrow interest, misunderstanding and lack of trust, different evaluations and low tolerance for change. Caruth, Middlebrook and Rachel (1985) suggested that people with varying degrees of resistance would show it in three different ways. These are carried out directly as attacks, secret attacks and passive behaviors. Resistance to change can be realized individually or organizationally. The signs of individual resistance are usually complaints, mistakes, anger, indifference, withdrawal, absenteeism to work due to health reasons and stubbornness. Alameri (2013) in his research established factors that impact on employees resist to change, and it is presented in the next table:

Table 2: *The factors explaining resistance to technological change*

<i>Components</i>	<i>Definition</i>
Corporate evolution	Corporate evolution occurs due to market implications that force organizations to change their policies with regard to culture, values and approaches.
Globalization	To be competitive with foreign companies, domestic firms are continuously improving technology. Such changes refers to globalization which brings many benefits like decreasing operating costs, attracting more customers, increasing lending opportunities, enhancement of creditworthiness, <i>etc.</i>
Privatization	Privatization refers to transfer of ownership of an organization or businesses from government to a privately owned entity.
Technological development	Technological development refers to continuous improvements in the abilities of companies to do things faster, better and cheaper.

Source: Alameri, 2013

According to Rick (2011) there are many reasons why people resist change; it may be the purpose of the change is made not clear, in the sense of employees' understanding about change and not being involved in change process. When there is an appeal for change based on personal reasons, where the employees' habitual patterns are ignored and in cases where there are no organizational change processes like technology development, changing policies and, change management. When there is poor communication about change, the reason for resistance may be the fear of failure or high pressure from the market, competitors or any other external factors. When there is less recognition received in spite of hard work, less satisfaction is manifested by employees. Thus it has been identified that employees generally resist change but the reasons for this could be many. Identifying individual reasons is difficult but identifying reasons in general can be easier. As discussed above, there are many reasons but the reasons, based on group and individual perceptions, need to be identified and addressed before implementing change. To overcome resistance to technological change in literature is suggested strategies that are listed in the next table:

Table 2. *Strategies for overcoming resistance to technological change*

<i>Components</i>	<i>Definition</i>
Communication	Communication refers to the interaction between management and employees in an organization which helps in passing information for effective work processes.
Motivation	Motivation included boosting employee performance through assistance, guidance, discussions with employees that helps in improving employee performance.
Training	Training sessions will provide a kind of motivation for employees to improve their performance, helps creating awareness of the job, improves knowledge and achieve the organizational goals effectively.
Rewarding policy	Rewarding is a strategy used to provide compensation and recognition in the form of money or something of equal value brings satisfaction to employees and boosts employee morale.

Source: Alameri, 2013

From the literature review it is identified four strategies to overcome resistance to technology change. First, communication that refers to the interaction between management and employees in an organization which helps in passing information for effective work processes (Cornelissen, Kafourous & Lock, 2005). Second motivation referred to as boosting employee performance through assistance, guidance, discussions with employees that help in improving employee performance (Yusoff, Kian & Idris, 2013). Third, training sessions are said to provide a kind of motivation for

employees to improve their performance, helps creating awareness of the job, improves knowledge and achieve the organizational goals effectively (Palmer & Dunford, 2008). Finally, rewarding policy as a motivator is used to provide compensation and recognition in the form of money or something of equal value brings satisfaction to employees and boosts employee morale (Stavrakakis, 2008). Communication between employees and managers, education, motivation for managers to encourage employees to contribute more, and how to reward for results, should be the focus of organizations through technological changes in order to identify the best suitable strategies to overcome any kind of a resistance.

#### **4. Impact of technological changes on resistance to change**

Several authors propose to have a second thought about resistance to change, to view the resistance as a multidimensional attitude towards change that consists of three interconnected elements cognitive, affective/emotional and behavioral/intentional components, and to help employees go through the change in an organization (Diamond, 1986; Piderit, 2000; Oreg, 2006). Discussing about management of change, Wargin and Dobiey (2001) discovered the three reasons why people resist change with respect to technological changes. Firstly, people resist change because they do not have the required skills to use, or gain the benefits from, the new technology. Secondly, for traditional companies and industries' employees do not understand the application of new technology and how such business is undertaken, processed and executed. And, finally, new technology changes organizational structure as top and middle level management inclined to redefine business models.

According to Prosci (2002), resistance to change is a natural reaction and the integration of new technology causes concern for many employees. Much research has been carried out on change management and on the factors which influence change management. According to Gray (2006), there are many factors which drive technological changes and these come from different factors which mostly include corporate evolution, globalization, privatization and technological developments. In his study he suggested that there is a need for change management when implementing new technological solutions and that management should discuss with the employees the issues encountered during this type of change.

Davis (2008) researched likely resisters prior to the adoption of a compulsory technology innovation aids organizations in accommodating the resistance as it occurs. The predictive tools resulted in this work promote sustainable implementation of IT within in the architecture/engineering/construction organizations and multi-organizational project teams. By understanding how individual participants resist and adapt to change, their resistance can be better accommodated by the organization in the adoption of new information technology within the architecture/engineering/construction industry. Siegel (2008) in his study noted that it is important and necessary to conduct that there is tremendous resistance to new technology in many organizations around the world. For organizations such as universities and businesses to function, their employees must stay competitive with modern technologies and resources. The current literature on resistance to technology often ignores motivational elements that are fundamental to the employee's decision on whether to embrace a new technology.

Courpasson, Dany and Clegg ( 2012) found out that resistance is inherent to organizational life, resistance to change has mainly been seen as an effort to maintain status quo and research has traditionally seen resistance as a negative force that must be overcome, and the literature on resistance stretches across several disciplines. According to Samhan and Joshi (2015) recent review of research on resistance to healthcare information technologies, resistance is under-researched and multifaceted, and relatively little attention has been paid in understanding it, and it is restraining force that leads employees away from supporting changes proposed by managers. Resistance to

technology is expected in process of implementation and can be seen as the flip side of success factors for innovation which has been emphasized in research on technology implementation in the Information Technology Industry.

Nielsen *et al.* (2016) in their study found that resistance to surveillance technology on a general note was not significant, and the healthcare providers perceived the new technology as a threat only to a low extent. In the long term, this could be explained by involvement in the co-creation process and motivated by a perception that a positive attitude towards this technology is appropriate and “modern”, rather than seeing technology in itself as a threat. The healthcare providers also appear to conceive the advantages and the future use of welfare technology. Theoretically, the study contributes by identifying resistance categories, coining the concept of ethical resistance and focusing on productive resistance. Resistance appears to play a productive role when the implementation is organized as a co-creation process. The study has shown that resistance changes character over time and that it is not solely a negative phenomenon, as it contributes to development and innovation through the friction it creates.

Zhang (2019) in his study also found that the impact of employee pressure and resistance on the development of the enterprise is mainly in four aspects: employees’ negative work, increasing the difficulty of enterprise management, hindering the formulation of company policies and systems, and hindering the organization’s integration of technology and resources. In addition, by analyzing employee pressure and resistance problems, this paper put forward the countermeasures and reduce the staff pressure and resistance respectively, including the staff consultation and formulate reasonable clear objectives, fair treatment of employees, let employees’ self-esteem, and the balance of family and work to reduce employee stress method, and cultivate employees’ good work habits, company should implement education for staff communication negotiations, encourage employees to actively participate in, the company should use appropriate manipulation, companies should adopt compulsory measures to reduce employee resistance.

All researches that are highlighted in this paper suggest that motivational elements, management involvement are fundamental for the employee’s decision on whether to embrace a new technology. Previous researches has for instance show that traditional organizational perception may change as a result of technology implementation. Increased use of technology may change the work pattern, the division of labour and their interaction. Previous research also indicates that the implementation is complicated by a lack of training and lack of interest from employees.

## 5. Conclusion

The literature review identified that it is important to see that resistance to change needs to be expected when change is undertaken without involving employees. Currently organizations are undergoing tremendous change because of various reasons. Therefore, it is vital to identify the factors that drive resistance to change. To do this it is important to understand the present external and internal scenarios in order to know why people resist change, especially technological change. It can be understood that, initially, resistance begins at individual level which then slowly moves to group level and then finally reaches its peak at organizational level. To deal with such situations organizations have to take the necessary steps to observe and identify the expected resistance so as to help them in bringing out suitable strategies to overcome it. It is a common characteristic that most humans are reluctant to change and resist change. It can be noted that managers, as well as employees, know that they have to accept change but may initially resist as they can have personal professional issues themselves as regards to change.

Management has to build a positive environment when a change is introduced by creating good relationships with their employees. The literature review further identified that employees generally

resist change but the reasons for this resistance can be many. From the literature review it is understood that identifying individual reasons is difficult but that identifying reasons in general is easier. Thus there are many reasons for resistance to change but identifying the reasons for resistance based on group, and individual, perceptions need to be initially identified and, thereafter, change has to be implemented. The psychological thinking of employees, cultural aspects, local, organizational and social aspects, the behaviour of employees and, finally, demographic aspects such as age and gender have an impact on the resistance to change. Thus organizations have to focus on such issues and identify the best suitable strategies to overcome them. Communication between employees and managers, education, motivation for managers to encourage employees to contribute more, rewarding policy, should be the focus of organizations undergoing technological change in order to identify the best suitable strategies to overcome any resistance.

There are many factors which drive technological changes and these come from different factors which mostly include corporate evolution, globalization, privatization and technological developments. Globalization, restructuring and new technology developments in each and every sector has brought tremendous changes in all aspects of business and human lifestyles. One of the major changes that took place in business is change technology. Technology innovation or change has an important influence on organizational performance, but and individual performances of employees as well.

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## KEY DETERMINANTS AND MANAGERS BEHAVIOUR IN A CRISIS SITUATION: IN-COMPETENCE OF MANAGERS IN DIFFERENT STAGES OF CRISIS DEVELOPMENT

## KLJUČNE DETERMINANTE I OBLICI PONAŠANJA MENADŽERA U KRIZNIM SITUACIJAMA: (NE)KOMPETENTNOST MENADŽERA U RAZLIČITIM STADIJIMA RAZVOJA KRIZE

### Abstract

*The vast majority of businesses are constantly at some stage of the business crisis. Crises represent unplanned and unwanted processes aimed at substantially endangering the business of an enterprise. Such situations necessarily impose a change in business environment that significantly determines the behavior of managers. Their behavior involves quick reactions and decisions with the consequences that most often have an ambivalent outcome. Managers' reactions to a crisis depend on the individual on the one hand and on the crisis on the other. The onset of a crisis enhances managers' activities, while prolonged stress reduces their ability to solve problems, but as a consequence reduces the idea of time reserve. Some crisis-affected individuals reduce the quality of their decisions but such managers will end up as crisis managers rather than insolvency managers. The aim of this paper is to research what key determinants and forms of managerial behavior we identify in crisis situations. The survey was conducted on a reference sample of furniture companies. As a sub-sample, enterprises of various sizes that do not belong primarily to the wood industry (companies from metal, arms, processing and other industries) were analyzed with the aim of investigating the existence of disproportion in business. The predefined endogenous and exogenous variables were measured using scales that express the views of the respondents. The measurement scales were taken from the studied literature which is related to the topic of this paper and as such they were slightly or not at all modified, which in the end did not change the structure and method of the research itself or the values and validity of the obtained results.*

**Keywords:** business crisis, crisis management, behavior model

**JEL:** M10, M20, M21, H12

### Sažetak

*Velika većina preduzeća konstantno se nalazi u nekom stadiju poslovne krize. Krize predstavljaju neplanirane i neželjene procese koji za cilj imaju supstancijalno ugroziti poslovanje preduzeća. Takve situacije nužno nameću promjenu poslovnog ambijenta koji značajno determinira ponašanje menadžera. Njihovo ponašanje*

*podrazumijeva brzo reagovanje i odlučivanje uzposljedice koje najčešće imaju ambivalentan ishod. Reakcije menadžera na krizu zavise od čovjeka do čovjeka s jedne strane i od krize do krize s druge. Početak krize pojačava aktivnosti menadžera, dok dugotrajan stres smanjuje sposobnost rješavanja problema te posljedično smanjuje predožbu vremenske rezerve. Neki pojedinci pod uticajem krize smanjuju kvalitet svojih odluka, ali takvi menadžeri će prije završiti kao krizni menadžeri nego kao menadžeri insolventnih preduzeća. Cilj ovog rada je istražiti koje ključne determinatne i oblike menadžerskog ponašanja e identifikujemo u kriznim situacijama. Istraživanje je provedeno na referentnom uzorku preduzeća iz drvne industrije. Kao poduzorak istražena su preduzeća raznih veličina koja ne pripadaju primarno drvnoj industriji (preduzeća iz metalne, namjenske, prerađivačke i druge industrije) s ciljem istraživanja postojanja disproporcije u poslovanju. Unaprijed definisane endogene i egzogene varijable mjerene su korištenjem mjernih ljestvica koje izražavaju stavove ispitanika. Mjerne ljestvice preuzete su iz proučavane literature koja je u vezi sa samom temom ovog rada i kao takve one nisu (ili su neznatno) modificirane, što u konačnici nije promijenilo samu strukturu i metod istraživanja kao ni vrijednosti i validnost dobivenih rezultata.*

**Ključne riječi:** poslovna kriza, krizni menadžment, model ponašanja

**JEL:** M10, M20, M21, H12

## 1. Introduction

Managers' behavior in pre-crisis, during a crisis, and post-crisis stages is not the same. Different types of behavior dominate during different stages of crisis development. This paper aims to identify the key determinants and types of managerial behavior or to assess the level of managers' (in)competence in different stages of crisis development. Apart from introduction and conclusion, the paper consists of three main parts. The first part brings the review of the literature that includes past research on managers' incompetence during crisis. The second part presents the methodology used for the analysis of the key determinants and types of behavior of managers during crisis. The third part of the paper includes the research results obtained by the previously defined methodology. The research identified a series of limitations that did diminish its results.

## 2. Literature review

Competence of top management, as stated by Boeker (1997), is necessary for understanding business and management processes. Competence of top management refers to the necessary knowledge, both functional and specific, needed for understanding business and management processes. The conventional argument, primarily taken from the upper echelons theory, states that top managers holding their positions for a longer period of time are the source of the company's complacency (Daraboš, 2015). They are prone to resist to changes and accept the status quo (Frinkelstein & Hambrick, 1990, pp. 484-504). In support of these claims, it is possible to use the results of the research conducted by Waldman *et al.* (2001, pp. 134-143) who point out that after a four-year experience there is a strong positive link between the person's experience holding the position of the top manager and company's business results.

As the argument for such claims, Bergh (2001, pp. 603-622) states the fact that a top manager, holding this position for a long time, has valuable knowledge on the company related to the political structure, personality of executive directors, and the structure of its competitive environment. However, the emergence of a business crisis significantly changes the perception of managerial influence. If a business crisis was caused by an internal factor, in over 70% of the cases companies changed their existing management. Bibeault's (1998, p. 145) research results state that in 44% of the cases a new CEO was hired while in 56% of the cases the same CEO was kept, as presented in the following table.

Table 1. *Percentage of hiring new management within and outside the company*

	Insider	Outsider	Total
New CEO	23 (39%)	36 (41%)	59 (73%)
Same CEO	22 (100%)	0 (0%)	22 (27%)
Total	45 (56%)	36 (44%)	81 (100%)

Source: Bibeault, 1998, p. 145

A more detailed insight into the results presented in the table point to the fact that in a crisis, the management was changed in 73% of the cases, while in 27% of the cases it was kept (Bibeault, 1998, p. 145). Muratović (2006, p. 54) believes that the crisis management process requires the appointment of one person with exceptional abilities to manage the transformation process. As stated by Tichy and Devanna (1986, 1996), successful transformation requires transformational leader. Transformational leadership refers to encouraging employees to follow ideal and moral values that would inspire them the most to overcome difficulties at work (Kurtić & Kulović, 2009, p. 349).

Difficulties in finding clear definitions of the competences a crisis manager needs lead to frequent attempts for defining core generic competences regardless of the fact that every company has a numerous number of different competences required for successful crisis (Cooper & Robertson, 1995, p. 186). "Generic competences are those that represent the potential that can be applied in any discipline, level of education, workplace, and other context" (Bennet, Dunne & Carre, 1999, p. 71). According to all the past psychological insights, successful execution of the tasks of crisis manager is a specific resultant and function of knowledge, skills, and abilities (Woodruffe, 1992, p. 92). Although every crisis manager has different competencies, due to the fact that there are no two crisis managers with the identical knowledge, skills and abilities and other characteristics, these can be universally understood as behavioral topics desirable in the company under crisis.

Starting from the premise that the ideal manager can only be found in books, Adizes (2004, p. 120) promotes his view that this problem should be approached from the point "what we can be" rather than "what we should be" (which is unproductive search for perfection). On the other hand, it is best to isolate one subset of attributes (out of the widest set of required personal attributes of managers) that are particularly important for the position of manager and search for the personality profile that best satisfies this subset of attributes. Manager's personal attributes need to enable him to eliminate excess information and set the priorities, to be unbiased and without prejudices (Omerčević & Kulović, 2018a).

Personal attributes of crisis manager are built into his preference scale that contains various needs related to productivity, profit, quality, morality, honesty, and fairness as well as to his orientation to past, present, and future (Sloan, 1990, p. 11). Slatter and Lovett (1999, p. 68) define crisis as the situation that comes suddenly, does not leave much time for reaction, and endangers company's value. These three characteristics cause stress that initiates a certain level of motivation.

Manager's behavior is subject to changes during crisis. The impact of crisis on managerial behavior and the quality of decisions is given in the following figure.

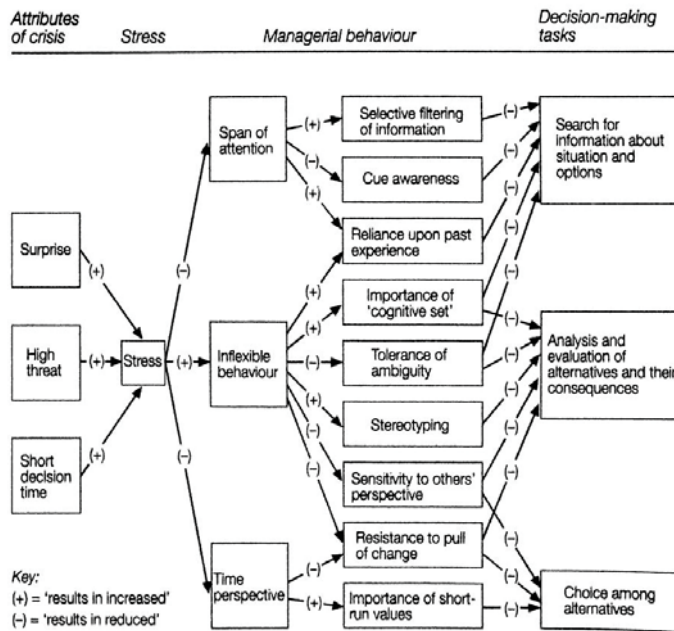


Figure 1. *Impact of crisis on managerial behavior*

Source: Slatter & Lovett, 1999, p. 58

The graph shows the assumed ratios of results in increased (+) and results in reduced (-) impact of a set of assumptions as cause-effect relations are not investigated. The main idea presented in the graph assumes that crisis triggers stress which impacts managerial behavior and the quality of decision making (Kulović, Omerčević & Kuć, 2018, pp. 319-331). Among the main causes of crisis-triggered stress, Holsti (1978, p. 9) states reduced attention span, increased inflexible behavior, and short decision time. When under crisis, some individuals reduce the quality of their decisions, but such managers would end up as crisis managers rather than the managers of the insolvent companies (Slatter & Lovett, 1999, p. 58).

### 3. Research methodology

The essence of this research is based on the need to elaborate theoretical aspects and consequently reach the identification of key determinants and types of behavior of managers during crisis faced by small and medium-sized companies in the wood processing industry. We applied empirical research in an attempt to find out if managerial behavior is different in business under crisis and that under normal circumstances. The aim of the research was to identify the key determinant and types of behavior of managers meaning to assess the level of managers' (in)competence in different stages of crisis development. For the purposes of the research aimed at the provision of appropriate information related to the scope of the paper, we created the questionnaire and conducted the research on a referential sample of companies in the wood processing industry on the territory of Bosnia and Herzegovina (BiH). As a subsample, we used the companies of various size that do not primarily belong to the wood processing industry in BiH (the companies from metal, arms, processing and other industries) in order to establish whether there are certain similarities in company management and whether such companies

exhibit the same or similar disproportion in business. The predefined endogenous and exogenous variables were measured using scales that express the views of the respondents, their agreement or disagreement by means of the five-point Likert scale. The measurement scales were taken from the studied literature which is related to the topic of this paper and as such they were slightly or not at all modified, which in the end did not change the structure and method of the research itself or the values and validity of the obtained results. The main research hypothesis was postulated as follows, "Incompetence of management has a direct impact of some of the crisis stages." The research was conducted by means of a questionnaire that included five sections designed to measure the responses by the five-point Likert scale with five responses ranging from 1 - Strongly disagree to 5 - Strongly agree. The collected data were statistically processed by applying the appropriate methods. After the literature review, we started with the research segment of the paper. The dominant role in the research process was the collection of the primary data by means of a direct (personal) interview through filling in the questionnaire by the top management of the companies surveyed. A smaller section of the questionnaire included the closed questions with the responses measured the five-point Likert scale with five responses ranging from 1 - Strongly disagree to 5 - Strongly agree. The process of filling in the questionnaire was in most cases monitored by one of the pollsters and at the end of September we had a total number of 163 properly filled questionnaires that could be analyzed. This number made a total of 81.5% of the returned questionnaires, which was a very favourable result when compared to the previous results of polling. Out of the total number of 329 companies in the furniture industry, 243 companies submitted the annual financial statement, which was the basis for the research. When the sample was created, we used the data issued by the Intermediary Agency for IT and financial services and selected the companies that fit the sample as presented in the following table.

Table 2. *Research sample*

Sample size	Company number	Share (%)
Micro companies	66	40,5
Small companies	79	48,5
Medium-sized companies	15	9,2
Large companies	3	1,8

Source: Authors' research

The sample included 79 companies (48.5%), classified as small companies per the number of employees, followed by 66 companies (40.5%) classified as micro companies using the same criterion, 15 (9.2%) medium sized companies and 3 (1%) large companies. After the primary segment of the research, we turned to the processing and then analyzing the collected data. The test results were presented by category, ordinal and constant values. Depending on their distribution, we set them as the median values with interquartile range (asymmetrical distribution) or the arithmetic mean  $\pm$  standard deviation (normal distribution). To test the statistical significance of differences, we used parametric or non-parametric tests, depending on the preliminary assessment of the normality of variable distribution. Statistical hypotheses were tested at the significance level of 0.05. To test the differences between the initial and final testing, we used the t-tests for a difference (parametric) and the chi-square test (non-parametric), depending on the preliminary assessment of distribution normality. The data were analyzed using the statistical program SPSS 17.0. To measure business success of the company, theory and practice recognize several models adapted to the insufficiently developed market capital (see for example Beaver, Altman, Taffler and many more). The measurement indicators were first based

dominantly on financial measures of performances while later on non-financial measures of performances were introduced. Unfortunately, the usage of the majority of these models requires the data and assessments not available to capital market investors. That is why the prediction of company's failure for the purpose of this paper was calculated by the model of discriminant function  $DF = 1.50 ex_1 + 0.08 ex_2 + 10.00 ex_3 + 5.00 ex_4 + 0.30 ex_5 + 0.10 ex_6$ , where  $ex_1$  – pure cash flow/total liabilities;  $ex_2$  – total assets/total liabilities;  $ex_3$  – EBIT/total assets;  $ex_4$  – EBIT/operating income;  $ex_5$  – stocks/operating income and  $ex_6$  – operating income/total assets. In other words, insolvency occurs when the DF index value is below 1. For the index values ranging from -1 to 3, improvements are needed. The companies with the DF index above 3 are considered good companies.

## 4. Research results

### 4.1. Presentation of the results

In order to examine whether the companies are in some stage of crisis due to the incompetence of managers, we used the discriminant analysis. Prior to the analysis, we transformed the questions relevant for defining the competences of managers to the dichotomous scale for the sake of a simpler interpretation of the results. An overall picture of the observed companies clearly indicates that the majority of the companies (whereby we think of 80-90% of them) are in some stage of crisis. Assuming such situation, we attempted in our research to establish in what way the managers of the observed companies function. The research results clearly pointed to the dominant operating approach to company management. Hence, when we analyzed the importance of management competencies for the survival, growth and development of the company, we obtained the results that show that the brave and aggressive attitude of the management is rather important for using potential opportunities. The decisiveness to rescue the company from the crisis and to take control of it is conditioned by management's courage and aggressiveness. That is why only 1.9% of the surveyed managers believed that resolution and courage are not the links that determine the salvation of the company from the crisis. During a crisis, one must also behave strategically and make decisions based on the assessment of future trends as well as the evaluation of present events that caused the crisis. This is precisely the reason why courage and decisiveness are required for fast implementation of the decisions made.

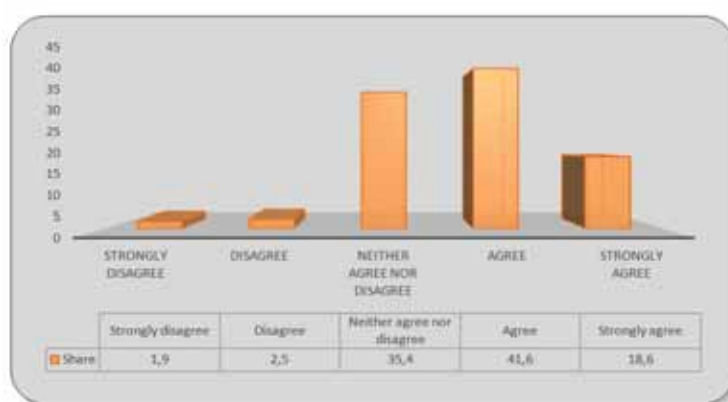


Figure 2. Brave and aggressive attitude of management

Source: Authors' research

In order to precisely determine the way in which the management under crisis functions (bearing in mind that the obtained results showed that the majority of the companies were in some stage of crisis), we conducted the segment of the research that clearly manifests the usage of contemporary management concepts.

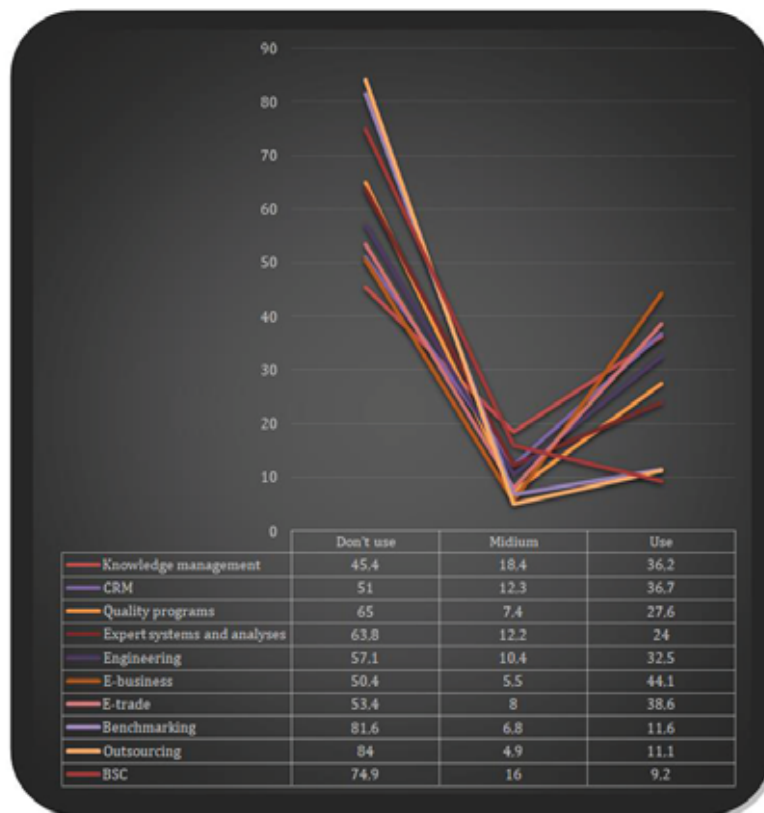


Figure 3. Usage and understanding of modern tools

Source: Authors' research

Our results clearly indicate that during the operating management in the period of crisis, managers most often use the elements of e-business as a contemporary management concept, which takes as much as 44.1%. It is followed by the system of e-trade that takes 38.6%. Customer relations management (CRM) is placed third, with 36.7%. When we observe which contemporary management concepts are least used, the dominant position is taken by outsourcing with 84%, followed by benchmarking with 81.6%, balance scorecard (BSC) with 74.9%, quality programs with 65% and expert systems and analyses with 63.8% of the share. Based on these results, the conclusion is confirmed that operating activities are still dominant when compared to strategic activities and that companies used the elements of strategic management the least. In that way, the crisis is actually only kept in the latent or acute manageable form. This clearly determines the type of behavior and the level of management competencies. In order to examine whether the companies are in some stage of crisis due to the

management incompetence and the lack of its orientation to strategic management, we used the discriminant analysis. The results of the analysis are given in the following part of the paper.

Table 3. *Results of discriminant analysis*

F	$\lambda$	% of variance	Cumulative % of variance	$r_c$	Wilks' $\lambda$	$\chi^2$	df	p
1	0,109	58.5	58.5	0.314	0.837	26.67	20	0.145
2	0,007	41.5	100	0.268	0.928	11.16	9	0.265

Source: Authors' research

As evident from Table 3, the variables that include management competencies for survival, growth and development, establishment of long-term strategy by the management, internal generator of crisis, competences of managers for preventive action, and strategic orientation of the management are not significant predictors of company crisis at a multivariate level.

Two discriminant functions were determined, which was in accordance to the expectations as the analysis included three groups, whereby the second function explains for 100% of the total intergroup variance. The square canonical correlation of the function 1 ( $r_c$ ) shows that the discriminant function explains for 31.4% of the variation within the grouping variable or whether the participants belong to the companies in crisis, pre-crisis or not in crisis. Wilks'  $\lambda$  of the discriminant function is high (Wilks'  $\lambda=0.837$ ) and it points that variables are not good predictors for differentiating groups, meaning that the discriminant power of discriminant functions is low.

The  $\chi^2$  test for the function 1 is not statistically significant,  $\chi^2=2.67$ ;  $p>0.05$ . This indicator proves that the discriminant model is not significant and that the measures are not appropriate for distinction of company's belonging to the group of crisis stage.

#### 4.2. Discussion of results

If the proposed model proves to be inadequate, analysis is usually not continued. However, since the deviation from significance is not extremely large, we continued the analysis with the aim to define indicative (potential) differences among the companies. In the following section of the analysis, one needs to keep in minds that these indicators are indicative and that there are limitations to further interpretation.

Table 4. *Derivation of the matrix factor of the discriminant factor structure and projection of centroid on the discriminant function*

Predictor	Correlation with DF <sub>1</sub>	Correlation with DF <sub>2</sub>	Group	Projection of the centroid on function 1	Projection of the centroid on function 2
Managerial competences for preventive action	0.724		Companies in crisis	0.130	-0.874
Strategic orientation of the management	0.584				
Bribery, corruption and espionage as the internal generator of crisis	0.424				
Management competences are important for survival, growth, and development	0.366				
Employees as the internal generator of crisis	0.305				
Negligence in business as the internal generator of crisis	0.277		Companies in pre-crisis	-0.116	0.075
Outdated technology as the internal generator of crisis	0.068				
The management as the internal generator of crisis		0.586	Companies not in crisis	1.112	0.204
Establishment of a long-term strategy by the top management		0.407			
Low quality of products as the internal generator of crisis		0.215			

Source: Authors' research

As evident based on the size and the value of group centroid, the companies in crisis are characterized by: moderate acceptance of managerial competences for crisis prevention; moderate perception of strategic orientation of the management; moderate perception of bribery and corruption as the internal generator of crisis; moderate perception of importance of managerial competences for survival, growth, and development; moderate perception of employees as the internal generator of crisis; moderate perception of negligence in business as the internal generator of crisis; moderate perception of outdated technology as the generator of crisis; as well as perception of the management as the internal generator of crisis; perception of importance of establishing a long-term strategy by the top management; and perception of low quality of products as the internal generator of crisis. On the other hand, the companies in pre-crisis and their managers are characterized by the perception of insignificance of managerial competences for crisis prevention; irrelevance of strategic orientation of the management; irrelevance of bribery and corruption as the internal generator of crisis; irrelevance of managerial competences for survival, growth, and development; irrelevance of employees as the internal generator of crisis; irrelevance of negligence in business as the internal generator of crisis; irrelevance of outdated technology as the generator of crisis; as well as perception of moderate relevance of the

management as the internal generator of crisis; perception of moderate relevance of establishing a long-term strategy by the top management; and moderate perception of low quality of products as the internal generator of crisis. Finally, the companies that are not in crisis are characterized by high acceptance of managerial competences for crisis prevention; high level of perception of strategic orientation of the management; high level of perception of bribery and corruption as the internal generator of crisis; high level of perception of importance of managerial competences for survival, growth, and development; high level of perception of employees as the internal generator of crisis; high level of perception of negligence in business as the internal generator of crisis; high level of perception of outdated technology as crisis generator; high level of perception of the management as the internal generator of crisis; high level of perception of importance of establishing a long-term strategy by the top management; and high level of perception of low quality of products as the internal generator of crisis. It needs to be mentioned once more that these differences and characteristics are merely indicators and that they are not subject of discussion at the level of statistical significance. Based on all these indicators, we can conclude that the companies in the wood processing industry in BiH are in some stage of business crisis due to the incompetence of the management.

## 5. Conclusion

The conducted research clearly indicates that the types of managers' behavior in different stages of crisis are not the same. Managers' incompetence is considered to be one of the most important internal causes of crisis and the managers that brought the company in a crisis are most often replaced by crisis managers. Researching the importance of management competences for the survival, growth and development of a company, we obtained the results that point to the conclusion that the brave and aggressive attitude of the management is extremely important in order to use potential changes. The resolution to rescue the company from the crisis and to take control of it is conditioned by management's courage and aggressiveness as the key managerial competences in different stages of crisis.

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**ECONOMIC THEORY AND POLICY /  
EKONOMSKA TEORIJA I POLITIKA**



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## THE FACTORS AFFECTING EMIGRATION AND ITS IMPLICATIONS ON THE SKILLS SHORTAGES: EVIDENCE FROM THE REPUBLIC OF NORTH MACEDONIA

### FAKTORI KOJI UTJEČU NA EMIGRACIJE I NJIHOVE IMPLIKACIJE NA NEDOSTATAK VJEŠTINA: DOKAZI IZ REPUBLIKE SJEVERNE MAKEDONIJE

**Abstract**

*The outward migratory flows from the Republic of North Macedonia to more developed countries have been characteristic for the entire process of transition. The high unemployment rate associated with a significant increase in poverty and social exclusion among several population segments have been considered as most important "push" factors for emigration. According to the theoretical hypothesis, the outward migration movements affect the home country by causing a number of negative as well as positive implications. In this context, we are particularly interested about the labour market outcomes mainly due to the effects of emigration on unemployment reduction and possible generation of skills shortages. Hence, the aim of this paper is first to assess the "push" factors affecting migration from the Republic of North Macedonia and, second to identify whether it potentially causes skills shortages in the Macedonian labour market. The obtained results confirm theoretical assumptions that emigration flows are pronounced for those occupations with low average wage and modest employment opportunities in the domestic labour market. However, the labour market implications of emigration are not clear-cut since reduced labour market pressure for some occupations is potentially coupled with increased skills shortages.*

**Keywords:** emigration, push factors, labour market, skill shortages**JEL:** J24, J61**Sažetak**

*Vanjski migracijski tokovi iz Republike Sjeverne Makedonije prema razvijenijim zemljama karakteristični su za cijeli proces tranzicije. Visoka stopa nezaposlenosti povezana sa značajnim povećanjem siromaštva i socijalne ekskluzije među različitim kategorijama stanovništva smatraju se najvažnijim „push“ faktorima emigracije. Prema teorijskoj hipotezi, vanjske migracije utiču na matičnu zemlju izazivajući brojne negativne, ali i pozitivne implikacije. U tom smislu, posebno nas zanimaju efekti na tržištu rada, prvenstveno zbog emigracijskih uticaja na smanjenje nezaposlenosti i pojavu generacija sa nedostatkom vještina. Dakle, cilj ovog rada je da se procijene "push" faktori koji utiču na migraciju iz Republike Sjeverne Makedonije, te da se utvrdi da li ona potencijalno izaziva nedostatak vještina na makedonskom tržištu rada. Dobiveni rezultati potvrđuju teorijske pretpostavke da su emigracijska kretanja naročito izražena za zanimanja sa niskom prosječnom platom i skromnim mogućnostima zapošljavanja na domaćem tržištu rada. Ipak, implikacije iseljavanja na tržište rada nisu sasvim jasne, jer smanjeni pritisak na tržištu rada za neka zanimanja potencijalno je povezan sa povećanim nedostatkom vještina.*

**Ključne riječi:** emigracije, “push” faktori, tržište rada, nedostatak vještina

**JEL:** J24, J61

## 1. Introduction

The outward migratory flows from the Republic of North Macedonia to more developed countries have been characteristic for the entire process of transition. The unfavourable economic conditions such as high unemployment, lack of jobs and income gap with respect to more developed receiving countries provide the main motivation behind migration movements. Besides skilled/professional labour migration, these arguments apply to low skilled migrant labourers, who migrate due to lack of demand and/or low wages for their work and excess need for this kind of work elsewhere.

The outward migration movements may affect the home country by causing a number of negative as well as positive implications (Asch, 1994). As potential disadvantages, we can mention the negative outcomes with respect to the skilled labour and population, market size and possible social pathology. The biggest negative impact on the country of exit perhaps is the fact that skilled young graduates and professionals leave to offer their services to other countries. Furthermore, depopulation in the countries of origin may cause fall of the demand for some goods and services. Finally, children and other dependents left behind suffer the most as they lose out on the important psychological development that they need from good parenting.

On the other hand, emigration might bring some advantages to the home countries such as: Remittances and higher quality of life, better job prospects for locals and, knowledge and skill flows. Namely, it is widely known that migrants send a significant portion of their earnings home to support their families, which consequently increase their standard of living (McCormick & Wahba, 2000). Moreover, the outward migration reduces the pressure for jobs in the domestic labour market thus contributing to the decline in unemployment (Prymachenko, Fregert & Andersson, 2013). Finally, if it is question about short-term and seasonal migration, migrants often bring home new ideas, skills and knowledge that they acquire abroad.

A general rule of thumb is that young population that enters the labor force face higher risk of becoming unemployed. For instance, the youth unemployment rate in the Republic of North Macedonia in 2015 was 47.3 percent which is almost twice higher than the average unemployment rate. Due to the low employment prospects, particularly the young workers are more likely to resort to various alternative labour market adjustment mechanisms such as emigration. Thus, during past two decades many youth people have left the country to look for jobs abroad, which has been considered as a source of brain drain and lost investment in education (Nikoloski & Pechijareski, 2015). The average age of the people who emigrate from the country is 38 years, which means that on average the emigrants are younger than the average of the population. Hence, the emigration from the Republic of North Macedonia which, is mainly driven by economic reasons hits the most productive part of the working age population.

Having in mind the above considerations, it is expected that the emigration of skilled workers and associated brain drain have potential implications on domestic labour market conditions, particularly with respect to the supply of skills. According to the Employment Service Agency, emigration alongside the identified deficiencies of the Macedonian education system has been stated as major reason for skill shortages in the country. In particular, the employers reported shortages of technical skills (foreign languages, basic computer applications and advanced IT skills), soft skills (flexibility, team work, communication skills, responsibility, reliability and precision) and other job specific skills (skills for entering and reading data, sale and marketing skills, and managerial skills).

In this paper, we intend to assess the impact of emigration from the Republic of North Macedonia on the prospective labour demand from an occupational point of view. Hence, the aim of the paper is first to assess the push factors affecting migration from the Republic of North Macedonia and, second to identify whether it potentially causes skills shortages in the Macedonian labour market. For this purpose, the paper is structured as follows. In the following section 2, we provide the main theoretical background regarding the main drivers of migratory movements and their implications on the domestic labour market. In section 3, we outline the general characteristics of the Macedonian emigration. Section 4 brings the results from the empirical research, including both descriptive and econometric analysis. Finally, in section 5 we present the concluding remarks and we formulate policy recommendations for improving the labour market outcomes.

## 2. Theoretical background

The interest in studying international migrations of population and the labour grew parallel with their increased scale and dynamics, especially after the Second World War. This is a sufficient reason for a greater number of empirical and theoretical researches regarding the types of migration (Janeska, 2001). In this context, particular interest has been paid to definition and classification of migrations, factors that influence population movements and, their consequences for the countries of origin and destination countries (Apostolovska Toshevska & Madzevikj, 2012).

The complexity of a relationship between migratory movements and the socio-economic development entails differentiations between various forms of migration that can be classified from different aspects. According to the spatial criterion, there are two forms of migration: internal and international. Internal migration represents all reallocations of population within a given country, whereas international migration represents the movements between different countries. In this paper, we are primarily concerned with international migration, which can be viewed as particular labour market adjustment mechanism different from the internal geographical mobility. From the point of view of migration duration, two forms of migration can be distinguished: temporary and permanent. Temporary migration is related to a limited duration and usually has been known as return migration. Permanent migration in turn, is related to the unlimited duration of dislocation and has been considered as a one-way process of movement. Regarding temporary migrations, some authors distinguish between short-term and long-term migrations, each of which having different socio-economic implications (IOM, 1998). In addition, as separate forms we can differentiate seasonal migration related to specific economic activities and repeat migration where workers repeatedly emigrate and return in the home country during a given period.

Various theoretical frameworks attempt to explain migrations and their socio-economic implications upon the economies of sending and destination countries. The traditional approach used for explaining migratory movements is based upon the well-known “push-pull” theory of migration (Donald, 1969; Lee, 1969; Velazquez, 2000). According to this theory, the bad economic conditions in developing countries operate as “push” or expulsion forces, fostering legal or illegal migration toward developed countries. With respect to this, the push factors are related to the country of emigration, whereas the pull factors are related to the country of immigration. As potential “push” factors, we can consider the following: low wages, high unemployment and underemployment rates, slow economic growth and poverty. Taking into account the fact that the new environment is attractive to the migrant because it offers better living conditions and satisfies the person’s needs, the new environment gets the power of attracting people. In addition, the “pull” or attraction factors in receiving countries such as high wages, better employment opportunities and generous welfare systems can be considered as underlying causes for migratory movements.

However, the decision on migration does not depend solely on objective reasons such as the above-mentioned economic factors, but it also depends on the personal perception about the quality of the

living conditions, the expectations of society, the environment, personal aspirations etc. In this context, the theory assumes that the migrant is mainly guided by the desire to realize his or her own needs or to avoid some difficulty. As long as his needs are satisfied in the country he lives in, he remains in it, mainly because of his identification with the environment and the connections with his family and friends. Under conditions where the living environment does not allow it, the migrant faces the challenge of leaving the home country.

The determinants of migration can be assessed both at the macro (aggregate) and micro level. At the aggregate level, the assessment of migratory pressures is typically based on the macroeconomic indicators of both the sending and receiving country. A major weakness of this approach consists in the difficulty of distinguishing between labour and non-labour migrants which is important since whilst economic reasoning drives the migration decision of labour migrants, it is not always true for non-labour migrants. Thus an analysis of migration based on aggregate data will most probably mask the underlying motives for individual migration decision (Bauer & Zimmermann, 1999). At the micro level, the assessment of migratory pressures is frequently based on surveys that aim to reveal the socio-demographic structure of migrants and their reasons for migration (Kule et al., 1999). Survey-based analyses of emigrations allow an assessment of the demographic characteristics of emigrants, but they neglect the role of macroeconomic indicators in both the country of origin and destination.

Taking into account the nature of international migratory movements, they have significant consequences for the socio-economic development of both the source and destination countries. However, theoretical analysis and empirical evidence on the impact of the migratory movements often give contradictory results. The main reason for such diverse views is the aggregate treatment of migration. In order to isolate the specific impact of migration, it is usually necessary to treat separately migrations of workers with different skill levels and durations of migrations. The two most frequently cited effects of emigration on the source country, are the release of labour market pressure and improvement in financial flows via remittances (McCormick & Wahba, 2000). According to the first mechanism, emigration from less developed countries should lower the unemployment rate by reducing the labour supply. However, if emigration mostly occurs among workers with a specific profile and there is low substitution between workers in different labour market segments, then the expected beneficial effect via diminishing unemployment will only be in this particular segment, with unemployment in other labour market segments remaining largely unchanged.

### 3. Characteristics of the North Macedonian emigration

The Republic of North Macedonia according to the historical records has characteristics of a typical emigration country. The first recorded emigration from the territory of the country was in the second half of the 15<sup>th</sup> century, directed towards Italy (Apostolovska Toshevska et al., 2018). The emigration was mostly induced by the economic and political situation that caused either voluntary or forced outward movements. However, despite the long and numerous migration, there is a serious difficulty in determining the exact number of Macedonian residents living outside the country.

Nowadays, the administrative data for the emigration flows of the Macedonian citizens that are leaving the country during one calendar year are obtained by the Ministry of Internal Affairs, which are published by the State Statistical Office in annual statistical reviews. Records for the citizens of the Republic of North Macedonia can be obtained since 1992, while the records on foreigners since 1994. However, it is necessary to emphasize that the problem with the records of the emigration flows, which for the most part intends to become a permanent emigration, is much more substantial.

The current records, as well as the 2002 census results do not provide a realistic picture about the emigration stock of Macedonian citizens abroad. For this reason, data sources from some foreign organizations have been used, such as the World Bank, OECD, IOM in order to monitor the total number of emigrants. The difficulties in obtaining complete data in one part are also due to different census questionnaires related to the country of origin, while in other countries the issue is more about the ethnic origin.

According to the 2002 census data, only 22,995 Macedonian residents were registered living outside the country and additional 12,128 who were absent for a longer period of time (SSORM, 2004, pp. 18-19), although calculations say that the number is significantly higher. It has been assumed that currently between 350,000 and 2 million citizens of the Republic of North Macedonia live outside the borders of the country (van Selm, 2007). The State Statistical Office places such a small number of Macedonian residents abroad for the reason that the only data available are those from the persons that have officially registered their stay abroad (Janeska, Lozanoska & Djambaska, 2016). On the other hand, the accurate records of Macedonians abroad are difficult to obtain because of the large number of Macedonian citizens with Bulgarian passports that mostly use it as a simplified way to emigrate in the EU countries.

According to the World Bank (2019), the total number of Macedonian citizens living abroad by the end of 2017 was 564,949, which is almost 27% of the total population in the country<sup>1</sup> (Apostolovska Toshevska, Madjevikj & Ljakoska, 2018). In the OECD data (2017) for the foreigners according to the country of birth, the number of Macedonian citizens was 364,874, while according to nationality this number was 288,588. These data do not reflect the real number of Macedonian citizens abroad because they do not include Macedonian emigrants in many European and overseas countries. Finally, according to the IOM records in 2017 about 534,700 Macedonian citizens had the status of international emigrants or just over 25.7% of the total number of inhabitants in the country<sup>1</sup>. Most of them are located in Germany, Italy, and Switzerland, followed by Sweden, Austria, France, the Netherlands, and other European and overseas countries.

The official statistics on emigration flows data in the Republic of North Macedonia demonstrate a number of shortcomings. Namely, during the period from 2012 to 2017 we can notice a decreasing trend that does not reflect the situation in the reality and is a result of the already mentioned administrative barriers. More than 50 percent of all registered emigrants were male, while on average one-half are aged between 30 and 64 years. Furthermore, the majority of emigrants are married, which implies potential emigration of whole families. Namely, the family reason is often stated as the main cause of migration from the Republic of North Macedonia, although a high number of respondents state other reasons or unknown. In addition, among emigrated citizens, persons aged over 65 years who are mostly retired also represent a significant share. They very often go abroad to visit their children and help them in raising their grandchildren. The emigrants with completed primary and secondary education prevail among those who emigrate, although the number of people with university education is also significant. In terms of occupations, most dominant are the emigrants with elementary occupations, followed by workers in services and non-industrial production.

Among the reasons for migration that contribute to the outflow of population from the Republic of North Macedonia are the following: the disrupted value system, the emphasized political divide, the insufficient level of democracy, the low quality of the living standard and the persistent ethnic and political tensions (Apostolovska Toshevska *et al.*, 2018). On the other hand, certain administrative advantages, such as the abolition of the visa regime with certain countries and especially the possibility to get a Bulgarian passport is a way to amplify the impact of push emigration factors on the population. However, it is difficult to completely separate the mixture of pull and push factors, since there is a complex of circumstances that influence the subjective decisions of migrants.

With respect to the geographical distribution, it is worth to mention that almost two thirds of the emigration flows from the Republic of North Macedonia are directed towards developed European countries (Germany, Switzerland, Italy, and other), whereas 12.1 percent towards America and, about 10 percent towards Australia and Oceania. Despite these general trends, recently there is an increasing number of Macedonians who leave to work in high-risk military countries such as Afghanistan.

#### 4. Empirical analysis

Occupations alongside the level of education are the most commonly used proxy of skills in the context of quantitative research questions on skills demand. Namely, by using occupations as a proxy of skills enables the utilisation of a range of official data sources originally collected for various main purposes in the skills analysis. This can be fully exploited if standard classifications of occupations are used as in this case ISCO-08 which has been released in 2008. Although occupation can be proxy measure for the skills required in the workforce, it does not measure whether job holders possess the required skills (ETF, CEDEFOP & ILO, 2016).

##### 4.1. Descriptive analysis

The structure of employment by occupation provides information on expansion demand created due to the developments in the economy. The occupation composition can also change as a result of changes in the value chain or technological development. Generally, in the Republic of North Macedonia as in other countries there is a wide distribution between the various skill levels. However, the evolution of the skill composition of the Macedonian labour market over the period 2012-2017 shows that there has not been a significant change in the skill distribution (Figure 1).

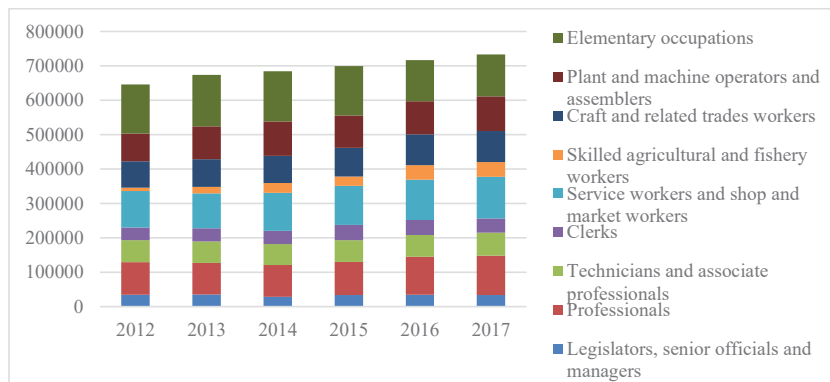


Figure 1. *Employment by occupation*

Source: Authors' research

From Figure 1 we can notice that the highest shares of employment represent Service workers and shop and market workers, Professionals and Elementary occupations. On the other hand, the lowest shares are observed among Skilled agricultural and fishery workers, Clerks and Legislators, senior officials and managers.

In addition, a numbers of vacancies are a useful tool for assessing demand for labour in the short term but they cannot tell much about longer-term trends. In addition, a higher number of vacancies in one occupation does not necessarily mean that there is a high number of these types of jobs in the economy. The number of vacancies is also influenced by the rate of fluctuation in particular jobs. If

labour force turnover is higher, the employer has to advertise the vacancy more often to find a worker, even for one vacancy in reality. The evolution of the number of vacancies in the Republic of North Macedonia for the period 2012-2017 is presented in Figure 2.

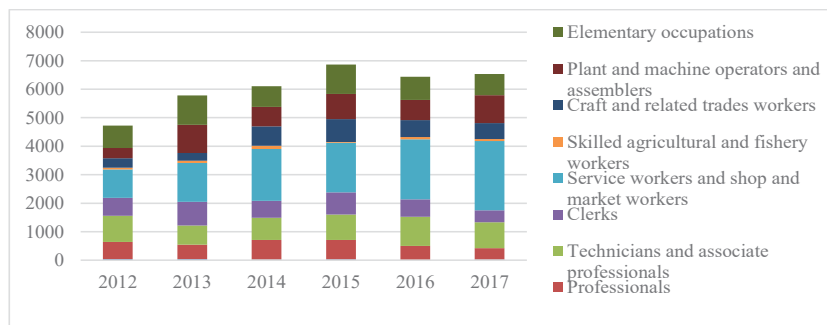


Figure 2. *Vacancies by occupation*

Source: Authors' research

From Figure 2 it is evident that the biggest number of vacancies are recorded among Service workers and shop and market workers, followed by Plant and machine operators and assemblers; and Technicians and associate professionals.

As an alternative source of data for skills demand we use the survey on skill needs carried out by the Employment Service Agency as a regular survey with a special focus on skills. The objective of this survey is to provide short-term indicators about the employers' expectations in terms of new employment and skill needs in the following 6 to 12 months. The survey provides direct information from employers which is its main strength but also has some constraints. Namely, employers often do not have detailed information on skill needs, while supervisors who may actually have this information are difficult to reach in a survey. Hence, the ability of employers to answer detailed information on future skills, employment and hiring is limited. The evolution in the number of expected job openings by occupation for the period 2012-2017 is presented in Figure 3.

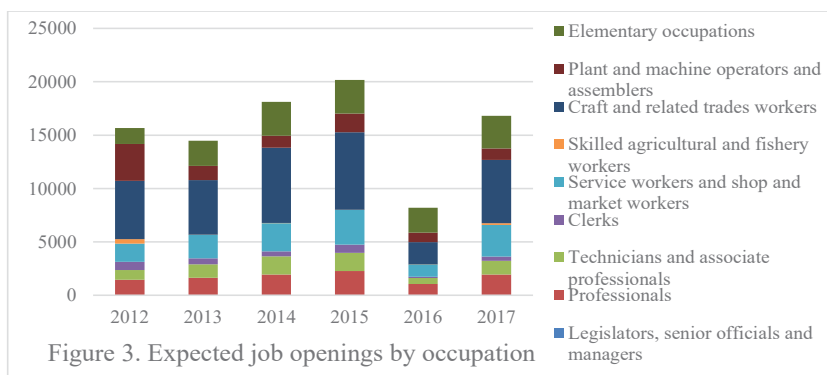


Figure 3. *Expected job openings by occupation*

Source: Authors' research

From Figure 3 it is noticeable that the highest number of expected job openings is concentrated among Craft and related trades workers followed by Elementary occupations and Service workers and shop and market workers. On the other hand, the lowest demand is expected among Legislators, senior officials and managers, Skilled agricultural and fishery workers and Clerks.

In addition, wage dynamics by occupation can be used as indicator what occupations are experiencing the most dynamic wage increases which can be considered as a signal of skill shortages in the labour market. This indicator has an intuitive interpretation based on the assumption that wages work as an adjustment mechanism to reach equilibrium in the labour market. However, observations should be interpreted with caution because changes in wage levels can be influenced by other factors than adjustment to skill shortages such as: collective bargaining, legislation etc. The wage dynamics by occupation for the period 2012-2017 is presented in Figure 4.

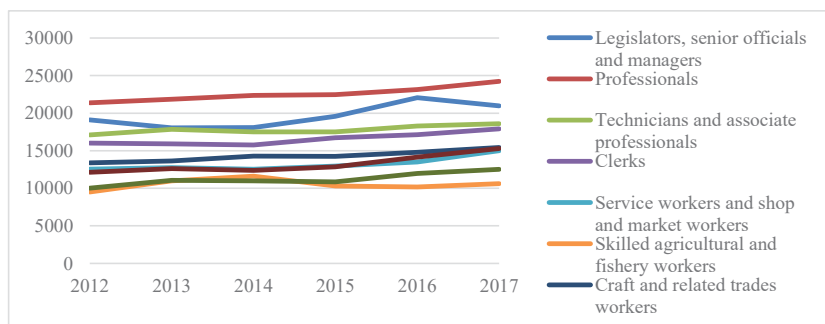


Figure 4. *Wage dynamics by occupation*

Source: Authors' research

From Figure 4 we can notice that highest wages experience Professionals followed by Legislators, senior officials and managers and Technicians and associate professionals. On the other hand the lowest wages are observed among Skilled agricultural and fishery workers and Elementary occupations.

As a source of data on migration are used emigration records obtained from the administrative sources and published by the State Statistical Office. Statistics on migration cover those persons migrating within the Republic of North Macedonia, departing from the Republic of North Macedonia to other countries or arriving from other countries. The observation unit is the act of moving of each citizen who has changed the place of his/her permanent residence or the address of his/her dwelling. A disadvantage of using this data can be viewed in the fact that it covers only permanent and officially registered migration, thus underestimating the temporary or circular emigration from the country. The low emigration figures from the Republic of North Macedonia is due to the fact that are count only those who have officially registered their stay in other countries. The dynamics of the number of emigrated during the period 2012-2017 is presented in Figure 5.

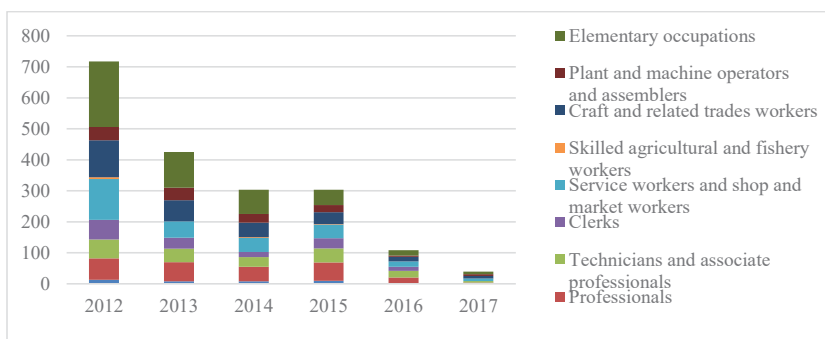


Figure 5. *Emigration flows by occupation*

Source: Authors' research

According to the data presented in Figure 5 for the emigration flows it is evident a decreasing trend in the number of emigrated persons from Macedonia. Hence, this evidence obviously does not reflect the actual situation and is results of administrative obstacles regarding the registration of emigrated persons. However, we can notice that the highest number of emigrated persons are those with elementary occupations followed by Craft and related trades workers and Service workers and shop and market workers.

#### 4.2. Econometric analysis

In our analysis we apply the neoclassical approach in order to identify the main push factors as drivers of skilled migration from the Republic of North Macedonia. According to the neoclassical theory, migrations arise due to wage differentials between regions or countries. In addition to wage differential, the differences in employment prospects can be considered as significant determinants of migration movements. In this context, we pay particular attention to the wage level and probability of employment for different occupations. The employment opportunities can be assessed either by the number of employed, the number of vacancies or the number of expected job openings for each occupation. The mutual interdependence of the variables under consideration is presented by using a scatter matrix on Figure 6.



Figure 6. Scatter matrix of the variables under consideration

Source: Authors' research

The econometric modelling is based on a panel data for the period 2012-2017 aiming to assess the determinants of emigration flows by applying three alternative specifications. In this context, we will model the emigration flow in occupation  $i$  in year  $t$  as a function of two control variables in the previous year. The regressors in the models are lagged since we assume that it takes time for the emigration decision to take place.

$$Emig\_flows_{i,t} = \alpha_0 + \alpha_1 Wage_{i,t-1} + \alpha_2 Employment_{i,t-1} + \theta_t + u_{i,t} \quad \dots (1)$$

$$Emig\_flows_{i,t} = \alpha_0 + \alpha_1 Wage_{i,t-1} + \alpha_2 Vacancies_{i,t-1} + \theta_t + u_{i,t} \quad \dots (2)$$

$$Emig\_flows_{i,t} = \alpha_0 + \alpha_1 Wage_{i,t-1} + \alpha_2 Expected\ jobs_{i,t-1} + \theta_t + u_{i,t} \quad \dots (3)$$

where:

$Emig\_flows_{i,t}$  – number of emigrated persons in occupation  $i$ , and year  $t$ ,

$Wage_{i,t-1}$  – the average wage in occupation  $i$  and year  $t-1$ ,

$Employment_{i,t-1}$  – the number of employed in occupation  $i$  and year  $t-1$ ,

$Vacancies_{i,t-1}$  – the number of vacancies in occupation  $i$  and year  $t-1$ ,

$Expected\ jobs_{i,t-1}$  – the number of expected jobs in occupation  $i$  and year  $t-1$ .

The estimation results by using OLS technique are presented in Table 1.

Table 1. *OLS estimation results (dependent variable is  $Emig\_flows_{it}$ )*

Variable	Model 1	Model 2	Model 3
Constant	254.5816*** (0.000)	248.2762*** (0.000)	251.8303*** (0.000)
$Wage_{i,t-1}$	-.0144875*** (0.001)	-.0132668*** (0.001)	-.0147789*** (0.001)
$Employment_{i,t-1}$	-.000107 (0.808)		
$Vacancies_{i,t-1}$		-.0306543** (0.053)	
$Expected\_jobs_{i,t-1}$			-.0005557 (0.879)
R <sup>2</sup> within	0.2939	0.3674	0.2931
R <sup>2</sup> between	0.0022	0.0240	0.0001
R <sup>2</sup> overall	0.0029	0.0003	0.0072

Note: p-values are in parentheses; \*/\*\*/\*\* indicate significance at 10/5/1 percent level respectively.

Source: Authors' research

Among the alternative specifications, the best fit is the second model since all estimated coefficients are statistically significant and it has the highest explanatory power. Hence, the wage dynamics combined with the number of vacancies can, to large extent explain the outward migratory flows by occupation. Furthermore, the obtained results confirm theoretical assumptions that emigration flows are pronounced for those occupations with low average wage and modest employment opportunities in the domestic labour market particularly for the workers with elementary occupations, Craft and related trades workers. In the same time, those are the occupations with the highest number of expected job openings, which partly can be attributed to the anticipation of potential skills shortages by the employers. These findings can be further used to create policies that can help in preventing emigration of workers with particular skills and related skills shortages.

## 5. Conclusion and policy recommendations

The emigration represents a problem for majority of developing countries since besides reducing the unemployment may cause substantial skills shortages on domestic labour markets. On the other hand, immigration countries face pronounced demographic transition manifested by the aging of their own population, which is coupled with strong economic growth prospects. Hence, it is expected that the trend of emigration from developing countries will continue in the future due to the growing need of adequate labour force in traditional destination countries. An additional motive for increased migratory movements are the attractive working conditions and accompanying benefits that are offered to the migrants and their offspring on the long-term basis.

In our analysis we have revealed that in addition to the factors of attraction in destination countries, the “push” factors represent important determinants of the emigration flows. With respect to this, the mostly affected are elementary occupations, craft and related trades workers who face the worst conditions in domestic labour market. In addition, the high numbers of expected job openings for these occupations indicate the perspective skill shortages that inter alia might be due to increased emigration. Therefore, there is an increased need for defining the scope, type, and character of

migration, as well as further steps for its reduction particularly among occupation where have been detected substantial skills shortages.

First, there is an urgent need to identify the precise figures about the current resident population and the emigrants from the Republic of North Macedonia. With the upcoming census in 2020, we expect to obtain more specific data on the total number of emigrants and destinations of their emigration as well as to get better understanding of their demographic and socio-economic characteristics. In this context, there is a need for establishing an Agency for Migration Management that will be in charge for all issues regarding the emigration from the country. There are various policy measures that might be designed in order to prevent skilled emigration and to reduce the possible skills shortages. The activities and measures are mainly related to economic, social, security and environmental quality issues and need to be implemented in coordination.

The economic measures for attracting FDI should experience its reforms and conditionality for cooperation with domestic businesses. More benefits are needed for investing in domestic capital and opening more jobs. It is necessary to create conditions for increasing personal income, raising the statutory minimum wage, which is the basis for a more dissent life. In this context, a realistic employment strategy is needed, in correlation with educational reforms and training of dedicated professional staff who will be motivated for proper education through scholarships and different forms of flexible employment arrangement.

The social measures should enable defining the main social problems in order to overcome poverty, to reduce social exclusion and, to meet the needs of the citizen. Within such measures, special attention should be given to pursuing equal opportunities for quality education and health care for all citizens, regardless of their social status. State aid programs in resolving the housing issue should continue to function. In addition, the attempts of the state structures to improve the political and security situation in the country are of great importance as well as overcoming ethnic tensions, which certainly positively influences the opportunities for better economic development.

Greater implementation of environmental protection laws, raising the awareness of a clean environment and the impact on human health is needed. Further attention needs to be given to spatial planning, revitalization of rural areas, revitalization and economic growth of the smaller urban settlements in the country etc. Improving living conditions in their own country, departing and establishing a genuine system of moral and ethical values are a prerequisite for reducing the scope of migration flows abroad. Otherwise, the country will face an acute shortage of specific professionals and will be unable to reach the desired level of social development.

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<sup>1</sup> According the estimates, the population number in the Republic of Macedonia in 2017 was 2,075,301 inhabitants.

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## WATER AND ECONOMIC GROWTH OF SOUTHEASTERN EUROPEAN COUNTRIES

### VODA I EKONOMSKI RAST ZEMALJA JUGOISTOČNE EVROPE

#### Abstract

*Water is natural resource necessary for the growth of every economy and it is found at the center of social and economic development. It is significant for human health and food production, environmental management and creation of new work places. However, if its availability and quality are not sufficiently taken into account, there are negative repercussions on the economy and population. Only 0.26% of the total amount of fresh water on Earth is found in lakes and river systems. In other words, only 0.26% of the total fresh water quantity is available for economic purposes and it is vital for water ecosystems (UNESCO). Global fresh water resources are limited and not equally distributed around the world and, as such, put management challenges for those with too much drinking water, and especially for those with too little drinking water. The world is increasingly facing water scarcity. More worrying is the fact that more than 40% of people in the world are affected by water scarcity. With the rise in global temperature resulting from climate changes, it is estimated that this percentage will continue to rise. Given the close cause-effect relationship between water and economic growth, the question is whether water scarcity can limit the economic growth of countries. There is little research on this in the Southeastern Europe. Therefore, the main aim of this research is to determine the connection between fresh water and the economic growth of the Southeastern European geospatial area, and to make a recommendation whose implementation could affect the preservation and increase of its availability in the mentioned group of countries. The research results indicate that there is a link between economic growth and renewable fresh water sources in the countries of Southeastern Europe.*

**Keywords:** water, water scarcity, economic growth, Southeastern European countries

**JEL:** Q01, O10, O44

#### Sažetak

*Voda je prirodni resurs nophodan za rast svake ekonomije i nalazi se u centru društvenog i ekonomskog razvoja. Značajna je kako za zdravlje ljudi tako i za proizvodnju hrane, upravljanje okolinom te stvaranjem novih radnih mjesta. Međutim, ukoliko se ne vodi dovoljno računa o njenoj raspoloživosti i kvaliteti dolazi do ispoljavanja negativnih reperkusija po ekonomiju i populaciju. Samo 0,26% ukupne količine slatke vode na Zemlji nalazi u jezerima i riječnim sistemima. Drugim riječima, samo 0,26% ukupne količine slatke vode je dostupno za ekonomske potrebe i od vitalne je važnosti za vodene ekosisteme (UNESCO). Globalni slatkovodni resursi su ograničeni i nejednako raspoređeni širom svijeta te kao takvi postavljaju izazove upravljanja za regije sa previše pitke vode, a naročito za one regije koje imaju premalo pitke vode. Svijet se sve više suočava sa nedostatkom vode. Zabrinjavajući je podatak da je više od 40% ljudi u svijetu pogođeno nestašicom vode. Sa porastom globalne temperature koja je posljedica klimatskih promjena, procjenjuje se da će ovaj procenat i dalje rasti. S obzirom na postojanje bliske uzročno-posljedične veze između vode i ekonomskog rasta postavlja se pitanje može li nedostatak vode ograničiti ekonomski rast zemalja. Malo je istraživanja o ovome na području Jugoistočne Evrope. Stoga je osnovni cilj ovog istraživanja utvrditi*

*postojanje veze između slatke vode i ekonomskog rasta geoprostora Jugoistočne Evrope, te davanje preporuke čija bi implementacija mogla uticati na očuvanje i povećanje neraspoloživosti u pomenutoj grupi zemalja. Rezultati istraživanja upućuju na postojanje veze između ekonomskog rasta i obnovljivih izvora slatke vode u zemljama Jugoistočne Evrope.*

**Ključne riječi:** voda, nestašica vode, ekonomski rast, zemlje Jugoistočne Evrope

**JEL:** Q01, O10, O44

## 1. Introduction

The understanding that water has an impact on economic growth initiated the need to emphasize and understand the role of water in the economic growth. The right to water refers to the availability of water that meets drinking water standards, reasonable prices, and the organization of water supply, and equal access for all citizens. Out of the total amount of water on earth, 97.5% is salt water, while fresh water comprises only 2.5%. A large part of fresh water, 68.7% is in the form of ice or constant snow, underground water covers 29.9%, while only 0.26% of the total amount of fresh water on Earth is found in lakes and river systems. Thus, only 0.26% of the total amount of fresh water is available for economic needs and it is vital for water ecosystems (UNESCO, 2003). Global fresh water resources are limited and not equally distributed around the world and, as such, put management challenges for those with too much drinking water, and especially for those with too little drinking water.

As the population grows, so does the demand for limited resources, and therefore these challenges are increased. Population growth and economic growth put a great deal of pressure on the existing stocks of this resource. The recognition that human behavior has an impact on water and on global ecosystems increases the need to adapt that behavior in order to stabilize and sustain the future of the human population. The questions that are the most important to humanity are the questions about the availability, protection and use of drinking water. With the increase of population, this resource is increasingly depleted, polluted, and reduced, which is why many countries in the 21st century are in the position of having less and less drinking water available. This problem is mostly manifested in areas of particular geostrategic importance.

There is a close cause-and-effect relationship between water and the economic growth of the country: the lack of water presents an obstacle to sustainable social-economic development, while the lack of development presents an obstacle to solving water problems. When a problem that causes water loss or infectious diseases due to drinking water pollution arises, mechanisms and considerations on water safety and quality of water supply are "ad hoc" activated in most countries in the Southeast European geospatial area. The problems faced by the rural population are neglected and the focus is on the work of public utility companies and the quality of water supply services in urban areas. In order to avoid complete water scarcity in the future, water management and water use must be more rational and efficient than it is today, and water resources should be accessed integrally with the inclusion of the concept of sustainable development. The research should result in responses to the following main question: Is there a connection between fresh water and the economic growth of the geospatial area of Southeastern Europe?

The paper should give recommendations, whose implementation could have the effect on conserving water and increasing its availability in the mentioned group of countries, and useful information for government decision makers in activities of creation economic growth strategies and policies.

The paper is structured in five parts. After the introduction which is presented first, part two gives a short overview of theoretical framework relevant to the main objective of the paper. Part three gives

the research methodology and data. Part four gives analysis and discussion of the empirical results. The last part contains some final remarks and conclusions.

## 2. Theoretical background

The population's needs for available water resources were persistent and aligned until the early 20th century. Demand for drinking water was low in relation to renewable water supplies (Rogers, 2006). However, rapid urbanization, expansion of agricultural, industrial and energy production have led to changes in natural water regimes. World water consumption has increased by six times, which is more than double in relation to population growth (Melville, 2010). Although these changes have provided sufficient drinking water and sanitary conditions for millions of people, they have led to water scarcity in many parts of the world after some time.

Many authors point to the interdependence of water resources and economic growth. Shafik and Bandyopadhyay examined this relationship by investigating environmental transformation for countries that match different incomes in a macroeconomic perspective, using environmental indicators as dependent variables in panel regressions with data from 149 countries over the period 1960-1990 (Shafik & Bandyopadhyay, 1992). They found that water and sanitation improved with increasing per capita income; moreover, they explored the effects of land policy on the income effect and concluded that income has the greatest impact on water and sanitation of the variables analyzed.

From another perspective, fresh water resource forecasts have revealed an increasing awareness that the world is on the verge of an impending water crisis. Several studies have investigated the reduction of fresh water supplies (Seckler, Molden & Barker, 1999; Vörösmarty et al., 2000). However, there is debate about the direct causes of the water crisis. The most actual question from the economic aspect is the impact of reducing water resources on per capita income (Barbier, 2005). He examined the international growth model in order to investigate the impact of water restrictions on economic growth and he found that water use does not limit growth for all countries. Due to this fact, Barbier's results recommend some revisions to previous studies which determined that at least 17 countries would be exposed to severe water scarcity by 2025 and that about 24 countries would face economic water scarcity (Seckler, Molden & Barker, 1999; Cosgrove & Rijsberman, 2000). Fresh water scarcity are considered by scientists and politicians to be the second most important environmental issue in the 21st century (United Nations Environmental Program-UNEP Global Environmental Outlook, 2000). According to UN population projections, the world's population is expected to reach 9 billion by 2050. Water needs in the domestic and industrial sector will increase in the future, and even regions that do not have a water scarcity problem may face this problem or with restrictions on agricultural development.

The interaction and interdependence of economic growth and water scarcity are partly governed by population growth, urbanization and economic progress. These pressures can be mitigated by technical progress or possible replacement if opportunities exist. So far, however, water as an input has proven irreplaceable. Economic growth generally depends on inputs of production; when these inputs are limited, they can limit economic growth. The fact that water is an irreplaceable input makes it subject to inelastic demand.

## 3. Methodology and data

For the needs of this research, a simple bivariate correlation analysis was used from a set of statistical analyzes. Initially, for all variables, basic descriptive parameters were calculated, and then correlation analysis, i.e. Pearson's linear correlation coefficients were used to test the relationship, i.e. the strength of the linear relationship.

Before conducting the correlation analysis, testing was performed to determine the assumptions for the implementation of the same (*I Paired values, II Level of measurement, III Normality of distribution - using the Shapiro-Wilk normality test, IV Linearity, V Homoscedasticity*). Once the assumptions were met, a correlation analysis was conducted over the data collected.

### 3.1. Data source

World Bank database was used as secondary sources, and indicators for water and economic growth were taken from this database. The last data update was made in April of the current year. In addition, data from the Eurostat database were used and indicators for water and the environment were taken as part of their database. The last data update was made in November, 2018.

### 3.2. Variables

For the purpose of answering central research question relationship between dependent and independent variable is tested on next group of indicators – gross domestic product (GDP), in billion USD, and renewable fresh water sources, in billions cubic meters.

Table 1. GDP of Southeastern European countries over the period 2009-2017 (in billion USD)

	2009	2010	2011	2012	2013	2014	2015	2016	2017
Albania	12.04	11.93	12.89	12.32	12.78	13.23	11.39	11.88	13.04
Bosnia and Herzegovina	17.61	17.18	18.64	17.23	18.18	18.56	16.21	16.91	18.05
Bulgaria	51.88	50.61	57.42	53.90	55.55	56.81	50.20	53.24	58.22
Montenegro	4.16	4.14	4.54	4.08	4.46	4.59	4.05	4.37	4.84
Greece	330.00	299.36	287.80	245.67	239.86	237.03	196.59	195.22	230.08
Croatia	62.75	59.84	62.40	56.55	58.15	57.67	49.49	51.64	55.21
Kosovo	5.65	5.83	6.69	6.50	7.07	7.9	6.44	6.71	7.24
North Macedonia	9.40	9.41	10.49	9.74	10.82	11.36	10.06	10.67	11.28
Serbia	42.62	39.46	46.47	40.74	45.52	44.21	37.16	38.30	41.43

Source: The World Bank Online database

Oscillations in development of GDP of all countries presented in Table 1 are obvious over the period 2009-2017. The highest GDP is registered in Greece (Greece is the largest country in Southeastern Europe), but the lowest GDP is in Montenegro.

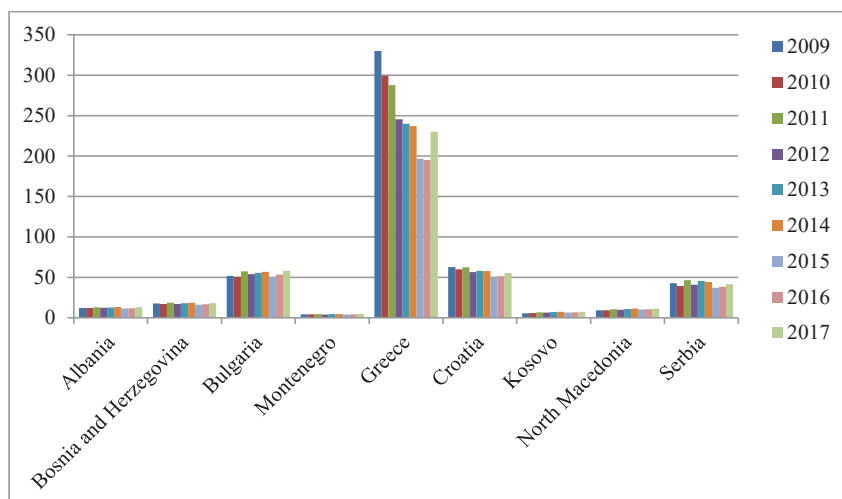


Figure 1. Illustration of Southeastern European countries GDP over the period 2009-2017 (in billion USD)

Source: Adapted from World Bank Online database

In 2010 all countries excluding Kosovo and North Macedonia registered decline in gross domestic product. After slow progress in 2011 all Southeastern European countries registered decline in gross domestic again. The same situation is in 2015, but after that there is growth of GDP in 2016 and 2017.

Table 2. Renewable fresh water sources (in billion cubic meters)

	2008	2009	2010	2011	2012	2013	2014	2015
Bulgaria					74.630	70.865	115.305,891	82.073
Croatia				66.680	62.618	61.108	85.551	62.330
Albania	29.458b	37.218b	51.134	20.569	43.050	30.615b	37.172e	32.711,07e
Serbia	46.758	59.320	71.406,97	37.503,58	49.968,08	53.569,01	80.300,4	54.450,64
Bosnia and Herzegovina	29.813	36.268	47.302	21.121	31.675	36.222	45.366	29.389
Kosovo			928,8	536,5	647,5	702,8	802,7	684,4

\* b - break in time series; e - estimated

\* Not available data for Montenegro, North Macedonia and Greece

Source: European statistical office

From available data it can be concluded that, if period 2008-2011 is observed and Bulgaria, Croatia and Kosovo are excluded, the largest renewable fresh water sources had Serbia, then Bosnia and Herzegovina, Albania and North Macedonia. Over the period 2012-2015, excluding North Macedonia, Montenegro and Greece due to unavailability of data, it can be concluded that largest fresh water renewable sources had Bulgaria (which in the observed period significantly deviates from other countries when it comes to this indicator), then Croatia, Albania, Serbia, Bosnia and Herzegovina and Last Kosovo. Due to unavailability of data correlation coefficients are calculated for presented indicators for years as follows: 2012, 2013, 2014, and 2015.

#### 4. Empirical results and discussion

For the purpose of this research from a set of statistical analyzes simple bivariate correlation is used. At first for all variables basic descriptive parameters are calculated, and for testing the strength of a linear connection we used correlation analysis apropos Pearson's linear correlation coefficients. Basic descriptive parameters of all analyzed values are presented in table 3. It presents arithmetic means and minimum and maximum values of each variable.

Table 3. *Descriptive statistics*

	N	Minimum	Maximum	Mean value	Standard deviation	Variance
Renewable fresh water sources 2012	6	0.65	74.6	43.7583	25.88236	669.896
Renewable fresh water sources 2013	6	0.70	70.90	42.1500	25.29480	639.827
Renewable fresh water sources 2014	6	0.80	115.30	60.7667	40.88925	1671.931
Renewable fresh water sources 2015	6	0.68	82.10	43.6133	28.68214	482.126
Gross domestic product 2012	6	6.50	56.55	31.2067	21.95736	519.705
Gross domestic product 2013	6	7.07	58.15	32.8750	22.79705	519.705
Gross domestic product 2014	6	7.39	57.67	32.9783	22.61161	511.2855
Gross domestic product 2015	6	6.44	50.20	28.4817	19.58011	383.381

Source: Authors' research

If indicator of independent variable (Renewable fresh water sources in billion cubic meters) is observed from table 3 it can be seen that highest mean value is registered in 2014 ( $60.77 \pm 40.89$ ), and lowest in 2013 ( $42.15 \pm 25.29$ ). If indicator of dependent variable (Gross domestic product) is observed, the highest mean value is registered in 2014 ( $32.98 \pm 22.61$ ), and the lowest in 2015. ( $28.48 \pm 19.58$ ).

Before implementation correlation analyses Shapiro-Wilk normality test was performed to determine the assumptions for implementing this analyses. Next table gives values for testing implementation of normality. Shapiro-Wilk test was used to apply when the sample was less than 100.

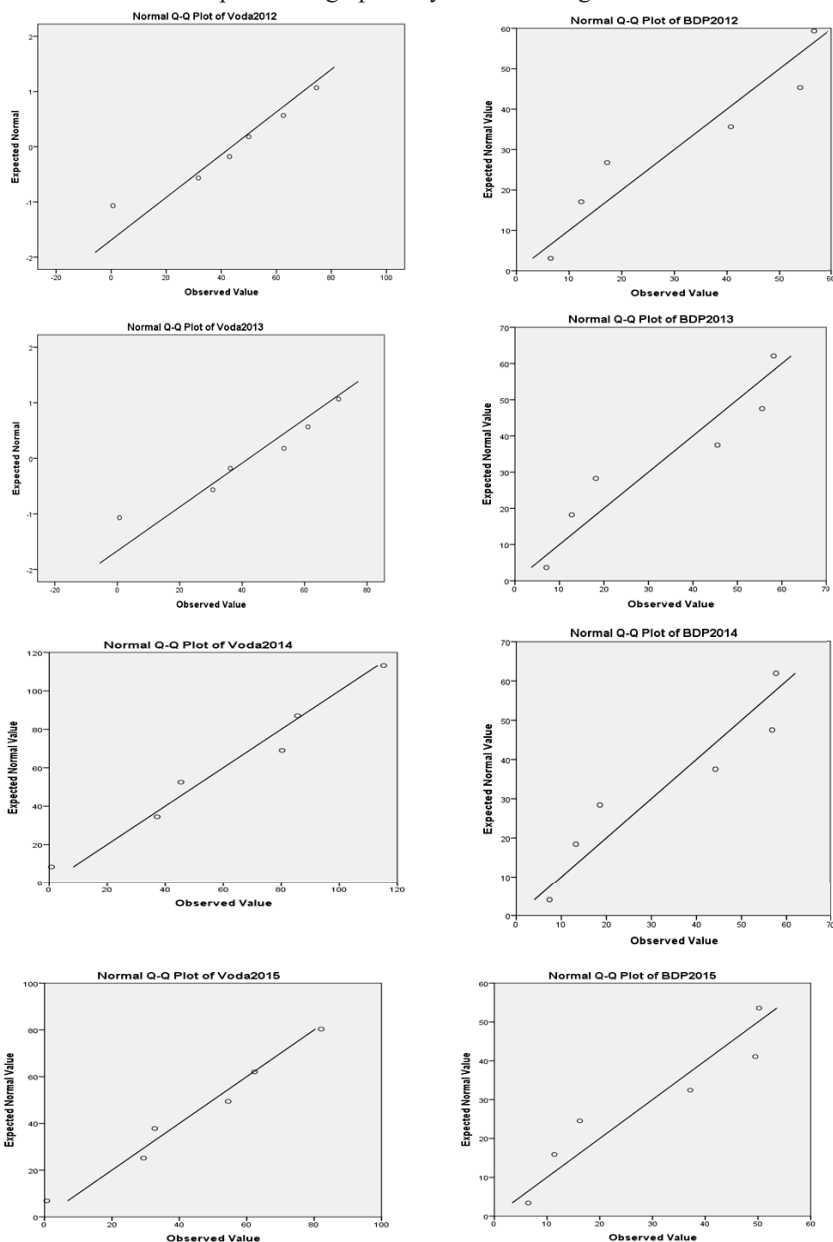
Table 4. *Shapiro-Wilk normality test*

	Shapiro-Wilk		
	Statistic	df	Sig.
Renewable fresh water sources 2012	0.965	6	0.854
Renewable fresh water sources 2013	0.953	6	0.765
Renewable fresh water sources 2014	0.975	6	0.925
Renewable fresh water sources 2015	0.981	6	0.955
Gross domestic product 2012	0.875	6	0.247
Gross domestic product 2015	0.860	6	0.188

2013			
Gross domestic product	0.858	6	0.181
2014			
Gross domestic product	0.863	6	0.201
2015			

Source: Authors' research

According to values of implemented test it can be concluded that all variables are normally distributed and their values are presented graphically at the next figure.



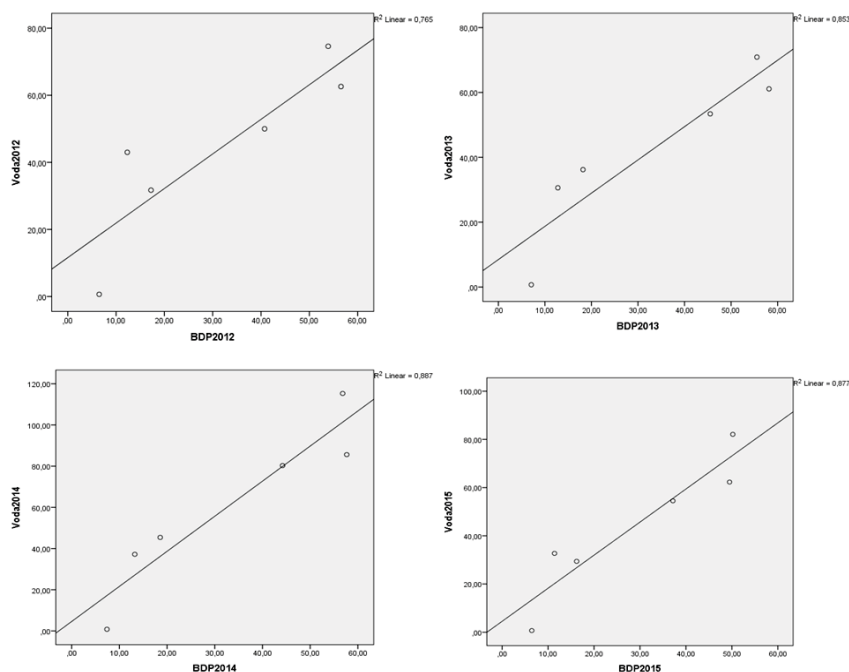


Figure 2. Graphical values of distribution

Source: Authors' research

After testing implementation of normality with Shapiro-Wilk test and conclusion that all variables are normally distributed a correlation analysis was conducted. Results are shown in table 5.

Table 5. Results of correlation analysis

		Renewable fresh water sources 2012	Renewable fresh water sources 2013	Renewable fresh water sources 2014	Renewable fresh water sources 2015
Gross domestic product 2012	Pearson Correlation	0.874*	0.924**	0.934**	0.926**
	Sig. (2-tailed)	0.023	0.008	0.006	0.008
	N	6	6	6	6
Gross domestic product 2013	Pearson Correlation	0.868*	0.923**	0.935**	0.923**
	Sig. (2-tailed)	0.025	0.009	0.006	0.009
	N	6	6	6	6
Gross domestic product 2014	Pearson Correlation	0.876*	0.928**	0.942**	0.931**
	Sig. (2-tailed)	0.022	0.008	0.005	0.007
	N	6	6	6	6
Gross domestic product 2015	Pearson Correlation	0.876*	0.928**	0.942**	0.931**
	Sig. (2-tailed)	0.022	0.008	0.005	0.007
	N	6	6	6	6

Source: Author's research

From empirical research of this paper it can be concluded that all Southeastern European countries registered rise (including some oscillations) of presented indicators in the last period. Greece recorded most oscillations. Because of financial crises in 2012 and high foreign trade debt, rate of economic growth of Greece was higher in 2009 than in 2017.

As for the fresh water availability indicator, considering that there is no data for some countries and some years, generally it can be concluded that southeastern European countries have a lot fresh water resources, but they are not evenly distributed. Differences between countries can be seen in way of their distribution, sustainability, consumption and investment in water resources.

As previously pointed out, the relationship between the dependent and independent variables was investigated using the Pearson linear correlation coefficient. At first preliminary analyses were conducted and the fulfillment of the assumptions about normality, linearity and homogeneity of variance were confirmed. A relatively strong and strong correlation between the variables was calculated. The results of correlative analyses indicate that there is relationship between renewable fresh water sources and gross domestic product. Person's correlation coefficient for 2012 year amount 0.874, for 2013 is 0.923, for 2014 is 0.942 and in 2015 is 0.937. The highest correlation between dependent and independent variables is in 2014 ( $r=0.942$ ,  $p=.005$ ).

For all selected pairs of variables, there is a linear relationship between the dependent and the independent variable. It is also seen that the values are grouped relatively uniformly around the regression line, indicating that the assumption of homoscedasticity is not disturbed. The increasing trend of the regression line from left to right indicates a positive correlation between values on the x and y axes, that is, large values of x correspond to large values on y axes. Ultimately, the correlation is positive and relatively strong.

## 5. Conclusion

Water as a natural resource for economic growth is irreplaceable. Water and sanitation are improved by increasing per capita income. Economic growth and water are closely related and are mutually correlated. Economic growth generally depends on inputs of production; when these inputs are limited, they can limit economic growth. Correlation analysis has shown that there is a relationship between economic growth and renewable fresh water sources in Southeastern Europe countries, which mean that moderate or extreme water scarcity, can adversely affect economic growth.

Southeast European countries must set the priorities in water resource management. The recommendations and activities to be taken at national as well as regional levels, when it comes to the area of Southeast Europe, are as follows: improvement of water infrastructure; to develop programs focused on the fight against poverty (water supply and its management in rural areas); to advance the role of civil society; to develop water resource management policies; to strengthen water resource management sectors; to improve information systems; to expand investment funds; to develop innovative financing methods, etc.

A limitation of this study refers to the unavailability of independent variable indicator data for the observed group of countries. In this context, it is important to emphasize that it is necessary for the geospatial Southeastern European countries to regularly publish within their statistical publications data on available sources and use of fresh water, which will be formed in accordance with the international methodology, which will, by its side, enable conducting quality research of this type. The availability of the above data would enable such research to be conducted for a longer period of time and on a bigger number of indicators, which would result in better recommendations.

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## LABOUR PRODUCTIVITY COMPARISON IN BOSNIA AND HERZEGOVINA AND SERBIA

### USPOREDBA PRODUKTIVNOSTI RADA U BOSNI I HERCEGOVINI I SRBIJI

#### Abstract

*Labour productivity, as partial factor productivity, has been analysed in this paper over the period 2014-2018. Data related to labour productivity is disaggregated and explored in three ways, first as economic activities (from A to U), second as different economic sectors, and third as sectors of tradable and non-tradable goods. Purpose of the paper is to investigate labour productivity in two countries, Bosnia and Herzegovina and Serbia, focusing on the direction of change in labour productivity with discussion about potential reasons behind the change. It has been observed that manufacturing and wholesale and retail sectors (that is primary and quaternary sectors) create the highest share of value added in the income accounts in Bosnia and Herzegovina and Serbia. Labour productivity is higher in sector of tradable goods in Serbia in comparison with Bosnia and Herzegovina. Increase in labour productivity of a country in relation to its trading partners improves its competitiveness which together with adequate exchange rate might lead to higher export boosting economic growth, employment, and real convergence. In terms of economic development, it brings about rise in living standard and decrease in poverty.*

**Keywords:** labour productivity, gross value added, competitiveness, international trade

**JEL:** F14, O4, J24

#### Sažetak

*Produktivnost rada, kao parcijalna faktorska produktivnost, analizirana je u ovom članku u razdoblju 2014-2018. Podaci koji se odnose na produktivnost rada su disagregirani i istraženi na tri razine. Najprije spram ekonomskih djelatnosti (od A do U), potom kao različiti ekonomski sektori i, konačno, kao sektori razmjenjivih i nerazmjenjivih dobara. Svrha je članka istražiti produktivnost rada u dvije države, Bosni i Hercegovini i Srbiji, fokusirajući se na smjer promjene u produktivnosti rada uz raspravu o potencijalnim razlozima koji stoje iza takve promjene. Primijećeno je da prerađivačka industrija i trgovina na veliko i malo (tj. primarni i kvartarni sektori) stvaraju najveći udio dodane vrijednosti u računima prihoda u Bosni i Hercegovini i Srbiji. Produktivnost rada veća je u sektoru razmjenjivih dobara u Srbiji u odnosu na Bosnu i Hercegovinu. Povećanje produktivnosti rada u jednoj zemlji u odnosu na njene trgovačke partnere poboljšava njezinu konkurentnost, što zajedno s odgovarajućim deviznim kursom može voditi većem izvozu koji potiče ekonomski rast, zaposlenost i realnu konvergenciju. U kontekstu ekonomskog razvoja, to donosi porast životnog standarda i smanjenje siromaštva.*

**Ključne riječi:** produktivnost rada, bruto dodana vrijednost, konkurentnost, međunarodna trgovina

**JEL:** F14, O4, J24

## 1. Introduction

Economic growth can have several sources: capital accumulation with investment that leads to upraised levels of capital equipment of labour, improvements in human capital and progress of technology. Economic growth based on capital accumulation is limited by effects of law on diminishing returns. For economic expansions to occur it is necessary to provide for ever increasing capital equipment, the situation that is impossible to achieve in the long run. From the other side, human capital which indicates to competitively skilled workers and employees enhances productivity of an economy. Third source of economic growth is technological progress. In economic growth equations technology is a variable that inform us about output that can be produced from physical capital and human capital at any time. In this paper labour productivity has been explored in its various forms, individually for Bosnia and Herzegovina (BiH) and Serbia, and comparatively for two countries. Productivity can be broadly defined as the quantity of output produced per unit of resource (Melvin & Boyes, 2016). More specifically, labour productivity is gross value added produced per unit of labour. It has been argued that elevated labour productivity together with certain exchange rate policy serves as a basis to increase export. Differences in labour productivity among countries can be an outcome of many factors. Some of them have still been elusive such as, for instance, relationship between labour mobility or liberalization and productivity, etc. Standard models of international trade (Heckscher-Ohlin) assume that in countries with same factor productivities (both capital and labour) all prices of factors will be equal. Moreover, large complementarities between capital and labour go hand in hand with high levels of productivity. Countries trying to improve their international competitiveness need to consider their productivity levels and inflation rates. Some fears that with low inflation rates policies could exacerbate growth in labour productivity seem to be groundless (Freeman & Yerger, 2000). Labour productivity is also very important in countries with rising average wages, such as BiH. Increase in labour productivity is needed for preserving international competitiveness together with a surge in average wages. Otherwise, rise in average wages without proportional enhancement in labour productivity can undermine international competitiveness of a country.

Monetary policy can also influence labour productivity. Expansionary monetary policy through lower interest rates can lead to more investments including new equipment purchases by firms which cause capital deepening and improve labour productivity. Growth in productivity can have macroeconomic implications. One of the major implications of that growth is an increment in aggregate demand, the relationship known as Say's law. Improvements in productivity (reflecting, for instance, better human capital) can cause other macroeconomic sectors such as businesses or financial markets to reconsider and modify their expectations of profits and future returns to capital which can lead to further investments creating multiplier effects. From the other side, personal consumption of households is also boosted by an increase in permanent income. In the mid-term an expansion in aggregate supply can be matched by an equivalent upsurge in aggregate demand (Kroszner, 2006).

The rest of the paper is organized as follows: literature review on labour productivity is presented in Section 2. In the third section methodology employed in the paper is discussed and in the fourth section analysis of labour productivity in two countries is presented and elaborated. The paper concludes by drawing together the most important insights of labour productivity in two countries under analysis.

## 2. Literature review

There are numerous factors of labour productivity such as quality of labour force (measured in education level, size and composition of labour force, etc.), worker skills and motivation,

management skills and business organization in terms of microeconomics (Mitchell, Randall Wray & Watts, 2019) followed by technological innovations and changes in the capital stock, factors' prices, changes in size of sectors (primary, secondary, tertiary, etc.) and financial market development. All these factors can enlarge or reduce labour productivity. Put simply, it relates to: *"... all the attributes of workers that potentially increase their productivity in all or some productive tasks"* (Acemoglu, 2009, p. 359).

In some countries such as the USA the post-1995 productivity was amplified by technological advances in the IT industry and associated investments in production equipment. One paper by Jorgenson, Ho, and Stiroh (2008, p. 21) stated that *"information technology emerged as the driving force behind the acceleration of labour productivity growth that began in the mid-1990s, while capital deepening and total factor productivity growth outside of information technology increased in relative importance after 2000"*. Some authors investigated relationship between labour productivity and economic growth on country level as well. In paper by Korkmaz and Korkmaz (2017, p. 71) the focus is on long-term relationship between labour productivity and economic growth in seven OECD countries in period 2008-2014 and the authors identified the existence of *"... unidirectional causality from economic growth to labour productivity"* concluding that countries with higher levels of economic development can also achieve better labour productivity. Usually labour productivity shrinks in times of economic downturns since less value added is produced with almost unchanged labour inputs (Stocker et al., 2015) especially in countries with strong worker unions and full-time employment arrangements. Authors observe (p. 20) that *"in highly industrialised countries, such as most EU Member States, labour costs have been more expensive than material costs from perspective of relative prices (and current tax systems)"*. Rising labour productivity contributed to reducing labour costs and preserving high levels of international competitiveness. Labour productivity is also found to be countercyclical lagging behind the cycle in output for one and a half year. Evans (2019, p. 24) obtained results that show less *"... volatility of the growth rate of output ... relative to volatility of hours and employment, which has a tendency to make measured productivity more countercyclical"*.

There are some factors with no significant impact on labour productivity that are relevant for BiH. For instance, Bartolini, Ninka, and Santolini (2019) analysed relationship between tax decentralization and labour productivity in twenty OECD countries over the period 1980-2010 and found no significant effect of the degree of subnational tax autonomy on labour productivity. Yang and Tzou (2018) in their paper explored the relationship between unionisation and labour productivity in China. The authors found supportive evidence for a negative influence of labour unions on firm productivity (labour productivity and total factor productivity - TFP) and *"... negative effect becomes stronger over time"* (Yang & Tzou, 2018, p. 20). Additionally, state owned enterprises suffer larger fall in labour productivity and TFP. Wales (2019) compared productivity of G7 countries in 2016 and observed lagging of Canada, UK and Japan behind the other G7 countries both in labour productivity and in wider, TFP terms. Wales examined international sector labour productivity in the UK too and gathered evidence on higher labour productivity in tradable goods sector.

Gelo and Družić (2015) studied labour productivity in Croatia cross-sectionally in two years 2009 and 2013 and observed an increase in the level of total labour productivity. The authors argued that the smallest labour productivity in Croatia in 2013 was in quinary sector at only 70% of the average labour productivity in that country. The highest labour productivity was in quaternary sector being more than 1.3 times higher in comparison to the average labour productivity in the country. Gelo and Družić also noticed that labour productivity over period of five years diminished in primary and quinary sectors and enlarged in the remaining three sectors. Analysing labour productivity in tradable and non-tradable goods' sectors the authors observed smaller productivity in the former than in the latter sector.

### 3. Methodology

Employment-output function is given in equation of  $Y = rN$ , where  $N$  is the total number of workers employed,  $r$  is the rate of labour productivity and  $Y$  is planned production (Mitchell, Randall Wray & Watts, 2019). When the equation is solved for  $r$  we get  $Y/N$  that is algebraic equivalent for labour productivity. In this paper  $N$  represents real gross value added, instead of output, following the papers of Gelo and Družić (2015) as well as Lieberman and Kang (2008). Therefore, the higher labour productivity,  $r$ , the higher real gross value added with the same level of employment. In some analyses trends in labour productivity are used for making insights into cyclical changes that might occur in labour productivity.

More specifically, labour productivity is disaggregated into three variables (Gelo & Družić, 2015):

- sectoral labour productivity, calculated as proportions between gross value added and number of employees in all statistical economic activities;
- aggregate sectoral productivity, calculated in five broader economic sectors;
- international sectoral labour productivity with two sectors of: (a) tradable, and (b) non-tradable goods.

Table 1. *Different sectors of economic activities*

	Name of sector	Industry codes	Description
1	Primary	A, B	Agriculture, mining
2	Secondary	C, D, E, F	Industry with construction included
3	Tertiary	G, H, I, J	Services, including information and communications
4	Quaternary	K, L, M, N	Financial sector and real estate, with science, technical and administration activities
5	Quinary	O, P, Q, R, S	Activities in domain of public finance

Source: Adapted from (Gelo & Družić, 2015) and (Halebić & Merdić, 2019)

Since inflation has adverse effects on labour productivity (Dua & Garg, 2019), we used data on gross value added in constant prices for calculation of average labour productivity. Data are examined by calculating differences and changes in labour productivity for period 2014-2018 in two countries.

### 4. Data and analysis

When average labour productivity in BiH and Serbia is compared with that of EU28 it is evident that both countries are below EU28 labour productivity in 2018, scoring only 28% and 27% of average EU28 labour productivity, respectively.<sup>1</sup> Figure 1 shows the average labour productivity calculated as real gross value added per employee (in €) between BiH and Serbia in period 2014-2018. Labour productivity in Serbia trended downward in years 2014-2016, and it started to recover in years 2016-2018. Labour productivity in BiH trended upward with small slope.

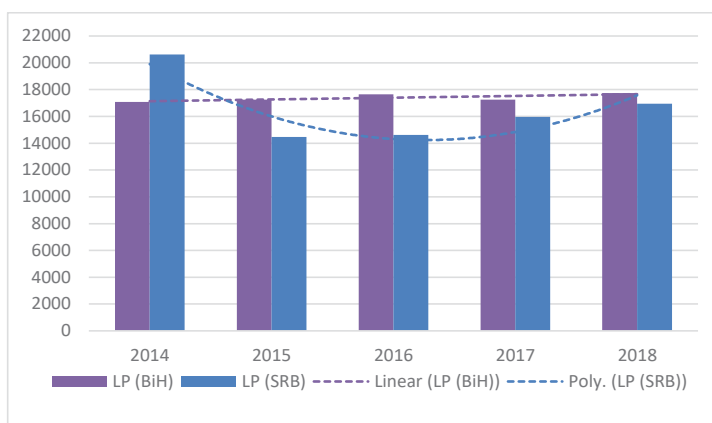


Figure 1. *Labour productivity (LP) in BiH and Serbia over the period 2014-2018 (in €)*

Source: Authors' calculation

Except in 2014 labour productivity in BiH is in each year higher than in Serbia. Differences in labour productivity between two countries are decreasing from 22% in 2015 to 4.5% in 2018. The biggest differences in labour productivities between BiH and Serbia are in years 2015 and 2016. Individually, labour productivity in BiH grew for about 4% and in Serbia slipped for more than 17%.

#### 4.1. *Labour productivity in different economic activities of Bosnia and Herzegovina and Serbia*

We also compared labour productivity between BiH and Serbia in economic activities as described in Table 1 earlier. Economic activities from A to S with corresponding labour productivities are presented in Figure 2.

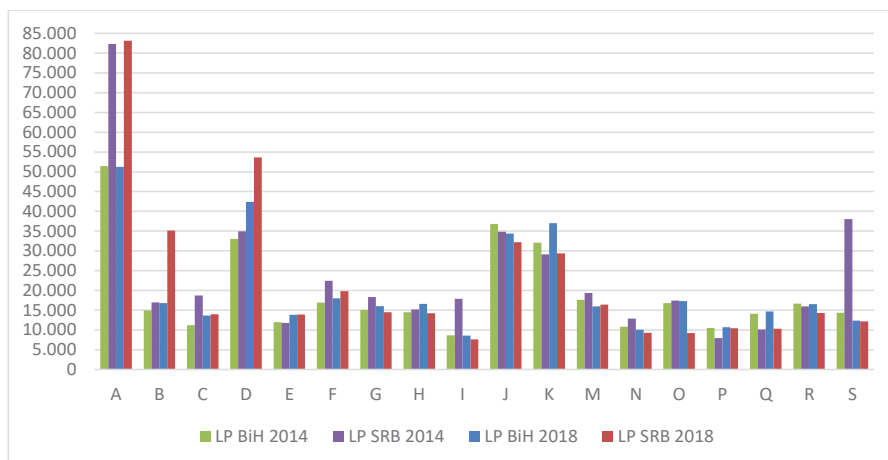


Figure 2. *Labour productivity (LP) of economic activities in BiH and Serbia, 2014 and 2018 (in €)*

Source: Authors' calculation

Each economic activity in the Figure 2 is consisted of 4 columns, first and second ones being labour productivities of BiH and Serbia in year 2014, and third and fourth ones in year 2018. The figure does not include economic activity L (real estate activities) which is considered outlier to the figure. In L economic activity in years 2014 and 2018 labour productivity in Serbia surpassed that of BiH

by 3.6 and 1.4 times, respectively. Other relations among economic activities are as follows: in Agriculture, forestry and fishing; Mining and quarrying; Manufacturing; Electricity, gas, steam and air conditioning supply; Construction; Professional, scientific and technical activities labour productivity in Serbia surpassed that of BiH in both years. Conversely, in the following economic activities: Information and communications; Financial and insurance activities; Education; Human health and social work activities; Arts, entertainment and recreation labour productivity in BiH outpaced that of Serbia in both years. Labour productivity in remaining economic activities is volatile between two countries, being higher in BiH in some years and in other years in Serbia. Three sectors with highest labour productivity in BiH are A, D, and J, and in Serbia A, D, and S.

#### 4.2. Labour productivity in different sectors of economy in Bosnia and Herzegovina and Serbia

Analysing economic activities divided into numerous sectors has had a long history. Fisher (1939) reminded us about terms such as “primary production” and “secondary production” in official statistics originating from the late 19th century. Term “tertiary production” was invented in answering the question: „*In what direction is it desirable at this stage of our history to accelerate the rate of economic development?*“ (Fisher, 1939, p. 30). Fisher in his paper also warned that classification of economic activities only into primary and secondary sectors „*exhausted all possibilities of employment*“ (1939, p. 30). If Fisher's comment is tested in BiH and Serbia nowadays with modern classification into economic sectors, from primary to quinary, it is evident that only about 1/3 of employment and gross value added have been generated in the primary and the secondary sectors. We also inspected labour productivity in different sectors, starting from the primary to the quinary one as presented in Figure 3.

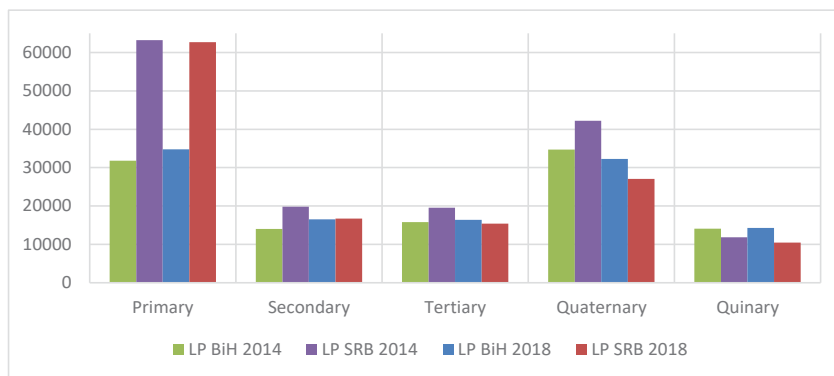


Figure 3. Labour productivity (LP) in different sectors of BiH and Serbia in 2014 and 2018 (in €)

Source: Authors' calculation

Obviously, two countries have higher labour productivity in some sectors in both years. For instance, BiH has excelled in labour productivity in the quinary, and Serbia in the primary and secondary sectors. In other sectors, tertiary and quaternary, Serbia had better scores in labour productivity in 2014 but in 2018 BiH achieved higher labour productivity levels in both sectors. Data in figure 3 show a sharp slowdown in annual change in labour productivity of two countries in tertiary and quaternary sectors. Labour productivity records in BiH are raising in all sectors: 9%, 18%, 4%, and 2%, respectively (except quaternary sector, -7%) when compared between 2014 and 2018. In Serbia, however, labour productivity over the period 2014-2018 is declining in all five sectors, in some cases even in double-digit numbers: -1%, -16%, -21%, -36%, and -12%, respectively. The lowest labour productivity in BiH and Serbia in 2018 is in quinary sector being only at 80.6% and 61.5% of the average labour productivity in each country.

#### 4.3. Labour productivity in traded and non-traded industries in Bosnia and Herzegovina and Serbia

There is no clear definition of traded and non-traded sectors. Various authors have different approaches, for example Mano and Castillo (2015) introduced a benchmark calculated as share of export in an industry gross value added. If the benchmark is higher than 10% then industry is considered a traded one. General indication for traded sector is that it comprises goods of export and import or presents an exposure to international competition on domestic or foreign markets. Similarly, non-traded sector includes goods that are not exposed to international competition. In Figure 4 below we adopted approach from (Gelo & Družić, 2015).

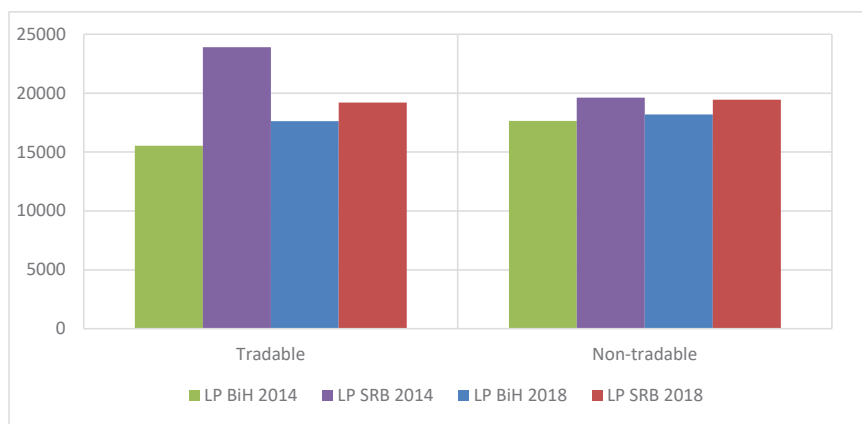


Figure 4. Labour productivity (LP), traded and non-traded sectors, BiH and Serbia, 2014 & 2018, (€)

Note: Sectors A, B, C, D, E, and I are considered traded industry, while the remaining sectors are considered non-traded industry.

Source: Authors' calculation

In Figure 4 tradable and non-tradable sectors are exhibited. Labour productivity in tradable goods sector in BiH is lower than its average labour productivity but in Serbia it exceeds the average labour productivity of that country for 13.3%. In years 2014 and 2018 labour productivity in BiH is lower than in Serbia in two sectors. That situation is observed in both years 2014 and 2018. However, labour productivity in both industries in BiH is on the increase being higher for 13% and 3% in traded and non-traded industries, respectively. Opposite is true in Serbia, labour productivity in that country is diminishing in both industries. It is lower for 20% and 1% in traded and non-traded industries, respectively. If continued in this direction with the same dynamics the labour productivity in BiH in the traded goods sector could even outgrow that of Serbia in the next 3 to 5 years.

## 5. Conclusion

Focus of this paper is on labour productivity measured as gross value added per employee. Average labour productivity of BiH in 2018 is lower than EU-28 labour productivity but higher than in some neighbouring countries such as Serbia. In order for labour productivity to be explained in more details and from different perspectives it is disaggregated in this paper in three ways, that is labour productivity in specific economic activities, in five economic sectors and in relation to international trade.

Results of the analysis in the paper shine a light of several features of labour productivity between BiH and Serbia. The analysis provides new insights on labour productivity performance between two countries with regard to different economic sectors. In primary and secondary sectors labour productivity is higher in Serbia and in quinary sector it is higher in BiH. Additionally, in tertiary and quaternary sectors labour productivity in Serbia is larger in year 2014 and in BiH in 2018.

Evidence presented in the paper of the link between tradable and non-tradable sectors and labour productivity indicates that businesses in Serbia with production of internationally traded goods are more productive than those in BiH but trends in labour productivity in 5-year period suggest possible change in favour of BiH in the future. This observation could have policy implications since BiH has negative trade balance with that country in amounts of about 400 mil € per year. Importance of this trade deficit is more emphasized together with knowledge of limited monetary policy tools available for BiH to improve its competitiveness in international trade. Policies enhancing labour productivity in BiH are needed to address this trade deficit.

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## SECTOR EMPLOYMENT DISPERSION AS A DETERMINANT OF JOB CREATION: CASE OF THE FEDERATION OF BOSNIA AND HERZEGOVINA

### SEKTORSKA DISPERZIJA ZAPOSLENOSTI KAO DETERMINANTA PROMJENE ZAPOSLENOSTI: SLUČAJ FEDERACIJE BOSNE I HERCEGOVINE

#### Abstract

*The aim of this paper is to analyse and explain the influence of the width of the economic structure, i.e. the dispersion of employment by sectors, on employment changes over time in the cantons in the Federation of Bosnia and Herzegovina. This paper examines whether the concentration of employment in a small number of sectors or the dispersion of employment in a number of economic sectors allows for faster employment growth. The location coefficient is used for the analysis of the economic growth of particular cantons, which allows examination of the dispersion of employment at the cantonal level, as well as at the level of Federation of Bosnia and Herzegovina. The paper also uses the shift-share analysis that analyses the employment change over time under the influence of following three components: national competitiveness, the competitiveness of the region (canton), and the mix component. Using the methodology defined in the work, conclusions have been made about the effects of each component of the share-shift analysis on changes of employment in cantons with greater employment dispersion compared to cantons in which the employment is concentrated in just a few sectors.*

**Keywords:** shift-share analysis, location coefficient, unemployment, employment, economic structure

**JEL:** J22, J64, O11

#### Sažetak

*Cilj ovog rada je analiza i objašnjenje uticaja širine privredne strukture, odnosno disperzije zaposlenosti po sektorima, na promjene zaposlenosti kroz vrijeme u kantonima Federacije Bosne i Hercegovine. Ovim radom se ispituje da li koncentracija zaposlenosti u malom broju sektora ili disperzija zaposlenosti u većem broju privrednih sektora omogućava brži rast zaposlenosti. Za analizu širine privredne strukture pojedinih kantona koristi se lokacijski koeficijent, koji omogućava ispitivanje disperzije zaposlenosti na kantonalnom u odnosu na nivo Federacije Bosne i Hercegovine. U radu se, također, koristi shift-share analiza, koja omogućava analizu promjena zaposlenosti kroz vrijeme pod utjecajem sljedeće tri komponente: nacionalna konkurentnost, konkurentnost regije (kantona) i miks komponenta. Primjenom definirane metodologije, u radu se izvode i zaključci o utjecaju pojedinih komponenti shift-share analize na promjene zaposlenosti u kantonima sa većim stepenom disperzije zaposlenosti u odnosu na kantone u kojima je zaposlenost skoncentrirana u malom broju sektora.*

**Ključne riječi:** *shift-share* analiza, lokacijski koeficijent, nezaposlenost, zaposlenost, privredna struktura

**JEL:** J22, J64, O11

## 1. Introduction

One of the key challenges for economic policy makers is utilization of labour as a factor of production, i.e. the achievement of the employment rise as a macroeconomic goal. This is especially evident in small open economies in transition, faced with the outflow of labour into countries with a higher marginal labour product, or higher labour income. An additional challenge for these countries is the imperative for improvement of the labour market and increase of the number of employees, since it is essential to solve the problems of structural unemployment along with the economic transition process. Bosnia and Herzegovina has a dominant competitiveness structure based on factor competitiveness, i.e. on low costs and prices of its products, including availability of natural resources: water, ores, forests, skilled and unskilled labour force, etc. To create larger productivity and competitiveness, comparative advantages should be translated into competitive advantages (Domazet, 2006). Qualified labour force is one of the comparative advantages of Bosnia and Herzegovina. Labour hours are three times lower compared to EU countries, but the country lacks industries that would hire these workers productively. Therefore, there are no competitive advantages. A particular challenge for Bosnia and Herzegovina is the issue of transition to a higher stage of economic development, based on new sources of competitive advantages in creating productivity and dispersion of the workforce.

The aim of this paper is to analyze and explain the impact of the wideness of the economic structure, i.e. the dispersion of employment by sectors, on the dynamic changes of employment in the cantons in the Federation of Bosnia and Herzegovina (Federation of BiH). The existing sector dispersion of employment by cantons in the Federation of BiH is examined using the location coefficient, and then the changes in the dispersion of employment by sectors are determined in relation to the results of the research of Halebić and Merdić (2013). The analysis also includes the analysis of the increase/decline in the number of employees by cantons from 2012 to 2018, and concludes whether and to what extent cantons with smaller/larger sector employment dispersion achieve lower/higher increase/decline in the number of employees. The results of this analysis can serve economic policy makers in the preparation of sector policies in the context of employment growth.

The ambition of this paper as well is to explain the change in employment in the Federation of BiH cantons and at the Federation of BiH level, decomposed on the basis of following three components of shift-share analysis: entity (shift) component, mix component, and cantonal component. The analysis shows the impact of the rise/fall of the employment at the Federation of BiH level in the particular cantons as a result of the rise/fall of the employment at the Federation of BiH level (entity component), then the combination of faster or slower growing sectors in relation to the average of the economy (mix component), and the impact of taking advantage of the cantonal competitive advantages on the rise/fall in the number of employees in particular cantons (cantonal component) from 2012 to 2018. Also, the conclusions are drawn on the impact of particular components of shift-share analysis on changes in the number of employees in cantons with higher sector employment dispersion than cantons with lower level of sector dispersion.

In addition to the introduction, the paper is composed of three parts. The second part presents the basic theoretical determinants of the applied research methodology – location coefficients and shift-share analysis. The third part of the paper presents the results of research related to examining the wideness

of economic structure and decomposed changes in employment by components of shift-share analysis. Finally, the conclusions of the conducted research are drawn in the last part of the paper.

## 2. Research methodology

For the purpose of analysis and explanation of sector employment dispersion and analysis of the decomposed employment change, the following methods were used in this paper: location coefficient and shift-share analysis. In this part of the paper, the basic theoretical determinants of the methods used are presented.

### 2.1. Location coefficient(s)

Location coefficient is a coefficient by which the level of sector specialization of a region or canton is calculated in relation to a larger area (in our case, it is an entity of the Federation of BiH). This coefficient shows us the relative importance of one economic sector at the cantonal/regional level in relation to the share of a given economic sector in the overall economic structure of the national economy. Location coefficient, if the economic structure of a region/canton is established on the basis of comparative advantages, could give us an answer to the question which region/canton has a comparative advantage in a particular sector of the economy. Also, in case the economic structure is not established on the basis of comparative advantages, the application of location coefficients can help to direct the economic structure in accordance with the relative availability of resources.

The value of the location coefficient gives us the answer to the question in which sectors of economy is the region/canton specialized. For example, in the context of employment, this would mean the following: the nominal data that out of the total number of Zenica-Doboj Canton employees in 2018, 4.78% are employed in construction, gives us a useful information on the role of the construction as a sector in the economy, but relative importance of that sector at the level of the Federation of BiH can be further assessed by comparing the relative number of employees in that sector at the cantonal level with the relative number of employees at the level of the Federation of BiH. They assess the importance of an industry sector at the cantonal/regional level in relation to its national share (Murray, 2010).

For the purpose of this research, the location coefficient represents the ratio of the percentage of employees in one activity within one canton ( $e_i$ ), in relation to the total number of employees in that canton ( $e_t$ ), and the percentage of the number of employees in that activity in the Federation of BiH ( $N_i$ ) versus the total number of employees in the Federation of BiH ( $N_t$ ), which can be represented by the following algebraic expression:

$$LQ_i = (e_i/e_t)/(N_i/N_t)$$

The location coefficient can take on the values shown in Table 1.

Table 1. *Location coefficient values*

$LQ_i = 0$	There is no employment in the canton in the activity “i”.
$LQ_i = 1$	The cantonal economy has a percentage of employees in the activity “i” equal to the percentage of employees in that activity in the Federation of BiH.
$LQ_i < 1$	The percentage of employees in the cantonal economy in the “i” sector is lower than the Federation BiH average.
$LQ_i > 1$	The percentage of employees in the cantonal economy in the “i” sector is higher than the Federation BiH average.

Source: Halebić & Merdić, 2013

By applying the location coefficient, it is possible to identify the areas of specialization of particular regions/cantons in relation to the national economy (in our case the entity of the Federation of BiH), but the reasons for the narrow/broad economic structure of the cantons and the reasons for specialization are not identified. Therefore, the results obtained by applying location coefficients can serve as a good basis for further research and economic policy modelling in order to harmonize the economic structure in accordance with the comparative advantages of the regions/cantons.

## 2.2. Shift-share analysis

The focus of economic policy makers is identifying the causes of employment change and identifying growth generators. In doing so, the use of shift-share analysis can provide important conclusions in formulating sector economic policies and changing sector employment dispersion. Shift-share analysis provides an opportunity to calculate the competitiveness of the cantonal economy and the cantonal economic base, given its ability to decompose effects on cantonal employment by three different factors (Čavrak, 2012; Halebić & Merdić, 2019):

- growth attributable to the effects of the entity economy (entity share or shift component),
- growth attributable to the industrial mix of faster or slower growing activities in relation to the average (mix component), and
- growth attributable to the competitiveness of the cantonal sectors (cantonal share).

Comparison of sector distribution of employment growth between two geographical areas (usually the regional and national level) to answer three questions: (a) Does the regional economic structure contribute to growth more than the national one? (b) Is the regional sector growth higher than national average? (c) From the answers to the previous questions, what contributes more to the perceived difference in the growth of aggregate employment between the region and the whole country, the structure or the sector efficiency? (Artige & Van Nesuss, 2013; Halebić & Merdić, 2013). The following algebraic expression is used to calculate the components of the shift-share analysis of an individual activity (Blair & Carol, 2009):

$$\Delta e_i = e_i [ (N_k / N) - 1 ] + e_i [ (N_{ki} / N_i) - (N_k / N) ] + e_i [ (e_{ki} / e_i) - (N_{ki} / N_i) ],$$

where:

$\Delta e_i$  – is the change of employment in a canton in the activity  $i$ ,

$e_i$  – cantonal employment in the activity  $i$  at the beginning of the period;

$e_{ki}$  – cantonal employment in the activity  $i$  at the end of the period;

$N_k$  – overall employment in the Federation of BiH at the end of the period;

$N$  – overall employment in the Federation of BiH at the beginning of the period;

$N_{ki}$  – overall employment in the Federation of BiH at the end of the period in the activity  $i$ , and

$N_i$  – overall employment in the Federation of BiH at the beginning of the period in the activity  $i$ .

The calculation of change in employment by means of shift-share analysis makes it possible to establish the contribution of individual components, above all, to the growth of employment at the national level, of faster or slower growing sectors, and cantonal competitiveness to the increase/decrease of employment. Based on the results of this analysis, it is possible to create sector policies that will be in the function of employment growth, and to change the economic structures of lower territorial units in accordance with the available comparative advantages. One of the key drawbacks of the shift-share analysis is the change in results based on the selection of the year for which the change in employment is calculated, but it can be a useful tool in identifying the quality of the economic structure and individual sectors and their contribution to the economic growth. Complaints regarding shift-share analysis include the following: neglecting the impact of the business cycle; imprecision in detecting the causes of comparative and competitive advantages; relying on the assumption of equal labor productivity in all the cantons and sectors observed, which means that higher employment implies a higher amount of production (Halebić & Merdić, 2013).

### 3. Research results

#### 3.1. Location coefficient by activities in the Federation of Bosnia and Herzegovina and Bosnia and Herzegovina's cantons

This part of the paper presents the results of the employment coefficients calculation for employment in 10 cantons in the Federation of BiH by activities as compared to employment at the entity level of the Federation of BiH. Based on these data, cantons facing a narrow economic structure problem will be identified, and those which have a relatively broad economic structure, that is, higher employment dispersion across sectors. In theory, researchers agree that a broader structure of activity (greater degree of sector dispersion of employment) is more favorable to the economy since such a structure of activity is more resistant to potential negative impacts, so-called. internal or external shocks, such as: recession shocks, shocks caused by discretionary economic policies, shocks caused by natural disasters (drought, floods, fires), competitive shocks of rapid liberalization (commodity, labor or capital markets), institutional shocks, etc. (Čavrak, 2012; Halebić & Merdić, 2013). As this paper analyzes how the breadth of the economic structure influences changes in employment over time, in section 3.2. we will see whether and to what extent cantons with a higher degree of sector employment dispersion (broader economic structure) have achieved greater or lesser employment growth than other cantons.

The data in Table 2 show that six out of a total of ten cantons in the Federation of BiH have the value of the location quotient  $LQ_i > 2$  in only one activity in 2018. While in 2011, the value of  $LQ_i > 2$  (Halebić & Merdić, 2013) had 9 of the cantons, which indicates the further narrowing of the economic structure of the cantons in the Federation of BiH from 2012 to 2018. In the observed period in 4 cantons there was a decrease in sector dispersion of employment, which implies a decrease in the number of sectors with a location coefficient greater than 1, namely: Una-Sana Canton from 9 to 5, Tuzla Canton from 8 to 5, Zenica-Doboj Canton from 4 to 3, and Central Bosnia Canton from 7 to 3 sectors in which  $LQ_i > 1$ . Sector employment dispersion was increased in 4 cantons, namely: Canton Posavina from 5 to 6, Bosnian-Podrinje Canton from 2 to 3. West Herzegovina Canton from 5 to 6 and Canton 10 from 6 to 7 sectors in which  $LQ_i > 1$ . There were no significant changes in sector employment dispersion in Herzegovina-Neretva Canton and Canton Sarajevo, as compared to 2011. In Herzegovina-Neretva Canton  $LQ_i > 1$  is in 10, and in Canton Sarajevo in 11 sectors.

Canton Sarajevo with 11 sectors and Herzegovina-Neretva Canton with 10 sectors with  $LQ_i > 1$  have the highest degree of sector dispersion of employment, which implies the existence of the most

favorable economic structure in terms of the impact of external negative shocks, which can cause a decrease in employment. This would mean that Canton Sarajevo and Herzegovina-Neretva Canton have the greatest ability to absorb external shocks. All potential negative effects of external shocks on employment in some sectors, which would be reflected in a decline in employment, may be alleviated by the development of other sectors, which could absorb excess labor from the crisis-affected sectors. All other cantons face a relatively narrow economic structure, given that they have a location coefficient greater than 1 in the maximum of 7 sectors (Canton 10) and less (other cantons). However, we will show in section 3.2 through shift-share employment analysis, whether a relatively broad economic structure, a larger sector dispersion of employment, can ensure greater growth in the number of employees over time. The basic question is whether governments should increase sector employment dispersion (in order to increase resilience to negative external shocks) or should the focus be on sector specialization and reduction of sector employment dispersion based on comparative advantages.

Table 2. *Location coefficients by cantons of the Federation of BiH in 2018*

	USC	PC	TC	ZDC	BPC	CBC	HNC	WHC	CS	C10
A	1.93	1.25	0.75	1.21	1.06	1.58	0.76	1.04	0.35	5.50
B	0.18	0.06	2.70	2.25	0.00	0.87	0.08	0.37	0.02	0.15
C	0.89	1.17	1.17	1.60	2.30	1.61	0.67	0.89	0.46	0.60
D	0.71	1.01	0.97	0.95	0.42	0.83	2.32	0.64	0.78	1.02
E	1.57	0.94	0.87	0.85	0.75	0.85	1.11	0.63	1.08	1.19
F	0.91	0.55	1.25	0.99	0.42	0.67	1.02	1.24	0.99	0.99
G	1.16	1.13	0.98	0.77	0.55	1.01	1.02	1.75	1.01	0.96
H	0.68	0.90	1.18	0.99	0.64	0.61	1.14	0.75	1.14	0.66
I	1.14	1.22	0.68	0.76	0.60	0.88	1.51	0.84	1.17	1.38
J	0.51	0.43	0.55	0.30	0.42	0.31	1.08	0.15	2.24	0.18
K	0.79	0.46	0.70	0.53	0.50	0.42	0.94	0.56	1.87	0.55
L	0.60	0.00	0.40	0.68	0.07	0.34	0.58	1.07	2.19	0.27
M	0.78	0.49	0.72	0.67	0.30	0.38	0.72	1.11	1.83	0.47
N	0.74	0.54	0.62	0.63	0.45	0.51	0.90	0.52	1.88	0.29
O	1.00	1.61	0.69	0.67	1.34	0.73	1.13	0.91	1.35	1.71
P	1.35	0.94	0.98	1.00	0.79	0.98	1.16	1.06	0.86	1.23
Q	1.04	1.00	1.03	0.83	0.84	0.98	1.32	0.53	1.02	1.04

Note: (a) Activity codes are as follows: A- Agriculture, forestry and fisheries; B- Mining and quarrying; C- Manufacturing; D - Production and supply of electricity, gas, steam and air conditioning; E- Water supply, sewage disposal, environmental management; F- Construction; G- Wholesale and retail trade; repair of motor vehicles; H- Transportation and storage; I - Hotel and catering; J- Information and communications; K- Finance and Insurance; L- Real estate business; M - Professional, scientific and technical activities; N- Administrative, support and service activities; O- Public administration, compulsory social security; P- Education; Q- Health and social work activities. (b) The activities that dominate the structure of cantons are shaded (the five most significant ones having  $LQ_i > 1$ , or a smaller number if there are no five).

Source: Author's calculation based on Federal Bureau for Statistics

Significant changes in the sector dispersion of employment require a longer period of time and a systematic approach to development planning. It is necessary to consider all the comparative advantages of individual cantons and turn them into competitive ones, with lower expedient costs of

production, in order to ensure more equitable development of the cantons in the long run and to put all available resources into the function of economic development. An Ad hoc approach to economic development will certainly result in an increase in the GDP gap due to unused capacities, which entails high opportunity costs that have long-term negative consequences for the economic development of Bosnia and Herzegovina, which are primarily reflected in underutilization of production capacities and comparative advantages. The relatively narrow economic structure shows the existence of a very small number of economic sectors that can be designated as leading sectors in creating growth and employment. In addition, the problem of this structure of activity and development of certain sectors is the fact that these are precisely sectors with relatively low added value, that is, low-tech production.

### *3.2. Shift-share employment analysis in the cantons of the Federation of Bosnia and Herzegovina*

The results of the shift-share analysis are presented in Table 3. The analysis refers to the period from 2012 to 2018 and shows absolute and relative changes in employment at the level of the Federation of BiH and at the level of its 10 cantons. Changes in the employment of the cantons were decomposed and analyzed by individual components of the shift-share analysis in relation to the employment trends at the entity level of the Federation of BiH.

The analysis shows that at the level of the Federation of BiH in the observed period the number of employees increased by 84,273, that is, the number of employees in the Federation of BiH increased by 19.63% from 2012 to 2018. Measured by the number of employees in the cantons in the Federation of Bosnia and Herzegovina in the observed period, the largest absolute growth in the number of employees was recorded in the Sarajevo Canton (21,583 new employees), the Tuzla Canton (15,694 new employees) and the Zenica-Doboj Canton (14,039 new employees). Such results regarding the growth of total economic activity are expected, given that the above-mentioned cantons are three cantons with the highest production capacities, and at the same time they are the cantons that had the highest number of employees at the beginning of the period. The Bosnia-Podrinje Canton (1,255 new employees), the Canton 10 (1,154 new employees) and the Posavina Canton (758 new employees) had the lowest absolute employment growth, which are certainly expected results considering initial employment, which is in line with production possibilities of the cantons.

Table 3. *Shift-share analysis of cantons in the Federation of Bosnia and Herzegovina for the period 2012-2018*

	Employment 2012	Employment 2018	Absolute change	Relative change	Entity share	Mix	Canton share
<b>FBiH</b>	<b>429,334</b>	<b>513,607</b>	<b>84,273</b>	<b>19.63%</b>	<b>x</b>	<b>x</b>	<b>x</b>
<b>USC</b>	31,683	37,687	6,004	18.95%	6,219	79	-294
<b>PC</b>	5,739	6,497	758	13.21%	1,126	3	-371
<b>TC</b>	80,767	96,461	15,694	19.43%	15,854	-1,684	-1,525
<b>ZDC</b>	68,649	82,688	14,039	20.45%	13,475	-134	699
<b>BPC</b>	6,036	7,291	1,255	20.79%	1,185	122	-55
<b>CBC</b>	38,719	50,957	12,238	31.61%	7,600	575	4,063
<b>HNC</b>	45,445	54,133	8,688	19.12%	8,920	1,017	-1,249
<b>WHC</b>	16,462	19,322	2,860	17.37%	3,231	486	-857
<b>CS</b>	126,265	147,848	21,583	17.09%	24,784	-339	-2,861
<b>C10</b>	9,569	10,723	1,154	12.06%	1,878	-123	-602

Note: The cantons' acronyms are as follows: USC – Una-Sana Canton; PC – Posavina Canton; TC – Tuzla Canton; ZDC – Zenica-Doboj Canton; BPC – Bosnia-Podrinje Canton; CBC – Central Bosnia Canton; HNC – Herzegovina-Neretva Canton; ZHC – West Herzegovina Canton; CS – Canton Sarajevo; C10 – Canton 10.

Source: Author's calculation based on Federal Bureau for Statistics

The analysis of changes in employment decomposed by components of the shift-share analysis shows that in the observed period all cantons achieved positive values of the entity component, which means that the growth of total economic activity and employment growth at the level of the Federation of BiH positively affected the employment growth in all cantons of the Federation of BiH. Therefore, the Sarajevo Canton, Tuzla Canton and Zenica-Doboj Canton achieved the greatest positive effects of employment growth at the level of the Federation of BiH, as the cantons with the highest production capacity.

The very significant indicator of shift-share analysis is the cantonal component, which shows how cantonal competitive advantages contribute to the growth of cantonal employment (Halebić & Merdić, 2013). The analysis shows that in the observed period only Central Bosnia Canton and Zenica-Doboj Canton had a positive value of the cantonal component, i.e. cantonal competitive advantages contributed to employment growth in only three cantons. All other cantons achieved a negative value of the cantonal component, which shows that the comparative advantages of the cantons are not exploited and that the economic structure is not established in a way that enables specialization based on the comparative advantages of individual cantons.

Compared to the analysis concluding with the 2011 data (Halebić & Merdić, 2013), Central Bosnia Canton is the canton with the largest reduction in sectoral employment dispersion until 2018, since the value of the location coefficient was greater than 1 in a total of 7 sectors. However, analysis of the location coefficients of Central Bosnia Canton in 2018 showed that the canton had a value of location coefficient greater than 1 in a total of 3 sectors. Analysis of changes in employment by component shows that Central Bosnia Canton achieved the highest relative employment growth in the observed period from 2012 to 2018, amounting to 31.61%. Furthermore, the analysis shows that Central Bosnia

Canton has the highest value of the cantonal component in employment growth (in total employment growth, employment on the basis of utilization of cantonal competition increased by 4,063 new employees). Central Bosnia Canton has the highest location coefficient in sector C – manufacturing, and individual shift-share analysis of changes in employment by cantons shows that it is precisely manufacturing industry that participated the most in total employment growth in the observed period, with 6,544 new employees in manufacturing industry of Central Bosnia Canton within that time range. Taking into account that the value of the location coefficient in the processing industry in Central Bosnia Canton amounted to 0.78 in 2011, and that in the observed period from 2012 to 2018 the economic structure of Central Bosnia Canton significantly changed, with emphasis placed on the specialization in manufacturing, and that it is precisely the specialization in this industry that has participated most in the employment growth of Central Bosnia Canton, we can conclude that it is necessary to recognize the comparative advantages, develop sectoral policies and manage the process of changing the economic structure of the cantons, all in the function of employment growth.

The next canton with the highest relative employment growth is Bosnia-Podrinje Canton, which recorded employment growth of 20.79% over the observed period. Bosnia-Podrinje Canton is one of the three cantons with the lowest sectoral employment dispersion (with Central Bosnia Canton and Zenica-Doboj Canton), because the value of its location coefficient is greater than 1 in only three sectors. Bosnia-Podrinje Canton saw employment growth attributable to exploitation of the mix competitive advantage.

After Bosnia-Podrinje Canton, Zenica-Doboj Canton saw the highest relative employment growth of 20.45%, compared to 2012. In addition to Central Bosnia Canton, Zenica-Doboj Canton is another canton that has seen employment growth attributable to exploitation of cantonal competitive advantage in particular sectors. The total employment growth attributable to exploitation of cantonal competitive advantage is reflected in 699 new employees.

Considering that Central Bosnia Canton and Zenica-Doboj Canton are the only three cantons that have achieved employment growth attributable to exploitation of cantonal competitive advantage, that they are also the three cantons with the lowest sectoral employment dispersion ( $LQ_i > 1$  in only three sectors), and having achieved the highest relative employment growth in the observed period, we can conclude that the cantons with less sectoral employment dispersion, i.e. with greater degree of specialization and exploitation of competitive advantages over time, achieve higher relative employment growth than other cantons.

#### 4. Conclusion

The results of the survey show that most cantons in the Federation of BiH face lower sectoral employment dispersion, given that they have a location coefficient greater than 1 in only a few sectors. Only Herzegovina-Neretva Canton and Sarajevo Canton have relatively broad economic structure that is more resistant to external shocks compared to economic structures with less sectoral employment dispersion. However, the analysis conducted shows that smaller sectoral employment dispersion does not necessarily imply negative effects on economic trends. The best example of this is Central Bosnia Canton, which has reduced sectoral employment dispersion between 2012 and 2018, and yet managed to achieve the highest relative employment growth. This goes in favor of the fact that specialization in a sector, especially in a sector where the canton/region has comparative advantage, leads to faster employment growth.

The narrow economic structure of most cantons in the Federation of BiH (except Herzegovina-Neretva Canton and Sarajevo Canton) should also imply specialization and exploitation of cantonal competitive advantages, and, by analogy, faster relative employment growth. However, the problem of cantonal economic structures that have lower employment dispersion by sector is that most (except Central Bosnia Canton and Zenica-Doboj Canton) have a negative value of the cantonal component in shift-share analysis, which shows that cantons do not exploit cantonal comparative advantages. Central Bosnia Canton and Zenica-Doboj Canton have the most narrow economic structure and at the same time those are the cantons that have positive values of the cantonal component.

The problem of narrow economic structures of cantons of the Federation of BiH which have a negative value of the cantonal component, is that they are also vulnerable to possible external shocks that can cause a significant increase in unemployment. Furthermore, they fail to achieve employment growth based on cantonal comparative advantages. Thus, the sectoral dispersion of employment in these cantons is the result of an ad hoc approach to managing sectoral development. In the future, it is necessary to develop sectoral policies from the lowest to the highest levels, which will be based on the development potentials of individual regions. An additional problem of the economic structure in the Federation of BiH is that these are mainly sectors with less added value, which ultimately results in a lower value of GDP p.c. Aligning economic structures in line with comparative advantages, while also taking into account the added value of each sector, is one of the key challenges for economic policy makers.

Significant changes in the sectoral dispersion of employment require a longer time and systematic approach to development planning. It is necessary to consider all the comparative advantages of individual cantons and turn them into competitive ones, with lower opportunity costs in production. This would ensure a more balanced development of the cantons in the long run and put the available resources at the service of economic development. An ad hoc approach to economic development will surely result in an increase in the GDP gap due to unused capacities, which entails high opportunity costs in production that have long-term negative consequences for the economic development of Bosnia and Herzegovina as a whole. These consequences are primarily reflected in underutilization of production capacities and the lack of transformation of comparative advantages into competitive advantages.

The relatively narrow economic structure shows the existence of a very small number of economic sectors that can be designated as leading sectors in creating growth and employment. In addition, the problem of this structure of activity and development of certain sectors is the fact that these are precisely sectors with relatively low added value, that is, relatively low technological structure.

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**INTERNATIONAL ECONOMICS /  
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## CONCEPT OF SOCIAL RESPONSIBILITY – CONVENTIONAL ECONOMICS *VERSUS* ISLAMIC ECONOMICS

## KONCEPT DRUŠTVENE ODGOVORNOSTI – KONVENCIONALNA EKONOMIJA *VERSUS* ISLAMSKJE EKONOMIJE

**Abstract**

*Starting from the fact that companies are not closed but open systems, that is, that there is a propulsion of the boundaries between the companies and the society, the conventional economics is dominated by a general view point that states that modern companies cannot exclusively turn to the realization of their business goals, but have a duty to act in accordance with the interest soft heir stakeholders (employees, customers, suppliers, community, environment, etc.). The concept of corporate social responsibility (CSR) is also present in literature in the field of Islamic economics and finance. This concept is based on the principles of the Sharia's and is in accordance with the Islamic view of the world expressed in the Ihsan. The main aim of this paper is to explore and analyse the theoretical and practical aspects of CSR from the perspective of conventional economics, on the one hand, and Islamic economics and finance, on the other. Research results show that there is no significant deviation of principles of Islamic economics and finances versus conventional principles of CSR. The only difference is that the first involves a higher degree of ethical principles that should result in the greater moral and ethical economic development of society.*

**Keywords:** social responsibility, conventional economics, Islamic economics

**JEL:** M14, P51, Z12

**Sažetak**

*Polazeći od toga da preduzeća nisu zatvoreni, već otvoreni sistemi, odnosno da postoji propulzivnost granica između preduzeća i društva u kojem ono funkcioniše kao njegov sastavni element, u konvencionalnoj ekonomiji danas dominira opšte stanovište prema kojem savremena preduzeća ne mogu isključivo biti okrenuta ka ostvarivanju svojih poslovnih ciljeva, već imaju obavezu djelovati u skladu sa interesima svojih stakeholdera (zaposlenika, kupaca/klijenata, dobavljača, društvene zajednice, okoline i dr.). Koncept društveno odgovornog poslovanja nailazimo i u literaturi s područja islamske ekonomije i finansija. On se temelji na principima Šerijata i u skladu je sa islamskim pogledom na svijet izraženim u konceptu Ihsana. Osnovni cilj ovog rada je da se istraže i analiziraju teorijski i praktični aspekti društvene odgovornosti preduzeća iz perspektive konvencionalne ekonomije, s jedne strane, i islamske ekonomije i finansija, s druge strane. Rezultati istraživanja pokazuju da nema značajnog odstupanja principa islamske ekonomije i finansija versus konvencionalnih principa društvene odgovornosti. Razlika je jedino u tome što prvi uključuju viši stepen primjene etičkih principa koji treba da rezultiraju moralnim i etičkim ekonomskim razvojem društva.*

**Ključne riječi:** društvena odgovornost, konvencionalna ekonomija, islamska ekonomija

**JEL:** M14, P51, Z12

## 1. Introduction

The purpose of every business is to make a profit. The exclusive focus on profits of most companies in the world, and especially large multinationals, has begun to produce effects that are contrary to the goals of the community. The lack of concern about the consequences of their decisions, especially related to the uncontrolled use of resources, from human to natural, has led to catastrophic results, in the extent of which can hardly be properly evaluated. They are related to all spheres of human life in the coming future. The negative impact on the social development of society, the human environment, the uncertainty of existence, the increasing economic and financial crises, the lack of education of the population, the growing gap between rich and poor, etc., have led to global social disorders. In the last 15 years, insensitivity to these factors has caused large companies to be attacked by the public, informal and formal groups of citizens, including the executive and legislative branches. All this brought to the fore their CSR (Dima & Mirshak, 2007, p. 23). For example, the global financial crisis of 2008 imposed the need to find an alternative that would humanize the current social-economic system and make it more ethical, moral and socially responsible, or more appropriate to the expectations of 21st-century society. This is because modern economists have come to the common conclusion that one of the key causes of economic crises is, in fact, a specific manifestation of human greed.<sup>1</sup> In the context of the above, the Islamic economy has set itself as an example of good practice in how an organic combination of business and moral principles can and should be made in business.<sup>2</sup>

The subject of this paper is to analyse the concept of Islamic social responsibility versus the conventional principles of CSR. The scientific literature on the given topic is very scarce, and the authors have made a significant scientific contribution by systematizing, in theoretical and methodological terms, the comprehensive theoretical knowledge related to the concept of social responsibility from the point of view of Islamic economics and conventional economics. Much research has been published specifically on the Western philosophy of CSR, but few attempts have been made to explore the concept of social responsibility from an Islamic perspective. Therefore, this paper seeks to fill this "research gap" by defining the phenomenon of social responsibility in the light of Islamic teachings, but also by drawing a distinction between Western and Islamic perspectives on social responsibility, as well as the commonalities of the above. *The basic research question* posed in the paper is: is the model of CSR from the point of view of the Islamic economy compatible with the conventional principles of CSR?

## 2. Previous research on the topic

In its EC White Paper on Corporate Social Responsibility (CSR, 2003), the European Commission defines CSR as a concept whereby a company voluntarily integrates social and environmental concerns into its business activities and relationships with stakeholders (owners, shareholders, employees, consumers, suppliers, government, media, and the general public).

The World Business Council for Sustainable Development (WBCSD), one of the leading civil society organizations in the world that provides businesses with information, tools, training, and advisory services related to CSR, defines CSR as doing business that meets or exceeds ethical, legal, market expectations, that is, expectations that the society has from the business. Comparing this definition of social responsibility with other definitions, it can be seen that it is more

comprehensive since it involves linking business decisions with ethical values and legal regulations, but with respect for people, communities and the environment (Kotler & Lee, 2009, p. 24).

Furthermore, Rochlin (Center for Corporate Citizenship) points out that the Center for Social Awareness and Accountability (Boston College) defines corporate responsibility as a process within which businesses act as the economic and social well-being of the social communities they influence, bringing social interests together with other goals of your core business. *Warwick University*, on the other hand, promotes the idea that corporate responsibility of a business as a citizen of society is reflected in both the work and ethical obligations of the firm in a range of areas, including, but not limited to, human rights, the community, working relationships, consumers, owners, the environment, suppliers, production, codes of conduct, philanthropy, marketing, ethics, etc. (Delić, 2013, p.13).

Recently, Islamic economists have been increasingly interested in the field of CSR, as it has been shown that the realization of such a model produces different repercussions on the organization and almost every aspect of life in the community. Thus, for example, Efendić and Hadžić (2017) start from the view that ethical principles should be an integral part of the business strategy of every company, including the financial institution. When it comes to implementing the principles of the Islamic economy in Bosnia and Herzegovina (BiH), it is reduced to only minor attempts, since there are only two institutions operating on the BiH market that seek to apply the principles of the Islamic economy (BBI Bank<sup>3</sup> and the First Islamic Microcredit Foundation in BiH). Recent studies on the performance of these institutions have shown that the BBI Bank is more efficient than the average of conventional banks, while the Islamic microcredit institution is more efficient than the average of microcredit foundations. Finally, the research by Efendić and Hadžić has led to a crucial conclusion, which is that the principles of the Islamic economy fully contain all the conventional principles of social responsibility. Thus, the Islamic economy can be considered as a socially responsible economy.

By analysing the concept of socially responsible business through the prism of the Islamic economy, it can be noted that the same allows and encourages business and entrepreneurship, but also defines the basic principles of the economic behaviour of both consumers and producers. In business relations, from the point of view of the Islamic economy, any discrimination between people is prohibited on the basis of their religion, sex or gender. Therefore, there is no conflict between good business practice and the profit that is viewed as a secondary way of measuring efficiency. Therefore, CSR is based on ethical business, with three fundamental principles: trust, justice and honesty and mutual respect (Benić, 2017, p. 3). The application of these principles leads to such conduct in a business in which profit-making is permitted, but only to the extent that it does not harm the interests of other stakeholders or the entire community. Accordingly, no business can be undertaken in which benefits are gained to the detriment of others or those in which the profits to the community are less than the harm to the community.

Usmani (1998), states that nevertheless, there is a significant contrast in analysing social responsibility from an Islamic point of view from Western theories. Specifically, Western economists have sought to find reasons to pursue social protection activities by linking them to the strategic benefits that an organization can achieve with the concept of social responsibility. The concept of corporate social responsibility towards the Islamic economy is based solely on goodness - that is, the benefit of others without obligation and on voluntary activities that have no purpose other than to enjoy Allah's pleasure. Some authors argue that, in essence, socially responsible business is deeply embedded in one of the fundamental principles of Islam - Zakat (obligatory goodness). Human beings manage the resources provided by Allah and are responsible for using them for the betterment of society in accordance with the guidance given in the Divine Traditions, i.e. in the Quran. This encourages every Muslim businessman - to establish an example of socially

responsible practice in his business conduct, exclusively for the sake of Allah. It is natural for a company that functions according to Sharia principles to practice CSR.

Efendić (2014) points out that the recent economic crisis has further highlighted all the weaknesses of the conventional economy and business ethics that are present in contemporary capitalism and market economics. Today's global imbalances have imposed the need to find an alternative that would humanize the current economic system and way of doing business and make it more ethical and socially responsible. In the context of the above, the Islamic economy has set itself as a good example of how a natural combination of business and moral principles can and should exist. Efendić states that individual action must not be in conflict with social interests. A similar issue can be found in Sairally's (2006) study. Specifically, this author points out that the common practice of financial institutions is the obsession with profit and economic efficiency. Sairally is especially concerned about the lack of interest about socio-economic equality and well-being. Her contribution to the research is based on a comparative analysis of the concept of social responsibility of Islam and the West.

Ilyas (2018) is concerned with exploring the necessity of introducing the concept of Islamic social responsibility in corporations and businesses, and as such, incorporation into their business strategies. Platonova (2013) assumes that Islamic financial institutions and their transactions must "incorporate" the fundamental principles and norms of the Islamic economy.

Interesting research on the topic of a comparative review of the concept of CSR in Islamic financial institutions (Islamic banks) and conventional banks was studied by Durrani (2016). Namely, conventional banks show examples of good CSR practices in the fields of education, environment, cooperation with the government, law, and sports. Islamic banks, on the other hand, are more inclined towards health, art, and culture, social protection, protection against natural disasters, etc. The study found that Islamic and conventional banks show the need to develop standards of CSR model that will be applicable in practice.

Khurshid et al. (2014) developed so-called Islamic Model of Social Responsibility (ICSR). The foundations of this model are found in the Quran as well as in the 1979 Carroll study. Model adds an economic-moral-ethical-philanthropic dimension to the traditional definition of social responsibility by Carroll, thus making the CSR model adaptable to both Islamic business and non-Islamic business frameworks.

### 3. Research methodology

The research subject has determined the research methodology in this paper. Bearing in mind the interdisciplinary character and complexity of the subject of research, the paper also uses relevant methods and techniques of scientific work. The research was carried out on the basis of 1) secondary data sources, using desk research method, mostly based on distinguished books in the fields of Islamic economics and finance, human resources management, as well as articles, studies, publications, journals, newsletters, reports by domestic and international institutions, and websites that address the aforementioned research issues, 2) based on primary empirical research using a survey questionnaire as a data collection tool. The survey included a total of 102 BiH companies from various branches of enterprise activity. The largest number of surveyed companies, 49 (49%) had less than 50 employees, followed by 33 (33%) surveyed enterprises that had a number of employees between 50-249, while the smallest number of companies (18 or 18%) had more than 249 employees. Two surveys are considered invalid, totalling 100 companies. Regarding the structure of employees according to the level of qualification of the surveyed companies, the highest average number of employees was with secondary education ( $M = 92$  employees), followed

by university degree ( $M = 27$  employees), and the smallest number of employees was with higher education ( $M = 13$  employees). The results of the survey will be presented below.

#### 4. Results and discussion

Part of the results of an empirical study on the development of CSR in BiH companies is shown in Table 1. Based on the analysis of these data, there is a relatively low level of development of almost all categories of CSR. On the statement that Bosnia and Herzegovina's companies are characterized by a high degree of economic responsibility, the answer "somewhat agree" was given by 39% of respondents, "disagree" by 25% and "disagree at all" by 10% of respondents. "Total agreement" and agreement based on this claim was found in a total of 26% of enterprises, which is relatively low.

Table 1. *Development of social responsibility in BiH companies*

Social responsibility categories in your business	I totally agree	I agree	I somewhat agree	I do not agree	I disagree at all
Your business is characterized by a high degree of economic responsibility (making a profit by producing products or providing services that the company values).	4.0	22.0	39.0	25.0	10.0
Your business is characterized by a high degree of legal responsibility (operating in compliance with national laws and regulations).	2.0	26.0	42.0	27.0	3.0
Your business is characterized by a high degree of ethical responsibility (The business does not violate accepted principles that define what is right and what is wrong).	1.0	15.2	44.4	30.3	9.1
Your business is characterized by a high degree of discretion (the company voluntarily performs a social role that goes beyond its economic, legal and ethical responsibility).	4.0	26.0	46.0	21.0	3.0

Source: Authors' research

Similarly, the results of empirical research show that BiH companies are characterized by a relatively low level of legal responsibility (a total of 28% of companies agree on this claim). When it comes to ethical responsibility, the results of the research are devastating. With the claim that a high degree of ethical responsibility is characteristic of BiH companies only 1% of respondents totally agreed. 15.2% of respondents agreed, 44.4% somewhat agreed, with 30.3% disagreeing and 9.1% of respondents do not agree at all. Somewhat better results were found in the category of discretionary responsibility. Taking into account the above results, it can be concluded that social responsibility has not yet been sufficiently affirmed by BiH companies (especially if the development of this approach is compared with its development in the Islamic economy and developed countries with conventional economy), which jeopardizes the interests of different categories of stakeholders, and thus limiting not only the competitiveness of enterprises, but also the overall socio-economic development of BiH.

The presented results confirm one important claim made earlier by authors of this paper. Namely, the approach to social responsibility in the context of fundamental principles in the Islamic economy is broader than the approach to social responsibility in the conventional economy. Specifically, the fundamental principles of Islamic economics include all dimensions of social responsibility recognized by Carroll. However, social responsibility in the conventional economy does not necessarily include the ethical dimension. This further implies that social responsibility, according to this approach, is narrower than that of an Islamic one. In the Islamic economy, on the other hand, ethical responsibility is obligatory. Therefore, as stated by Carroll (1979), the principles

of social responsibility are fully incorporated into the principles of the Islamic economy, while the Islamic economy treats some dimensions of social responsibility in a different and much more strict way.

## 5. Conclusion

BiH does not give needed importance to the application of the principles of the Islamic economy in relation to the potential it offers. A modest example of CSR based on the application of the principles of the Islamic economy in BiH is the BBI Bank example. However, the Bank faces the problem of the expansion of its operations due to the adverse legal and economic environment. While the surrounding countries are intensively working to create a favourable environment for attracting Arab capital, BiH is blocking that path by ideological prejudice and conceptualization, thus creating resistance and obstruction to solutions that would make business easier. Although there have been some efforts reforming the legal framework, making some progress, nothing significant has happened in that direction. Due to the above, it is impossible to fully implement certain principles of Islamic banking, which affirms social responsibility and thus helps prevent financial crises or mitigate their effects.

When it comes to the development of social responsibility in BiH companies, the survey results show a relatively low level of development of all categories of social responsibility, and especially a low level of ethical responsibility (as opposed to ethical responsibility in the Islamic economy in which it is obligatory).

The systematization of the scientific and theoretical knowledge obtained so far and the empirical research on the phenomenon of social responsibility presented in this paper indicate that the concept of socially responsible business from the Islamic point of view is fundamentally compatible with conventional principles of social responsibility in an economy based on market principles, thus proving the established research hypothesis.

In order to make the CSR approach in the context of Islamic economy more understandable, it is necessary to update theoretical and empirical research in this field, and to create and implement appropriate educational programs, the realization of which would ensure better recognition of the importance of CSR according to the principles of Islam. The empirical research conducted has some limitations, which primarily relate to a sample of the research that is relatively small. Based on that, the authors propose that any future research on this matter has larger sample data. This research should also include examining managers' views on the degree of knowledge of the concept of social responsibility in the Islamic economy.

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<sup>1</sup> In the book "Capital in the 21st century", Piketty (2014) states that greater profit from capital compared to profit from labor, in the long run, creates increasing social inequality. This has the effect of making the rich even richer and the poor even poorer while slowing down the social mobility of the above. In such a spiral of relationships, the newly created value is transformed into its own wealth, not going into development investment.

<sup>2</sup> Literally, it is considered necessary in the Islamic economy for those in power to be de facto sensitive to the general welfare of the people (Ahmad, M.T. 2010, p. 25). The Qur'an, the basic source of Islam, also states that the one who governs bears a special responsibility and that he is accountable to God for the affairs of those in his hierarchy. It is clear that accountability in Islam represents the highest value, something that will only be actualized in the West in the last two years, primarily through the writings of Peterson (2019). This is, in fact, what modern society should pursue - in other words, if states become sensitive to the general well-being and suffering of the people, then, before people begin to complain about their anguish and poverty, they will be forced to take power by all means. Therefore, a socially responsible business in the Islamic economy cannot be ignored or dismissed!

<sup>3</sup> Bosna Bank International (BBI) strives to operate in accordance with Sharia law and Islamic principles. BBI Bank is not strictly guided by commercial banking principles. Such a development approach produces good results, both in the business domain and in corporate social responsibility. Namely, BBI Bank, as a socially responsible institution, contributes in various ways to the society in which it operates, by investing in the economy, strengthening the BiH economy, assisting in the education and training of young people, and the like. In addition, BBI Bank provides its employees with continuous professional development through internal seminars and external-on-the-job training. Working at BBI Bank, employees have the opportunity to educate themselves within the Young Professionals Program at global financial institutions. Also, the bank's employees undergo quarterly training on the job training at the Istanbul Stock Exchange, Al Barak, and Kuveyt Türk Bank in Turkey. Therefore, it is an Islamic bank that focuses on developing the country's economy through investment in the development and growth of businesses. Its corporate social responsibility is also reflected in its investment in staff development, academia, and support to the community in which it operates through a series of responsible projects and a commitment to improving the quality of service (<http://www.bbi.ba>, Accessed: September 2019).

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## THE EUROPEAN UNION LABOUR MARKET IN THE POSTRECESSION PERIOD

### TRŽIŠTE RADA EVROPSKE UNIJE U POSTRECESIJSKOM PERIODU

#### Abstract

*The financial crisis in the United States in mid-2007 spilled into the real sector of the US economy quickly and, thanks to the pronounced internationalization of financial flows, spread to other regions, especially to Europe. In addition to disruptions in the European financial market, the crisis produced serious problems in the real world. The economies of many members entered the phase of long-term recession with all negative implications. Consequently, the recession left a mark on the labour market of the EU, affecting not only the absolute or relative increase of the unemployed and the fall of the employed persons in the short term, but also the essential changes in its composition, size and dynamics, which is the focal point of the subject matter. Also, the recession revealed the structural weaknesses of the labour market and pointed to the need for its restructuring. It should be emphasized that the reactions of individual labour markets within the Union, were not of the same intensity. In addition to the effects of the recession, the European labour market is currently facing a current migrant crisis, which exerts additional pressure and poses new challenges for government officials. According to the above, the subject of research is the EU labour market after the global recession and in the light of the current migrant crisis. The main goal of the paper is to identify the changes in the postrecession period of the EU labour market, analyse the activities and measures taken to address the underlying weaknesses, improve performance and respond to new structural challenges for the labour market in order to make it more resistant to possible future recessions. Secondary data will be collected from relevant sources, and in their processing, certain methods of descriptions and statistical methods will be applied.*

**Keywords:** changes, EU labour market, postrecession period, global recession, migrations

**JEL:** F15, F 22

#### Sažetak

*Finansijska kriza rođena u SAD sredinom 2007. godine dosta brzo se prelila u realni sektor američke privrede te se zahvaljujući izraženoj internacionalizaciji finansijskih tokova, proširila i na druge regione, posebno na Evropu, poprimajući karakter globalne ekonomske krize. Kriza je osim poremećaja na evropskom finansijskom tržištu produkovala ozbiljne probleme u realnoj sferi, zbog čega su ekonomije mnogih članica ušle u fazu dugotrajne recesije sa svim negativnim implikacijama. Posljedično, recesija je ostavila traga i na tržištu rada EU, utičući ne samo na apsolutni ili relativni porast nezaposlenih i pad zaposlenih osoba u kratkom roku, već i na suštinske promjene u njegovoj kompoziciji, veličini i dinamici, a što i jeste fokalna tačka predmetnog rada. Također, recesija je otkrila strukturne slabosti tržišta rada i ukazala na potrebu za njegovim restrukturiranjem. Pri tome treba naglasiti da reakcije pojedinačnih tržišta rada u sklopu Unije na efekte krize nisu bile istog intenziteta. Osim posljedica uzrokovanih recesijom, evropsko tržište rada trenutno se suočava sa tekućom migrantskom krizom, koja vrši dodatni pritisak i*

*postavlja nove izazove za predstavnike vlasti. Shodno prethodno navedenom, predmet istraživanja je tržište rada EU nakon globalne recesije i u svjetlu aktuelne migrantske krize. Osnovni cilj rada odnosi se na identifikiranje promjena nastalih na tržištu rada EU postrecesijskom periodu, analizi aktivnosti i mjera poduzetih na otklanjanju suštinskih slabosti, poboljšanju performansi i odgovoru na nove strukturne izazove za tržište rada, kako bi se ono učinilo otpornijim na eventualne buduće recesije. Pri pisanja rada koristiće se sekundarni podaci prikupljeni iz relevantnih izvora, a pri njihovoj obradi primjenjivat će se određene metode deskripcije i statističke metode.*

**Ključne riječi:** promjene, tržište rada EU, postrecesijski period, globalna recesija, migracije

**JEL:** F15, F 22

## 1. Introduction

After the European economy entered a deep recession, with all the adverse economic developments and conditions on the European Union (EU) labour market, it worsened significantly. In addition to its long-term and grave consequences, it has brought new challenges for the labour market. Differences in labour market performance of individual EU member states, changes in employment rates/activity rates, duration of unemployment, institutional challenges, and activities aimed at creating employment are just a few. Although the recession has had a long-term impact on the EU labour market, in general there is some degree of heterogeneity among the individual members. The effects of the recession are different across Member States, and accordingly anti-crisis measures. One reason is that, well before the crisis, some countries developed certain instruments in the labour market and initiated the necessary reforms, unlike others which only started this process during the crisis. The second reason is the severity and duration of the recession in individual countries. As a result, the reaction of employment and unemployment to changes in economic activity, i.e. changes in GDP are different, the elasticity of employment and unemployment to GDP is higher or lower. There is diversity in the development of employment in national contexts, although in general the outlook for the recession and postrecession was negative for the whole EU. In the EU, the first signs of crisis emerged in the second quarter of 2008, and the crisis was more intensely reflected in the third quarter, with the most severe forms of financial turmoil since 1929. In addition to disrupting stable economic growth hitherto, it has also strongly affected the labour market. On the one hand, it stopped the ten-year trend of declining unemployment, and on the other, caused a decrease in employment. According to Eurostat News release (2011) in the EU, GDP fell by 4.2% in 2009 compared to 2008, about 23 million people remained unemployed, or about 10% of the economically active population. In response to the challenges of the recession, the EU adopted a European Economic Recovery Plan (EERP) at the end of 2008 with around € 200 trillion (or about 1.5% of GDP) to slow down economic downturn and created the conditions for a possible recovery (European Economic Recovery Plan, 2008). The structural reform measures that formed the backbone of the plan referred to, inter alia, labour market reform measures and measures to strengthen citizens' purchasing power and stimulate consumption, in order to increase demand for goods and services and, consequently, by working.

## 2. Previous research

Many studies focused on analysing developments in the EU labour market during and after the last economic crisis have mainly focused on formulating conclusions and recommendations for active labour market policies (for example, Bell & Blanchflower, 2011; Hutengs & Stadtmann, 2014; Zanin, 2014, etc.). The authors mentioned draw particular attention to the specific problems caused by the crisis among young people. In other words, unemployment among them has increased significantly more than other age groups, which will have serious consequences in the long run. Even the Scandinavian countries, which are worth having an efficient and functional labour market

and a quality education system, are not exempted from these problems and challenges of integrating young people into the labour market.

Similar studies by the IMF (2015), the European Labour Market (2012), the ECB (2012), the European Employment Observatory (2009) and many others have also confirmed that the unemployment rate of the younger category is mainly in crisis periods. Population is more sensitive to fluctuations in production and policies promoted by labour market institutions than the unemployment rate among adults.

Marjanovic and Mihajilovic (2015) analyse the labour market situation in the EU in the recession and postrecession period. Thus, active and passive labour market measures in individual EU countries are highlighted as a subject of particular interest of these authors. Furthermore, Ognjenović (2015) presents in his research the development of active labour market policy measures in some European countries, starting from the 1960s to the present (including recent developments in the EU labour market).

Dimian, Begu, and Jablonsky (2017) give the main focus of their research to comparisons of unemployment rates in individual EU countries, especially during 2010. The authors come to the important conclusion that changes in economic structures and trends occur much faster and faster during the mentioned period than the labour market can really bear. On the other hand, Kerovec (2016) places a particular focus of his research on EU labour market perspectives. According to her calculations, in the second half of 2010, the EU labour market is beginning to recover, and it was therefore interesting for this author to monitor the comparative developments in (in) employment and GDP rates in some European countries.

Obadic (2011) analyses the impact of the global financial crisis on the global labour market and on one of the most important human needs - the need for work, and the fact that reduced economic activity is affecting vulnerable groups of employees and increasing the so-called "overtime". According to this author, job losses and retention of existing employees have been somewhat reduced by measures such as reducing working hours, working weeks, ending overtime and the like. There has been a significant decline in employment in dynamic sectors, based on exports, construction and manufacturing. In Europe, the highest job losses are evident in the industrial sector as well as in the agriculture sector and the smallest in the services sector. Ultimately, the conclusion is that crisis-based labour market policies should include a combination of passive and active programs, which would stabilize employment, with greater flexibility and security.

### **3. Development of the European union labour market during the recession**

#### *3.1. Analysis of trends in employment rates*

Adverse economic developments at the global level (decline in global demand for goods and services, decline in investment, production and consumption) caused a sharp fall in labour demand in EU countries during 2008-09, and by analogy to a reduction in employment. The exception is Germany, where the number of employees has grown and reached its highest level in 2011 since the merger [The European Labour Market-Success Through Flexibility And Mobility (Centre For European Studies) 2013, p. 119].

From the beginning of significant negative trends in the second quarter of 2008 until the second quarter of 2010, it decreased by 2.5%. It was only in the second quarter of 2010 that employment stagnated compared to the previous quarter, and in 2011 a slight increase. The highest employment rates in the range of 72% to 75% were reached in Austria, Germany, Denmark, Sweden and the Netherlands. At the other end of the scale, employment rates were below 60% in the ten EU

Member States, with the lowest rates in Italy (56.9%), Hungary (55.8%) and Greece (55.6%). This dispersion is present not only between the members but also within the countries themselves, i.e. between regions (e.g. Italy and Spain). The vacancy rate in the EU has been steadily declining from the second quarter of 2008 to the third quarter of 2009. Thus, it stood at 2.2% in the first quarter of 2008, down to 1.3% in the third quarter of 2009. Generally speaking, the total number of job vacancies decreased by about 40% during that period. Viewed by EU Member States, the situation was quite different, so, for example, in the second quarter of 2010 the vacancy rate was the lowest in France (only 0.4%) and the highest in Germany (2.5%) (Employment in Europe, 2010). The reaction of the German labour market to the recession was much milder and the consequences much less, primarily due to reforms initiated many years before the global crisis.

Intense reforms began in the early 21st century. The Hartz reforms between 2002 and 2005 were particularly emphasized, as was the Agenda 2010 [The European Labour Market-Success Through Flexibility And Mobility (Centre For European Studies) 2013, p. 10]. Namely, reform measures consisted of introducing shorter courses instead of retraining programs, liberalization of flexible working arrangements, the so-called “atypical jobs” (temporary and casual jobs, mini jobs, etc.), which led to an increase in employees. Namely, the timely initiation of labour market reform to address structural problems and small adjustments to instruments during the crisis have allowed it to keep most workers at work, making the market more dynamic and flexible.

Analysing and observing the effects of the crisis on the gender, age and branch structure of employees, a significant difference can be observed. Thus, some were hit harder by the recession than others. In this regard, the recession had a stronger negative effect in the so-called traditionally men's sectors such as construction and some manufacturing industries. In the period from the second quarter of 2008 to the second quarter of 2010, according to EUROSTAT (2011), the male employment rate fell by 2.7% (from 73.0% to 70.2%), while the female employment rate decreased by 0.7% (from 59.1% to 58.4%). A decrease of 4.2% in this period was observed in young men (aged 15 to 24). The reasons for the smaller decrease in the employment rate for women lie in the fact that the concentration of women is higher in the so-called “Part-time” employment (i.e. part-time employment), smaller enterprises, lower paid jobs and economic sectors (administrative sector, health, education and social protection), which are less susceptible to cyclical change.

When it comes to age structure, the analysis shows that young people were most affected by the fall in employment, which was mainly due to widespread part-time and part-time work. Thus, e.g. In 2008, 40% of 15-24 year-olds worked part-time, and in the 25-64 age group this proportion was 11% (Employment in Europe, 2010). On the other hand, the employment rate of people aged 55-64 was still high despite the financial and economic crisis, or even increased (partly due to pension reform). Thus, since 1998, when it was 36.2%, it has been continuously increasing (in 2005 it was 42.3%, in 2008 it was 45.6%, in 2009 it was 46.0%, and in 2011 it reached 47.4 %). In 2010, the employment rate of older workers in the ten EU Member States was between 50% and 60%, while by far the highest rate was recorded in Sweden (72.3%) (EUROSTAT, 2011).

Differences are also evident in the qualification structure of employees. The employment rate of those who completed tertiary education in 2011 was 83.7%, which is significantly higher than the rate of those with primary or lower secondary education (53.5%). In addition, the recession also affected migrant workers, who were the first to be squeezed out of the labour market, as primacy was given to the domestic workforce.

In line with the foregoing, it can be stated that in the EU the recession affected most men, young people, migrants, the low-educated and those with part-time and part-time contracts.

### 3.2. Analysis of unemployment rate trends

Based on the European Commission's report on the state of the EU's economic activities over the period under review, unemployment growth in the Union was lower than expected. According to them, there are several reasons for such developments in the labour market: the crisis hit the EU later; sectorial shocks in finance, construction and the real estate business were not as strong as in the US; EU labour law has a stronger feature of protectionism; In the EU, more measures such as part-time work, temporary production interruptions, etc. were used. Such measures made it possible to avoid layoffs.

The unemployment response to the recession was highest in Spain, Ireland and Greece, and lowest in the Netherlands and Germany, Belgium. Germany is the only country that has not recorded mass unemployment during the crisis and postcrisis period. In the first three quarters of 2008, unemployment rates in the EU were relatively low.<sup>1</sup> As can be seen from *Table 1*, it was not until late 2008 that unemployment started to pick up. The highest rate of total unemployment of 10.1% was recorded in the first quarter of 2010, which is 3% more than at the beginning of the observed period. However, if we look at gender, this increase was not uniform. Thus, e.g. for men it was 3.7% and for women 2.1%.

Table 1. *Unemployment rates in the EU 27 by quarters and by sex in the period from 2008 to 2010*

Quartile	Total	Man	Woman	EU
2008/1	7,1	6,7	7,6	0,9
2008/2	6,8	6,4	7,3	0,9
2008/3	6,8	6,4	7,4	1,0
2008/4	7,3	7,0	7,7	0,7
2009/1	8,7	8,7	8,7	0,0
2009/2	8,8	8,9	8,6	-0,3
2009/3	9,0	9,0	8,9	-0,1
2009/4	9,3	9,4	9,2	-0,2
2010/1	10,1	10,4	9,7	-0,7
2010/2	9,5	9,6	9,4	-0,2
2010/3	9,3	9,2	9,4	0,2
2010/4	9,5	9,4	9,5	0,1

Source: Eurostat unemployment rate, 2016 ([http://epp.eurostat.ec.europa.eu/portal/page/portal/employment\\_unemployment\\_ifs/data/database](http://epp.eurostat.ec.europa.eu/portal/page/portal/employment_unemployment_ifs/data/database), Accessed: July 2019)

Viewed by age, unemployment increased across all age groups. It should be noted that young people (aged 15-24) were one of the hardest hit categories in the labour market. This is especially true for the young male population. Youth unemployment rates have grown significantly faster than all other labour market categories. The highest participation of young people in total unemployment was recorded in Spain. In the last decade, the lowest youth unemployment rate was recorded in 2007, when it stood at 15.5%. By 2010, that rate had increased to 20.7%, i.e. by 5.3% (Employment in Europe 2010). The main cause of a large number of unemployed young people (from 15 to 24 years of age) is a lack of jobs, new jobs, a mismatch of acquired and required skills and competences. The enormous increase of unemployed young people (over 20%) and the difficulties associated with integrating them into the labour market (due to lack of experience and competencies) and their long-term unemployment will pose a serious economic problem in the long run. Due to the long period of unemployment, an increasing number of young people are becoming discouraged and leaving the labour markets. Experientially, long periods of unemployment or quitting the job market at the beginning of a career have long-term negative repercussions. This erodes professional and social skills and prevents young people from gaining the necessary experience.

#### 4. Analysis of the movements of the European union labour market in the postrecession period

##### 4.1. Postrecession employment and unemployment trends

According to current estimates, the unemployment rate of EU member states has been at a lower level in the last ten years. Thus, according to EUROSTAT (2018) in the euro area in the second quarter of 2018, the unemployment rate was 8.3%, which is still 1% higher than in 2008, when its lowest level was recorded. However, unemployment rates are still high in Greece, Spain, Italy, Croatia and Cyprus (Figure 1). On the other hand, the number of EU employees increased by 1.6% in 2017, the highest annual increase since the start of recovery. Total employment continued to increase in the first two quarters of 2018, reaching 238.9 million, up about 3.2 million more than a year ago. More than 14 million additional jobs have been created since employment began to recover in mid-2013.

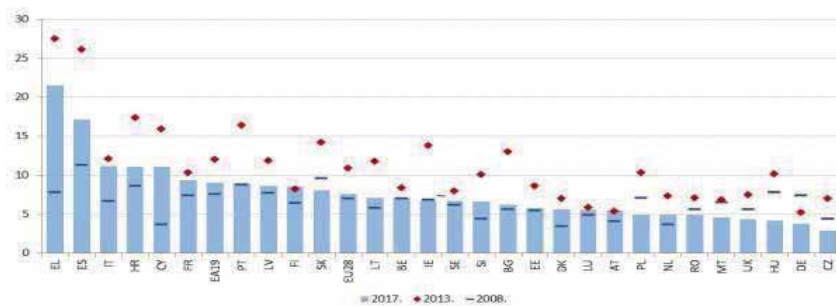


Figure 1. *Unemployment rate in the EU*

Source: EUROSTAT, 2018

The employment rate (from 20 to 64 years) is steadily increasing and is approaching the goal of the Europe 2020 Strategy (Vuković, 2011, p. 498). So, it grew faster than in 2016 by 1.1%, reaching 72.2% in 2017, and continued to grow in the first two quarters of 2018, at 73.2%. In the euro area, the employment rate in the second quarter of 2018 reached its highest level of 71.9%.<sup>2</sup> This positive trend is accompanied by increasing activity in the labour market. In the second quarter of 2018, the activity rate (people aged 15-64) reached a record high of 73.8% (73.5% in the euro area).

Unemployment returned to pre-crisis levels in 2018, after years of continuous decline, reaching 6.9% in the second quarter of 2018 (down 4% from 2013)<sup>3</sup>. The improvement is not so significant in the euro area, where the unemployment rate of 8.3% recorded in the second quarter of 2018 is still 1% higher than in 2008, when its lowest level was recorded. However, given the current state of the EU labour market, we can conclude that, although unemployment (including long-term) has decreased in all Member States during 2017, there is still considerable dispersion of unemployment rates and some of these rates are still far from their the lowest pre-crisis levels.

If one looks at employment growth by age groups, then it should be noted that the highest growth was recorded in the 55-64 age group. According to Figure 2, it can be observed that the number of persons in employment in this group increased by 4.3% in 2017, causing the employment rate to rise to its highest level of 57.1% (approximately 12% more than in 2008). The number of employed young people (aged 15 to 24) increased at a faster pace than in 2016 (1.6% compared to 1.3%). However, the youth employment rate has not yet fully recovered from the crisis, as in 2017 (when it stood at 34.7%) it was still 2.7% lower than in 2008.



Figure 2. *Employment rates among different age groups in the EU*

Source: EUROSTAT, 2018

Figure 2 also shows an increase in the number of highly qualified employees. The number of employed persons with a higher level of education increased by 2.9% in 2017 (age group 25-64), while the number of middle-skilled workers increased moderately (by 0.8%). In contrast, the number of low-skilled workers decreased by 0.4%.

More detailed analysis from the European Commission's report shows that employment growth is noticeable mainly in the services sector. In the period 2008-2017, the share of persons employed in service industries in the EU increased from 70.1% to 73.9%. Within the service sector, the largest percentage increase was recorded in the "information and communication" sectors, followed by the professional, scientific and technical activities, administrative and support services (by 3.4% and 2.9%, respectively, in 2017). In contrast, the financial and insurance sectors recorded a fall of 0.7%. Furthermore, the largest increase in employment since the recession was recorded in the construction sector (2%), a solid increase in employment in the industrial sector (by 1.5%, the highest rate since 2007), and in the agricultural sector (by 0.3% in 2017) (EUROSTAT, 2018).

#### 4.2. *Structural changes and new challenges in the EU labour market*

In addition to the recession, as already pointed out at the outset, negative trends have led to structural changes and new challenges in the labour market. First of all, there was a decrease in labour force participation, an increase in long-term unemployment, especially for young people, an increase in the number of discouraged people who stopped seeking employment, an increase in so-called "precarious work" (atypical and unsafe forms of work). The prolongation of the crisis and the loss of jobs have led to rising unemployment and long-term unemployment as one of the structural challenges in the medium term (Weiler, 2009, p.12).

In the period 2008-2013, of eight employees, one person managed to find a full-time job over three years.<sup>4</sup> In 2013, over 30% of young unemployed were in the job market for 12 months or more.<sup>5</sup>

The rise of precarious labour, as a serious economic phenomenon, is one of the dominant features of the EU labour market during and after the recession. In short, these are non-standard forms of work, such as part-time work, with fewer hours of work that carry a high degree of uncertainty, uncertainty. Temporary jobs, part-time jobs, part-time jobs, mini-jobs made the market more flexible and allowed lower costs for employers. From the social point of view, the flexibility achieved in this way, according to experts, is not good in the long run (due to uncertainty, uncertainty, lower incomes, impoverishment, etc.). Furthermore, the number of average working

hours has also been reduced. The working time is shortened in most of the member states, but it is more pronounced for men than for women. The largest decrease was recorded in Estonia (Weiler, 2009, p. 13).

According to the 2016 Annual Development Review on Employment and Social Policy in Europe, it can be observed that the situation on the EU labour market is quite stabilized, although there are obvious differences between the Member States. New three million jobs have been created. However, despite the considerable stabilization of the situation, there are serious problems regarding quality jobs that ensure a stable standard of living. The aforementioned review focuses on addressing poverty, changing forms of work due to technological development and digitization, as well as the integration of migrants into the labour market.<sup>6</sup> According to the report, between 2001 and 2011, the proportion of part-time jobs increased from 16.2% to 19.5%. The largest share of part-time workers was recorded in the Netherlands (49.1% in 2011), followed by the United Kingdom, Germany, Sweden, Denmark and Austria, where part-time was more than one quarter (25% -27%) in total employees. By contrast, part-time employment is quite low in Bulgaria (2.4% of employees) and Slovakia (4.1%).<sup>7</sup>

The EU has seen a large influx of immigrants from third countries, especially Africa and Asia. According to the EU Migration and Asylum Office, in 2015 and 2016, over two million asylum seekers were registered. Their integration into the labour market is hampered by a number of barriers: language barriers, insufficient skills or expertise, lower or inadequate educational levels, etc. Therefore, the removal of these barriers must be taken seriously so that asylum seekers can enter the market. Strong technological development and digitalization are setting new demands on the labour market, as well as new opportunities. As a result, the need for new skills and competences is increasing, so it is necessary to invest much more in this direction.<sup>8</sup>

## **5. Overview of the EU activities on the labour market reform and the results achieved**

In March 2010, the European Commission launched the Europe 2020 strategy for smart, sustainable and inclusive growth. Accordingly, three main goals have been set by 2020: (1) Achieving an employment rate of 75% of the population aged 20-64; (2) reducing school drop-out rates below 10%, and at least 40% of people between 30 and 34 years of age with completed third-level education; and (3) a reduction of at least 20 million people at risk of poverty and social exclusion. Member States may set their own national targets in the light of these targets and draw up national reform programs that include activities aimed at implementing the strategy.

At EU level, some initiatives have been launched and additional efforts have been made within existing ones to respond to new challenges and create as many employment opportunities as possible, especially for young people, protection of workers' rights in the event of layoffs, etc. These initiatives include the European Pillar of Social Rights, a new skills program, investing in European youth, greater opportunities for lifelong learning, facilitating job mobility, etc. In addition, the existing programs concerning the reduction of unemployment among young people (Youth Guarantee, Youth Employment Initiative, etc.) have been extended.<sup>9</sup> Due to the slow recovery from the financial and economic crisis and the growing evidence of rising unemployment, the commission made a set of proposals for 2012 to boost jobs through a dedicated employment package. These proposals aim, among other things, at the demand side to create jobs by encouraging Member States to encourage employment by reducing labour taxes or supporting business start-ups. The proposals also aim to identify economic areas with the potential for significant job creation, such as green economies, health services and information and communication technologies.

According to research by the European Commission (2018), Member States' past efforts to tackle unemployment and increase employment have been based on the following: the payment of employment incentives to encourage job creation; employment subsidies for the general public i.e. with or without pre-emptive rights, usually to encourage permanent employment; lowering labour costs by reducing the tax burden, often adjusting the reduction to the lowest incomes; changes in the area of social security contributions; and setting a minimum wage.

Some EU Member States have introduced employment subsidies. For example, in Greece in 2017, additional public works cycles were launched in 51 municipalities, and new programs are under preparation. Furthermore, Greece has introduced a program to subsidize the salaries of workers employed under contracts for the provision of independent services in the event they become employees. A company subsidy program for the employment of 15,000 unemployed people between the ages of 30 and 49 has also recently been implemented. In France, the number of subsidized contracts in 2018 has further decreased, from 310,000 to 200,000, and is now limited to the most vulnerable persons in the non-profit sector, including young people and the long-term unemployed. Italy, on the other hand, has introduced a structural reduction in contributions for employers who hire long-term unemployed or offer retraining. Portugal has introduced financial support for permanent employment especially for young people and the elderly. Hungary is more inclined to create social enterprises in order to create jobs with some incentives.

Some members have focused their activities on reducing labour costs by reducing the tax burden, often adjusting the reduction to the lowest incomes. For example, in Lithuania, the Personal Income Tax Act was amended by introducing a progressive rate instead of a flat rate and increasing the non-taxable portion of income. Similarly, in Latvia, a major tax reform involves replacing the 23% flat-rate personal income tax with a progressive system. Non-tax reliefs have also been increased. The Netherlands announced the reform of personal income tax in 2019 and 2020. In Romania, the flat-rate personal income tax rate has been reduced from 16% to 10% since 2018, and the model of social security contributions has been changed, *etc.*

In a number of countries, changes relate to the area of social security contributions. In France, since 2019, the tax deduction for employment and competitiveness has turned into a reduction in social security contributions to wages of up to 2.5 minimum wages. Belgium has decided to reduce social security contributions for some types of shift work in the construction sector. Minimum wage increases have been increased in several countries and steps are being taken to make the minimum wage setting framework more predictable. The prescribed minimum wages have increased in all countries where changes have occurred between 2017 and 2018, with the exception of Germany, Greece, Luxembourg and Belgium, where they have fallen in real terms.

National policies aimed at eliminating the effects of the recession on the labour market can be distinguished between: short- and medium-term / long-term measures. Short-term measures are primarily about retaining employees (through flexible forms of work and employment contracts) and seeking to create new jobs. The long-term measures are aimed at addressing structural challenges and addressing the employment problems of all categories, as well as specific groups (especially young and older workers) (Weiler, 2009, p. 13). The European Commission has provided an assessment of autonomous policies and measures aimed at recovering from the postcrisis market and supporting the labour market. As highlighted in the report, policy coordination at EU level is necessary, taking into account the specific crisis circumstances of each Member State's labour market, in order to meet future challenges and realize strategic reform goals.

Analysing individual countries suggests that new challenges triggered by the economic downturn are different with long-lasting effects. Also, there is a noticeable difference between countries that developed and implemented certain development instruments several years before the crisis and, to

a certain extent, reformed the labour market in the direction of greater flexibility and efficiency and those that were just in the early stages of establishing them. According to a European Commission report 2018, the most important goals in combating the effects of a recession on the labour market are: retaining employment, providing income support, investing in skills retraining, ensuring free labour mobility within the single market and tackling youth unemployment.

Furthermore, according to the European Commission and OECD Report, entitled “Adjusting economic migration to the needs of the labour market, 2014”, there are three complementary solutions when it comes to restructuring the EU labour market: (1) boosting labour mobility within The EU to ensure a better distribution of skills; (2) better integration of non-EU migrants for smarter use of their skills; (3) attracting skilled migrants needed in the EU labour market. When it comes to the first guideline, the contribution of mobile workers in the EU to the growth of employment and more efficient use of human resources is obvious. People moving within Member States have a higher employment rate (68%) than nationals of the host country (64.5%). Enhancing workforce mobility within the EU requires stronger tools for matching skills and better promoting language learning. Another solution is the non-use of human capital, which can be reduced by simplifying the process of recognition of foreign qualifications, and providing immigrants in destination countries with access to the most effective active labour market programs and language training tailored to their skills. The last solution is something that needs to be studied more carefully and in the longer term. Specifically, the current level of skilled labour migration from non-EU countries is low in most EU Member States, although countries have liberalized migration regulations. The reason for this is the system of legal recognition of diplomas and the fact that in most countries employers do not want to hire foreigners. Several options for future action are highlighted, such as: striking a better balance between reliance on employer needs and safeguards and improving alignment tools to enable employers to identify potential migrant workers, including foreign students.

## 6. Conclusion

Based on the presented paper, it can be concluded that, despite signs of stabilization, the labour market situation in the postrecession period is still less favourable than in the pre-crisis period in many Member States. In other words, the path to recovery and the creation of long-term sustainable jobs has not yet been completed. The dominant feature of the EU labour market during and after the recession is the increase in the so-called precarious work (atypical forms of work), which is responsible for increasing employment, ie preventing job losses. However, on the other hand, it has negative repercussions on career development, income levels, labour productivity, market fragmentation, poverty risk, etc., in the long term. Research shows that precarious work and the risk of working poverty are directly proportional. So far, measures and activities focused primarily on employment growth and falling unemployment are insufficient. Therefore, policies are needed in the future, both at EU and national level, which, given all the challenges facing the labour market, will ensure long-term job sustainability and adequate job design. The visible mismatch of supply and demand in the labour market, resulting from technological changes and digitization of labour and further fuelled by recession, needs to be addressed through greater investment in human capital, through lifelong learning programs, retraining programs, courses, all with a view to acquiring the required skills and employment especially young people, as the most vulnerable category in the labour market.

Previously implemented employment policies (at national and regional level) have focused on the recovery of the labour market, by stimulating the employment of hard-to-employ persons (through active measures) and improving the position of jobless persons (through passive measures). The European Commission has also recognized the importance of this issue and has initiated a number of proposals aimed at reducing the unemployment of vulnerable groups in the labour market such as

young people, the long-term unemployed and women. Furthermore, at the EU level, the Europe 2020 Strategy defines goals and measures for employment and economic growth, which have not yet been achieved by the time of writing.

The authors conclude that the approach to addressing EU labour market difficulties and responding to new challenges should be viewed in a broader context, while respecting the specificities of each EU Member State. Also, labour market, social and education policies require a higher level of consistency in order to make labour market restructuring more successful. In addition, emphasis should be placed on measures to stimulate economic growth, which, in turn, will have the effect of creating new jobs and reducing unemployment.

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<sup>1</sup> The mere fact that, due to negative demographic changes and technological advances, it is more difficult to reach workers with the necessary skills and abilities, many employers have opted to introduce part-time, more flexibility, to avoid layoffs. Part-time work was a good way to keep workers with the required skills and competencies at work. According to OECD estimates, 350,000 jobs in the industrial sector were thus saved.

<sup>2</sup> This would mean that the Europe 2020 target could be achieved, i.e. reaching a 75% employment rate.

<sup>3</sup> According to EUROSTAT's estimate, 26,654,000 working-age population in the EU, of which 19,298,000 in the euro area were unemployed in October 2013. Compared to October 2012, unemployment increased by 615,000 in the EU and 512,000 in the euro area. This was followed by a downward trend in unemployment.

<sup>4</sup> <http://europa.ba?p=46907-pstp> (Accessed: April 2019)

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## **IMPACT OF EXCHANGE RATE VOLATILITY ON IMPORT/EXPORT BALANCE: THE CASE OF US DOLLAR AND TURKISH LIRA**

### **UTJECAJ VOLATILNOSTI DEVIZNOG KURSA NA BILANS VANJSKOTRGOVINSKE RAZMJENE: SLUČAJ DOLARA I TURSKE LIRE**

#### **Abstract**

*This research is examining the influence of movements between US Dollar and Turkish Lira on Turkish economy, with a special focus on impact on balance of import and export in Turkey. Turkish companies are exposed to foreign currency denominated costs in the forms of liability dollarization. This can lead to a limitation in competitive effects of currency depreciation on exports. Research is mainly focused on analysis of relationship between the real exchange rates, calculation of the nominal and real effective exchange rate of lira that jeopardized Turkish exports. Secondary data is collected from trusted government sites and statistical analyses such as Unit Corrosion Test, ANOVA, and correlation were performed in SPSS. Analysis showed that fluctuation of Turkish lira has positive impact on export, meaning that exports are not much sensitive to real exchange rates, but a depreciation of lira is boosting external competition for companies in general, but not for large, stable, and hedged companies.*

**Keywords:** exchange rate, macroeconomic effects, import export balance, currency volatility

**JEL:** F20, F51, G38

#### **Sažetak**

*Ovo istraživanje ima zadatak da ispita uticaj volatilnosti valuta US dolara i turske lire na tursku ekonomiju, sa posebnim osvrtnom na uticaj na izvozno-uvozni balans Turske. Turske firme su, kao i druge ekonomije, izložene uticajima valutnih razlika u smislu tzv. dolarizacije domaćih obaveza. Ovaj efekat vodi prema ograničenjima konkurentnosti firmi, koje su većinski bazirane na izvozu roba. Istraživanje je fokusirano na analizu odnosa objektivnih, tj. stvarnih valutnih stopa, kalkulaciju nominalne i efektivne kursne razlike lire i dolara, a za koju se zapravo i sumnja da ima detrimentalan uticaj na turske izvoznike. Podaci iz sekundarnih*

*revidiranih izvora su prikupljeni preko validnih državnih baza, a statistička analiza, kao što je jedinični korozivni test, ANOVA i korelacija, je obavljena u SPSS-u. Analiza je pokazala da varijacije turske lire imaju pozitivan utjecaj na izvoz, što znači da izvoz nije ni elastičan ni senzitivan na stvarnu kursnu razliku, nego da deprecijacija lire uopšteno daje dodatni porast konkurentnosti turskih firmi, osim slučajeva velikih konglomerata i korporacija.*

**Ključne riječi:** kursne razlike, makroekonomski efekti, vanjskotrgovinski balans, kursna volatilnost

**JEL:** F20, F51, G38

## 1. Introduction

This research aims to investigate the effect of exchange rate volatility and its impact on import export balance of Turkey, with respects to changes in sample period, volatility measure and imports-exports. Turkish lira lost more than 45 percent of its value this year alone. Currency on Asian-Pacific stock exchanges reached the lowest value of the new era when 7.24 lire had the value of one US dollar. This rapid decline occurred after US President Donald Trump announced that Turkey would double customs duties on steel and aluminum for Turkey retaliation. Analysts say the financial crisis has long since been set up and reflects Turkish rejection to raise interest rates to halt double-digit inflation and cool the overheated economy. Disputes with the US have contributed to the fall in lira. Aly-Khan Satchu, financial analyst and executive director of Rich Management, financial and political advisory company, said the economic crisis had come to an end when the “US dollar was turned into a weapon - either deliberately or in-plan” (Al Jazeera News, 2019). Immediately after the failed run, the Central Bank of the Republic of Turkey began to withdraw the Turkish reserve of gold from the US Federal Reserve Bank, so that during 2016 and 2017, Turkey had all its gold in the amount of 220 tons to come home. According to the CBRT annual report, by the beginning of 2018, repatriation of the entire gold reserves from the United States was carried out and this is in fact the key reason for the present-day relationship between lira and dollar. While banking specialists have endeavored present moment fixes for the lira, similar to promises of liquidity for banks and an end in seaward money swaps to stem lira short-selling (dealers wagering against the cash), the administration to a great extent does not have a more extensive recuperation plan. Rather Erdogan (president of Turkey) has accused the US for pursuing “financial war” against Turkey, comparing its “assault” on the lira to assaults on Turkey's banner or the Islamic call to supplication. Admonitions of potential further endorses by the US Treasury on Ankara have just tossed more vulnerability over the nation's monetary direction. The Turkish lira, which has jumped out from its record low of 7.24 compared to US dollar, slipped again this year by 1%, and their rating has fallen by one pillar, from “BB-” to “B+”.

## 2. Literature review

### 2.1. Turkey and export competitiveness indicators

Evaluating international competitiveness can be expressed through a large number of indicators of export competitiveness, i.e. quantitative, qualitative, and structural changes in exports. Substantial advancement has been made in the last several decades in developing better theory and knowledge of the determinants of export performance. These developments in the last decade have expressively reinforced the theoretical foundation of export performance research, explaining and approving the academic inquiry in the field of exporting (Poturak, 2014, pp. 252-262). The most significant indicators of export competitiveness were: the movement of the national economy share on the international market, the share of exports in world exports, per capita export, the current balance of payments balance, the exchange rate movement or the price of labor. For this reason, the work will be shown in R. Turkey's way of calculating the following indicators: The market share,

i.e. the share of exports of Turkey's domestic economy to the world's exports (UID), is counted as the value of Turkish exports to the value of world exports:

$$U_{id} = \text{export of domestic country} / \text{world exports.} \quad (1)$$

The coefficient of maturity ( $Sh$ ) in equation (2), we used to determine the structural adjustment of Turkey's exports, imports of the other country, especially from the point of view of constant currency change and the inconsistency of lira that has a large oscillation due to a currency war. It can have values from 0 to 1. The value closest to 1 indicates that all categories of goods have a relatively high significance for both one and the other country, and vice versa, if the value is closer to 0.

$$Sh = \frac{\sum_{i=1}^n x_{ij} m_{ik}}{\sqrt{\sum_{i=1}^n x_{ij}^2 \sum_{i=1}^n m_{ij}^2}} \quad (2)$$

where:

$Sh$  - coefficient of equivalence;

$x_{ij}$  - the share of products and the total export of the country to country  $k$ , and

$m_{ik}$  - productivity and the total import of land  $k$ .

## 2.2. Currency war and determinants

The currency war has led to many export factors in Turkey. Thus, intra-industrial trade - the commodity exchange of differentiated products within the same commodity groups or substitutes of the product. Statistically, intra-industrial trade is that part of the export (import) that has been abolished by importing (exporting) the product of the same statistical product group. It is considered that the share of intra-industrial trade in total exchange will be high among countries at approximately the same level of economic development (Beker, 2006, pp. 313-334). On that occasion, the index most commonly used is the so-called a standard Grubel-Lloyd index that can have values from 0 to 1. The index value as close to the unit points to approximately the same structure of production and exports, i.e. the greater complementarity of the two markets, and vice versa (Galego & Caetano, 2002, pp. 298-304):

$$GL_i = \frac{(X_i + M_i) - |X_i - M_i|}{X_i + M_i} = 1 - \frac{|X_i - M_i|}{X_i + M_i} \quad ; \quad 0 \leq GL_i \leq 1 \quad (3)$$

where  $GL_i$  is the standard Gruber-Lloyd index,  $X_i$  and  $M_i$  represent export and import of a given goods  $i$ .

Revealed comparative advantages index represents the overall percentage of foreign trade balance and total foreign trade. The positive value of the index points to comparative advantages and surplus in the commodity exchange of the given sector and is calculated as:

$$RCA = \frac{\overline{X_{ik}}}{\overline{X_{nj}}} \quad (4)$$

where  $X_{nj}$  represents exports of all country products while  $X_{ik}$  denotes product export.

The model we apply to Turkey in this conceived example therefore has a degree of total export coverage of more than 1 (100%), points to the fact that the country in the foreign exchange

generates a surplus, i.e. a positive balance of the trade balance, and vice versa, the degree of total coverage imports by exports less than 1 (100%), points to the fact that the country in foreign trade is experiencing a deficit, i.e. a negative balance of the trade balance (Winchester, 2019, pp. 27-36). Export specialization represents the breadth of the export spectrum, or degree of specialization. The index, which best illustrates the level of specialization (concentration) of exports (imports), is so-called modified Hirshman's coefficient of concentration, as follows:

$$S_j = 100\sqrt{\sum \frac{Y_{ij}^2}{Y_j}} \quad (5)$$

$S_j$  - modified Hirshman's coefficient of concentration,

$Y_{ij}$  - the value of the export (import) of the product group and from the country,

$Y_j$  - value of total export (import) of country  $j$ .

### 2.3. War currency and competitiveness factors

As can be seen from the aforementioned methodologies, the competitiveness of one economy depends on a large number of factors, with the conclusion that the contribution of individual factors has changed over time and that it differs from country to country. In the best way, the complexity and significance of the company's competitiveness factors, especially international competitiveness is seen through the indicators of the International Institute for Management Development ("Turkey Commercial Guide, 2019). This can be compared to relationship between customer and supply chain management. According to Hadziahmetovic (2013), almost all companies and their workers recognize customer relationship as an important component for their companies, component that in many ways conducts a company's competitiveness (Hadziahmetovic, 2013, pp. 126-132). As noted above, the report of this institute is cited as one of the most difficult given that it is based on 4 sets of criteria (economic performance, efficiency of government administration, business efficiency and infrastructure), within which there are 5 sub-indicators, which are further divided into as many as 331 indicators that should rank the country in terms of competitiveness, or point to aspects of its (non) competitiveness (Winchester, 2019, pp. 27-36). One of the ways of observing the factors of competitiveness is to look at the origin of their formation. From this aspect, the Turkish lira has an impact and its competitiveness is based on:

- 1) Foreign supply - volume, assortment, price, quality, durability, adjustment of production, and export structure;
- 2) Foreign demand - the world's economic trends, the behavior and wishes of foreign buyers and the overall morphology of foreign markets, and
- 3) Factors of competitiveness in the narrow sense that lead to the merger or rejection of supply and demand - national standards, technical regulation and certification, foreign trade policies of exporting and importing countries (Vasiljević, 2009, pp. 83-93).

When it comes to competitiveness factors for Turkey, they have relied largely on external competitiveness factors, which have overshadowed capital, workforce, land (climate, natural, mining and energy resources) and technology (science, engineering, entrepreneurship, management). Capital, as a factor of production earlier, has mostly looked at in real or physical form (factories, machines, roads), whereas now, more contemporary concepts differ in three forms of capital: physical (technology, on one hand, and capital in physical terms, on the other), financial (money, loan capital and all forms of securities) and human (level of formal education, acquired work skills, compensation and human health) (Kozomara, 1994, pp. 51-53). When analyzing competitiveness, modern economists are turning more to the so-called internal factors of competitiveness, which include qualitative and structural factors, whereby structural competitiveness includes all those factors that do not directly determine price (Bošnjak, 2005, pp. 129-148). Factors that determine structural competitiveness include: specialization in economics,

continual improvement of production process, industrial organization efficiency, entrepreneurship, managerial skills, establishment and growth of new enterprises, rate and method of capital investment use, quality of network distribution, level of education and professional development, innovation and research and development, sophisticated and high technology, legal and political stability, the development of physical, legal, technical and economic infrastructure as well as a multitude of other factors that in turn make the environment in which the company operates (Taline, 2005, pp. 9-11). Any change in the structural character will also affect competitiveness, given the interaction relationships. In this context, there is a significant association of factors in a single entity that results in coherent development (Kozomara, 1994, pp. 51-53).

The prices represent the expense of the costs spent on the production of a product. By the Second World War, they were the dominant factor of competitiveness, primarily because of the fact that world trade dominated the primary products. For this reason, such markets have been named the price markets. However, after the Second World War, two significant changes have largely contributed to structural changes in the world economy. The change in world trade structure has significantly contributed to the reduction in the relative importance of prices. In Turkey and in that period, industrial products have become dominant on the world market, and massive industrial production has contributed to lower costs of recycling, making prices become a negligible factor. This has influenced other factors of competitiveness in the production of industrial products (Galego & Caetano, 2002, pp. 298-304). Choosing an exchange rate regime can certainly affect to a certain extent the competitiveness of an economy. Numerous studies have confirmed the fact that the fixed exchange rate regime is a better solution when it comes to overcoming internal problems or fighting inflation (Dean, 2003, pp. 18-30). There is no doubt that multilateral trade liberalization is the best option for world market openness because of its non-discriminatory character (Tandır, 2013, pp. 324-333). Although the fixed exchange rate regime is depreciated with its stability, in practice it does not have to be the case (again the difference between *de jure* and *de facto* classification, only this time the country officially applies the fixed exchange rate regime, while in reality, due to certain inaccuracies in the implementation macroeconomic policy, often makes changes - there is a "fear of pegging"). The stability of the foreign exchange rate will be the consequence of conducting an adequate macroeconomic policy, not just the election of the exchange rate regime (Bjelić, 2008, p. 99). The Turkish economy is determined by the movement of the Turkish currency. Of course, if we look at the relationship between the Lira and the USD on a 10-year chart, we will see that there is a year-to-year tending trend (Driver & Westaway, 2004, pp. 27-54).



Figure 1. Relationship between currencies USD and TRY

Source: <https://www.tradingview.com>

It is well-known that the level of value or the relative appreciation of the real exchange rate in a positive correlation with peer-to-peer GDP per capita is known as the empirical fact since the beginning of economic discussions during the post-war period relating to the Turkish economy with regard to export rates and structure. So this is a trace and an empirical observation of a positive correlation between two important factors, namely, the apathy and other development that is commonly called the Pen effect. The data depiction is in contrast to the contradiction with the theory of purchasing power parity and as a rule requires additional clarification that can not result from a dry observation of the relative changes in the inflation rate between the observed countries and the periods in which the changes in the given countries occurred, observing Turkey in a somewhat broader context (Bošnjak, 2005, pp. 129-148).

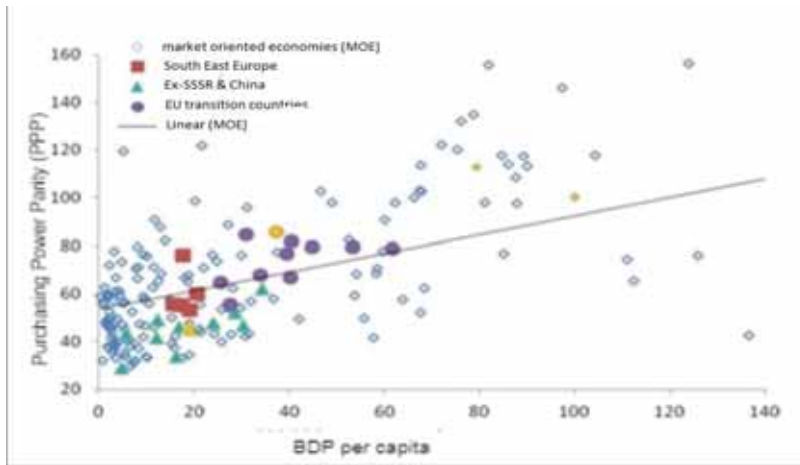


Figure 2. Transition countries ratio of GDP per capita and price levels in 2019

Source: <https://www.trade.gov>

Today, the “Pen Effect” is often referred to as the Balance Samuelson (BS) effect or additionally known as Harsod Balasin or as Samuel (HSS) effect to well-known experts who presented important notions and gave one of the theoretical explanations of the given observation (Donohue, 2019, pp. 9-18).

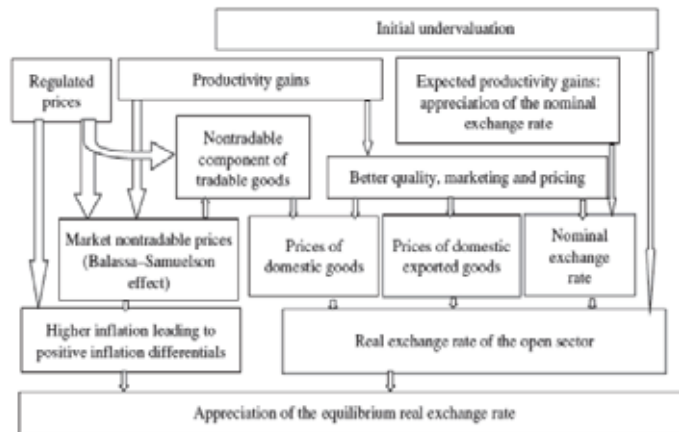


Figure 3. Theories explaining the appreciation of transition countries

Source: Beker, 2006

After 2015, it can be said that the increase in Turkish exports was not entirely in line with expectations. High domestic production costs and inadequate product quality certainly do not contribute to the creation of comparative advantages of the domestic economy in the foreign market. The cost structure is burdened with the inefficiency of domestic production, which manifests itself in terms of outdated technology and insufficiently good and competitive production programs (Dean, 2003, pp. 18-30). That can be in some way related to positioning of companies and their competitiveness in one industry stated Mekics<sup>7</sup>. He said that the industry structure can still be explained by competitors, buyers, suppliers, new entrants and threat of substitutes. The value in this is that every industry, every business have those, it had in 1980s and have presently regardless if it is production company or online shop. However, businesses of 21st century need to go step further in defining their surrounding and place that they take or will take in an industry. Reason for that is that modern business do not rely on inside industry competition anymore, the approach is much more meticulous wherefore industries are competing between each other, business lines as well (Mekic En. & Mekic Em., 2014, pp. 9-12).

### 3. Research methodology

This research is examining how the movements of USD/TRY currencies are impacting economy in Turkey and their export/import balance. The purpose and main focus in the research are directional with proving and showing how exchange rate and real effective exchange rate are behaving on movements between these two currencies. For the purpose of this research, data in the part of literature review is obtained from web articles, research papers, publications and books.

With data analysis, two variables are identified, independent variable is movements of lira and dollar, while dependent variable is, how this is impacting Turkish economy. Analysis which is used in this research is done in SPSS, with Unit Corrosion Test, ANOVA, and correlation. When it comes to unit corrosion test, in order to develop the empirical model of the real effective exchange rate dinar (EREER), seven fundamental variables were selected. In order to obtain statistically valid results, the normality of the distribution of variable and tested autocorrelation, multicollinearity and heteroskedasticity was tested. Multicollinearities were investigated using VIF (variance inflation factor) statistics. While testing data with correlation, multiple linear regression was used.

### 4. Data analysis

As mentioned above, in order to develop the empirical model of the equilibrium real effective exchange rate dinar (EREER), seven fundamental variables were selected, so that the function of these variables is given as follows:

$$REER = (M2^*, OTV, PROD, JD^*, DR^*, NTT^*, SD^*) \quad (6)$$

However, the four variables ( $M2^*$ ,  $PROD$ ,  $DR^*$ , and  $NTT^*$ ) have proved statistically insignificant, so they are in the third iteration step. Multiple linear regression in the model of the other three variable ( $OTV$ ,  $JD^*$ , and  $SD^*$ ):

$$REER = C + \alpha_1 SD^* + \alpha_2 JD^* + \alpha_3 OTV \quad (7)$$

Table 1. *Unit Corrosion Test for Changing DR/GDP*

		t-Statistic	Prob.*	
Augmented Dickey-Fuller test statistic		-0.799200	0.8066	
Test critical values:	1 % level	-3.639407		
	5 % level	-2.951125		
	10 % level	-2.614300		
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(DEVIZNE_REZERVE_NBS_BANK)				
Method : Least Squares				
Date: 05/21/13 Time: 11:44				
Sample (adjusted): 7 40				
Included observations: 34 after adjustments				
Variable	Coefficient	Std . Error	t-Statistic	Prob.
DEVIZNE_REZERVE_NBS_BANK(-1)	-0.040487	0.050659	-0.799200	0.4311
D(DEVIZNE_REZERVE_NBS_BANK(-1))	0.396797	0.156376	2.537455	0.0173
D(DEVIZNE_REZERVE_NBS_BANK(-2))	-0.133049	0.136788	-0.972664	0.3394
D(DEVIZNE_REZERVE_NBS_BANK(-3))	-0.218019	0.136527	-1.596893	0.1219
D(DEVIZNE_REZERVE_NBS_BANK(-4))	0.516926	0.144626	3.574212	0.0013
D(DEVIZNE_REZERVE_NBS_BANK(-5))	-0.573405	0.166556	-3.442715	0.0019
C	0.073745	0.054887	1.343583	0.1903
R-squared	0.558439	Mean dependent var		0.024859
Adjusted R-squared	0.460315	S.D. dependent var		0.121452
S.E. of regression	0.089222	Akaike info criterion		-1.814128
Sum squared resid	0.214937	Schwarz criterion		-1.499877
Log likelihood	37.84017	Hannan-Quinn criter.		-1.706959
F-statistic	5.691125	Durbin-Watson stat		2.016177
Prob(F-statistic)	0.000630			

Source: Author's calculation via SPSS

In order to obtain statistically valid results, the normality of the distribution of variable and tested autocorrelation, multicollinearity, and heteroskedasticity was tested. Kolmogorov-Smirnov and Shapiro-Wilk tests have shown that all changeable have a normal distribution. For autocorrelation testing, Durbin-Watson test was used and as in table 2 and as we see (the value of this test is 1.659), it has been established that there is no problem of autocorrelation. Multicollinearity was investigated using VIF (variance inflation factor) statistics and since this statistic ranged from 1.041 to 1.064, the conclusion is that the multicollinearity problem does not exist. It has also been found that there is no heteroskedasticity in the model.

Table 2. *Showing the Model Sum*

R	R Square	Adjusted R Square	Std . Error of the Estimate	Durbin-Watson
,793	,628	,597	2,73210	1,659

d. Dependent Variable: REER

Source: Author's calculation via SPSS

As it can be seen in table 2, the adjusted R square of 0.597 indicates that almost 60% of variations are explained by the change of the variables remaining in the model, thus resulting model is statistically acceptable. *F* statistics -20,273 in table 3 indicates a high statistical significance of the model corresponding to *p* statistics of 0.000.

Table 3. ANOVA Output

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	453,966	3	151,322	20,273	,000
Residual	268,717	36	7,464		
Total	722,683	39			

Source: SPSS author's calculation

Based on data from the table, all coefficients are statistically significant at the confidence level  $\alpha = 0.05$  (0.0000; 0.0000; 0.0010, and 0.0440).

Table 4. Correlation Output

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
3 (Constant)	146,720	6,495		22,589	,000		
SD	-,171	,033	-,543	-5,179	,000	,940	1,064
JD	-,199	,054	-,384	-3,705	,001	,960	1,041
OTV	-,089	,043	-,217	-2,090	,044	,958	1,044

d. Dependent Variable: REER

Source: Author's calculation via SPSS

Based on a multiple linear regression, the following model can be used to determine the equilibrium real effective exchange rate lira:

$$\text{REER} = 146,72 - 0,171 \text{ SD}^* - 0,199 \text{ JD}^* - 0,089 \text{ OTV}$$

The Turkish economy has clear indicators. Namely, real currency appreciation reduces the value of domestic exports expressed in domestic currency, which can lead to a decrease in production for exports. This further leads to a drop in demand for all inputs and a reduction in investment. By contrast, appreciation of real currencies reduces the cost of imported capital and inputs expressed in domestic currency, thereby reducing the cost of firms (Driver & Westaway, 2004, p. 27-54). Exports to Turkey averaged \$ 3135.13 million from 1957 to 2019, reaching the highest level of \$ 15682.14 million in October 2018 and a record low of \$ 7.10 in August 1958.

In March 2019, annual inflation rate in Turkey rose to 19.71%, while in February 2019 their minimum was 19.67%. Next market expectations are decline to 19.57%. The average inflation rate is 34.95% from 1965 until 2019, while the highest inflation rate was 138.71% in 1980, and the lowest was -4.01 in 1968.

## 5. Discussion

The gained function tells us that due to the negative sign in front of all three changes that remained in the export model (public debt, external debt and openness), their increase leads to the depression of a relatively real effective exchange rate of lira. The obtained coefficients point to the fact that:

- 1) The increase of 1% of external debt affects the depreciation of the equilibrium real effective exchange rate lira of 0.171%;
- 2) The increase of 1% public debt affects the depreciation of the equilibrium real effective exchange rate lira of 0.199% and

- 3) The increase of the Turkish economy's openness of 1% affects the depression of the equilibrium real effective exchange rate lira of 0.089%.

After obtaining the function, the most important task is to estimate the degree of deviation of the current from the equilibrium exchange rate (in this case, it is a real effective foreign currency exchange rate). To predict the long-term value of a foreign exchange rate, it is necessary to eliminate the short-term oscillations of fundamental economic variables with the help of Hodrick's Peak Filter. In addition to the current real effective exchange rate, the equilibrium real effective exchange rate is calculated on the graph using the value of the fundamental economic variables filtered by the Hodrick's Peak Filter. Same as in the previous case, a clearer picture is obtained when the deviations appear as a percentage deviation of the current real effective exchange rate from the estimated equilibrium real effective exchange rate based on the Hodrick's Peak Filter. In order to meticulously analyze all aspects of the exchange rate volatility and its impact on import-export balance, further studies should focus on analyzing relationships between different currency pairs. Only when these future researches are done, proper hedging techniques can be developed and applied.

## 6. Conclusion

Foreign exchange rate represents the price of one currency expressed in units of another. However, the purpose of currency exchange is not only to establish a relationship between currency and to convert one currency to another, but rather to serve as a comparison of certain prices between individual countries. For the sake of these findings, the frequent changes in the nominal foreign exchange rates that take place cannot be said much about the change of the position of these countries in the international market, so that for the purposes of examining the changes in competitiveness it is necessary to follow the changes of real indicators (in this case, changes in the real exchange rate), like indicators that are exempt from the effects of price changes. Theoretically, given that the exchange rate represents the relationship between only two currencies, the change of the real effective exchange rate, which represents a change in the relationship between one country and its most important trading partners, would be the best indicator. Nevertheless, the fact that most of the world's trade is expressed in a very small number of the most important currencies in the world (primarily in the euro and the dollar) diminishes the importance of calculating this indicator. Turkey is not an exception on this issue so that the euro and the dollar are the only two currencies that are included in the currency that serve to calculate the nominal and real effective exchange rate of lira that jeopardized Turkish exports. Although this research showed that fluctuation of Turkish lira has positive impact on export, in order to further expand this research and to arrive to more reliable conclusions, models such as Value at Risk, Garch, and MGarch should be used in future studies.

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**QUANTITATIVE ECONOMICS /  
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## A STRUCTURAL MODEL OF TOURISTS' SATISFACTION WITH THE DESTINATION'S OFFER: THE CASE OF OPATIJA RIVIERA

## STRUKTURALNI MODEL ZADOVOLJSTVA TURISTA SA PONUDOM DESTINACIJE: SLUČAJ OPATIJSKE RIVIJERE

**Abstract**

*The purpose of this study is to develop and test an integrated model, that combines the measurement and the structural model, of tourists' satisfaction with a destination. The research was conducted in the destinations of Opatija Riviera by using a structured questionnaire. Besides socio-demographic variables, the questionnaire addressed the following factors: traffic infrastructure, accommodation capacities, organization of a destination, gastronomic offer, natural resource, destination's cultural resources, attractions, sports activities, etc. To gain a better understanding of the factors that determine tourists' satisfaction with a destination we used a structural equation modelling approach. Prior to that, and for construction and validation of the constructs, confirmatory factor analysis was used. The theoretical model was evaluated based on the fit indices and the statistical significance of the estimated coefficients. The results have revealed a statistically significant impact of gastronomic offer and novelty on overall tourists' satisfaction with the elements of the destination's tourist offer. Besides, there is statistically significant evidence of the impact of overall tourists' satisfaction on the return intention. Based on the findings acquired within this paper the authors proposed the guidelines for tourist offer improvement with a goal of increasing the satisfaction with the tourist offer of Opatija Riviera.*

**Keywords:** satisfaction with the destination's tourist offer, structural equation modelling, Opatija Riviera

**JEL:** C3, C83, L83

**Sažetak**

*Svrha ove studije je razviti i testirati integralni model, koji kombinira mjerni i strukturalni model, zadovoljstva turista sa ponudom turističke destinacije. Istraživanje će biti provedeno na odabranim destinacijama Opatijske rivijere koristeći strukturirani anketni upitnik. Osim sociodemografskih, anketni upitnik je sadržavo slijedeće dimenzije: prometna infrastruktura, smještajni kapaciteti, organizacija destinacije, gastronomska ponuda, prirodni resursi, kulturni resursi destinacije, atrakcije, sportske aktivnosti, itd. Sa ciljem boljeg razumijevanja faktora koji determiniraju zadovoljstvo ponudom turističke destinacije, autori su koristili modeliranje strukturalnim jednadžbama. Prije toga, autori su prilikom konstrukcije i validacije konstrukata koristili konfirmacijsku faktorsku analizu. Teorijski model je evaluiran putem indeksa prilagođavanja i statističke*

*značajnosti procijenjenih koeficijenata. Rezultati ukazuju na to da postoji statistički značajan utjecaj gastronomske ponude i traženja novosti na sveukupno zadovoljstvo turista ponudom turističke destinacije. Nadalje, ustanovljeno je da postoji statistički značajan utjecaj sveukupnog zadovoljstva turista sa njihovom namjerom da ponovo posjete destinaciju. Na osnovu saznanja dobivenih u ovom radu autori su predložili smjernice za unaprijeđenje turističke ponude sa ciljem poboljšanja zadovoljstva sa turističkom ponudom Opatijske Rivijere.*

**Gljučne riječi:** zadovoljstvo turističkom ponudom destinacije, strukturalni model, Opatijska Rivijera

**JEL:** C3, C83, G40

## 1. Introduction

Kozak and Kozak (2019, p. v) emphasize in their research that the nature of competitiveness registered strong changes in the last couple of decades on a national and international level due to the strong influence of globalization as well as the development of Information and Communication Technology. Numerous tourist destinations worldwide managed to improve their tourist offer both in terms of quality and quantity, which resulted in being able to place themselves as innovative and competitive on the world tourist market. By introducing new elements of tourist offer, and in particular, those based on destination's resources (natural, cultural, *etc.*) they managed to develop their own identities or personalities, which enabled them to be differentiated one from the other.

According to Portolan (2019, p. 582), competitiveness has taken the central position on today's open and integrated tourist market. In order for destinations to be able to achieve or preserve their popularity on the tourist market, they need to ensure constant presence as well as the availability of elements of destination's unique tourist offer, which will significantly contribute to its differentiation in the competing battle with other destinations on the tourist market. Today's contemporary tourist offer is faced constantly with two challenges: 1) continuous struggle with the high level of competitiveness, swift changes in tourist demand and the need to respond to them as quickly as possible; and 2) faster and stronger changes in contemporary technology resulted in shortening of tourist product's life-cycle. In order to be able to preserve the current level of competitiveness and achieve its further increase, it is mandatory to observe what are the tourist's needs and wishes, as well as the attitudes towards current tourist offer of a destination.

Opatija Riviera belongs among the Croatian tourist destinations with the longest and oldest tourist tradition. It is very rich in natural resources (suitable climate, crystal clear sea, *etc.*), cultural-historical heritage (churches, museums, galleries, *etc.*), it is close to the tourist-generating markets and possesses a good traffic connection. Specific forms of tourism that are most developed are health tourism, nautical tourism, congress tourism, *etc.* (Cerović *et al.*, 2014; Alkier *et al.*, 2019). As a tourist destination it contributes significantly in achieving more successful and competitive tourist offer development and recognizability on county and country level, but still hasn't reached its potential (Alkier Radnić & Gračan, 2003; Alkier Radnić, 2004), which is the main reason for preparing this paper.

The purpose of this study is to develop and test an integrated model, that combines the measurement and the structural model, of tourists' satisfaction with a destination. The research should result in responses to the following question: What factors affect the overall tourists' satisfaction with the destination's offer? Having in mind the above said the authors propose the following research hypotheses:

$H_1$ : Accommodation capacities, gastronomic offer and novelty influence tourists' overall satisfaction with the destination.

$H_2$ : Tourists' overall satisfaction influences their return intention.

The paper is organized as follows. After the introduction, part two gives a short overview of the theoretical framework that is relevant to the main objective of the paper. Part three outlines the data and research methodology. Part four is the centre of the paper and contains analysis and discussion of the original empirical results. The last part contains some final remarks and conclusions.

## 2. Theoretical background

In tourism and hospitality industry tourist's satisfaction is important due to the following reasons: 1) satisfied tourists will show much higher tendency for positive word-of-mouth of a tourist product and the destination in general to friends, family and acquaintances which will influence on attraction of new tourists; 2) providing top quality service and complete satisfaction of their wishes and desires during their first visit will result in creating a repeat visitor, increasing tourist turnover (with a particular attention paid to the tourist consumption), and there will be no necessity for additional marketing costs; and 3) presence of complaints is very expensive, time-consuming and contributes towards formation of bad reputation for the tourist destination and hotel enterprises, which results in the growth of costs due to the compensation payments to the unsatisfied visitors (Horner & Swarbrooke, 2016, p. 340).

Over the years numerous researches were conducted in measuring satisfaction in tourism and hospitality industry, most of them focused on determining the influence of service quality on satisfaction (Marković & Raspor Janković, 2010; Marković *et al.*, 2014; Silvestri *et al.*, 2017), influence of satisfaction on destination loyalty (Wongsawat & Deebhijarn, 2019; Mohamad *et al.* 2011; Shukor *et al.*, 2017; Marković *et al.*, 2015), determining general level of satisfaction with the elements of destination's tourist offer (Della Corte *et al.*, 2015; Parisi, 2018; Marinao, 2017; Pérez Campdesuñer *et al.*, 2017; Pavlić *et al.*, 2011; Ružić *et al.*, 2006; Kesar and Mikulić, 2017; Marković *et al.*, 2015; Prebežac *et al.*, 2008; Kozak & Rimmington, 2000; Kozak, 2000), examining relations among satisfaction, destination's image and loyalty (Mohamad *et al.*, 2019; Aboali *et al.*, 2015; Chi & Qu, 2008; Yuksel *et al.*, 2010), or to which extent does satisfaction influence on destination's recommendation (Hui *et al.*, 2007). Results of all previously mentioned researches indicate that determining customer satisfaction represents one of the most important pre-conditions for achieving tourist's loyalty towards a tourist destination and positive re-visit intention, which will, in the end, reflect positively on achieving successful and competitive business (Marković *et al.*, 2010). Following the authors will present the level of satisfaction of tourists with the Opatija Riviera's destination offer in order to determine where to focus when rethinking about the improvement of current tourist offer, and the potential introduction of new offer elements.

## 3. Data and methodology

### 3.1. Questionnaire design and sampling

The research was conducted in the period of January and August 2019 in the destinations of Opatija Riviera by using a structured questionnaire. The targeted respondents were foreign and domestic tourists who chose to spend their holiday in Opatija Riviera, and who were willing to participate in the survey. After the evaluation, the authors determined that totally 155 questionnaires were properly filled and by that suitable for further analysis. The following table presents the basic socio-demographic characteristics of the sample.

Table 1. Overview of basic characteristics of the sample

Characteristics		Frequency	Percent
Gender	Male	78	51.0
	Female	75	49.0
Age	Up to 35	48	31.17
	36-40	52	33.77
	41-45	26	16.89
	46 +	28	18.18
The highest level of completed education	Secondary school, 3-year program	3	1.9
	Secondary school, 4-year program	14	9.1
	Junior college (2-year university program)	15	9.7
	University education, bachelor	40	26.0
	University education, master's degree	65	42.2
	University education, PhD	17	11.0
Marital status	Unmarried/single	29	18.7
	Married	84	54.2
	Widowed/Widower	2	1.3
	Separated/Divorced	3	1.9
	Domestic partnership	37	23.9
Monthly income (in Euros)	Up to 500,00	16	10.3
	501,00-1.000,00	30	19.4
	1.001,00-1.500,00	50	32.3
	1.501,00-2.000,00	30	19.4
	2.001,00-2.500,00	18	11.6
	2.501,00+	11	7.10

Source: Authors' own work

Within the sample and according to the country of origin, they were mainly from Austria (18.60%), followed by Croatia (16.80%), Germany (16.80%), Slovenia (16.10%), Bosnia and Herzegovina (11.60%), Italy (7.70%), Serbia (7.70%), Republic of Northern Macedonia (3.90%) and Spain (0.60%).

### 3.2. Variables

In this research following variables were used: accommodation, gastronomic offer, novelty, return intention and overall satisfaction. The questionnaire was used according to the methodology of Alkier *et al.* (2019) who prepared it by adapting the methodology of Uran Maravić *et al.* (2015), Omerzel Gomzelj *et al.* (2008), Ghose and Johann (2018), TOMAS studies conducted and published by the Institute of Tourism (2018a, 2018b) and Blažević and Peršić (2012). Questions for novelty were adapted according to the methodology of Correia *et al.* (2013), Zhang *et al.* (2013) and Mahdzar *et al.* (2015), and for return intention by Luo and Hsieh (2013).

Table 2 shows all variables used in each scale, with the respective means and standard deviations. It is important to highlight that the scales used in this study are five-point Likert scales.

Table 2. *Scales used, variables, respondent means, and standard deviations*

<i>Latent variable</i>	<i>Code</i>	<i>Item</i>	<i>Mean</i>	<i>Standard deviation</i>
Accommodation	x <sub>1</sub>	The quality of accommodation services	4.29	0.60
	x <sub>2</sub>	Quality/Price ratio for accommodation services	4.26	0.66
	x <sub>3</sub>	The existence of distinctive international accommodation brands	3.51	1.07
Gastronomic offer	x <sub>4</sub>	Food and drink	4.30	0.62
	x <sub>5</sub>	Cafes, bars and pastry shops	4.01	0.79
	x <sub>6</sub>	Quality/price ratio of food services	4.15	0.69
Novelty	x <sub>7</sub>	My stay in Opatija Riviera was adventurous	2.99	1.05
	x <sub>8</sub>	Experiences during my stay were different from any other previous experiences	3.65	0.71
	x <sub>9</sub>	I experienced new things during my stay	3.57	0.69
Return intention	x <sub>10</sub>	I feel familiar with the Opatija Riviera as a destination	3.79	0.72
	x <sub>11</sub>	I would like to revisit Opatija Riviera due to it being a famous tourist destination	3.52	0.96
	x <sub>12</sub>	This destination is worth visiting	3.95	0.65
Overall satisfaction	x <sub>13</sub>	Relation of price and quality of overall tourist offer	4.23	0.60
	x <sub>14</sub>	Relation of price and value for money of overall tourist offer	4.14	0.59
	x <sub>15</sub>	Relation of price and experience for money of overall tourist offer	4.14	0.60

Source: Authors' own work

The data in the previous table present the used latent variables, their codes, items, as well as the results of the mean and standard deviation. When observing the variable Accommodation, the highest mean was registered for the quality of tourist services, followed by the ratio between quality and price for the accommodation service, and the existence of distinctive international accommodation brands.

The results for gastronomic offer indicate that the highest mean was registered for food and drink offer, followed by the ratio of quality and price for the food services, while the lowest was for the cafes, bars and pastry shops. In terms of Novelty, the results could be considered unsatisfactory considering that all are well below 4, respectively the highest grade given to the element experiences during their stay being different than any previous ones, and the lowest given to the sense of stay in Opatija Riviera being adventurous. The results for return intention are also below 4; the highest result was given to the item the destination is worth visiting, followed by tourist's sense of feeling familiar with the Opatija Riviera as a destination, and the tendency of revisiting Opatija Riviera due to it being a famous destination. The results for overall satisfaction are somewhat more satisfying, respectively, the highest mean was given to the item relation of price and quality of overall tourist offer, while relation of price and value for money of overall tourist offer and relation of price and experience for money of overall tourist offer were practically the same.

### 3.3. Model

Model estimation and validation employ structural equation modelling. Prior that, for construction and validation of the latent variables, confirmatory factor analysis was used. Figure 1 illustrates the proposed structural model.

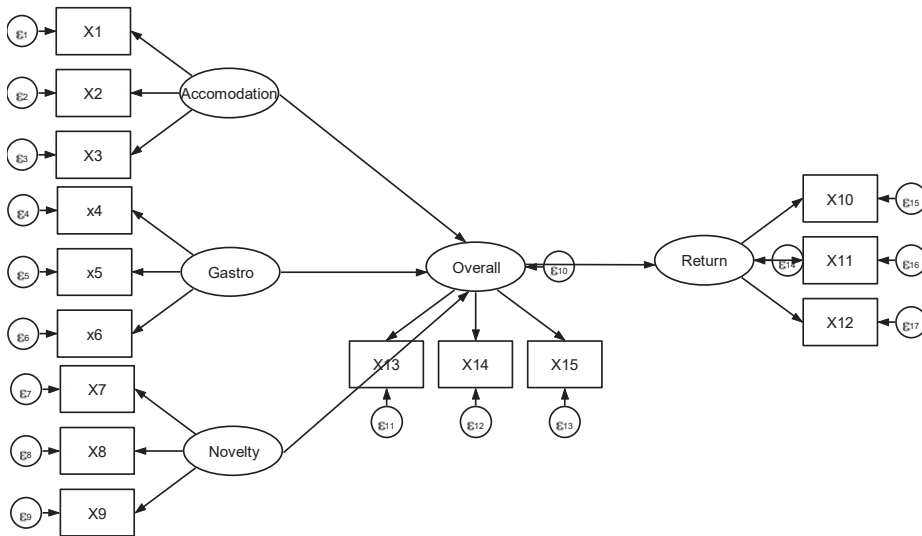


Figure 1. *Proposed structural model*

Source: Authors' own work

#### 4. Empirical results and discussion

Equations of the proposed model are given in Table 3.

Table 3. *Equations of the final proposed model*

Latent variables	Equations
Overall satisfaction	$Overall = \alpha_1 + \beta_1 Accommodation + \beta_2 Gastro + \beta_3 Novelty + \varepsilon_{Overall}$
Return intention	$Return = \alpha_2 + \beta_4 Overall + \varepsilon_{Return}$

Source: Authors' own work

The estimated model is shown in Figure 2.

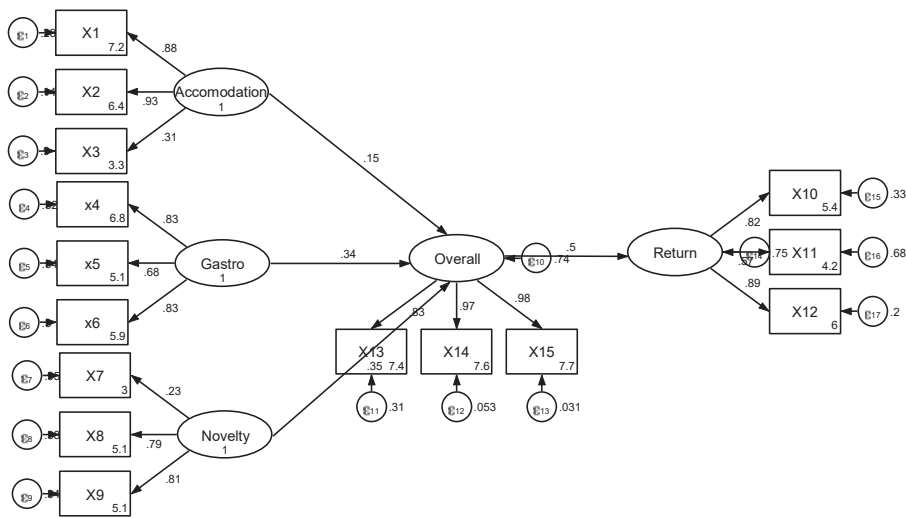


Figure 2. Estimated model

Source: Authors' own work

Next, Table 4 illustrates the significance of relations of the final proposed model.

Table 4. Significance of relations of the final proposed model

Hypothesis	Parameters			
H <sub>1</sub>	$\beta_1$	SE	p-value	R <sup>2</sup> 0.2617
	0.153	0.101	0.129	
	$\beta_2$	SE	p-value	
	0.342	0.099	0.001	
	$\beta_3$	SE	p-value	
H <sub>2</sub>	0.349	0.100	0.000	R <sup>2</sup> 0.2518
	$\beta_4$	SE	p-value	
	0.502	0.071	0.000	

Source: Authors' own work

It has been suggested that RMSEA values less than 0.05 are good, values between 0.05 and 0.08 are acceptable, values between 0.08 and 0.1 are marginal, and values greater than 0.1 are poor (Fabrigar *et al.*, 1999). The CFI value close to 0.90, and TLI over 0.90, show a relatively good fit (Bentler, 1990). Value of RMSEA is 0.09 and it is indicating a marginal model fit. In our case, values of CFI (0.922) and TLI (0.91) are indicating a relatively good model fit.

*Suma summarum*, the results are indicating that gastronomic offer and novelty have a statistically significant impact on the overall satisfaction of tourists that has a positive and statistically significant impact on return intention. This is in accordance with the findings of Khuong and Nguyen (2017).

Accommodation capacities proved to be in this case statistically insignificant, due to which H<sub>1</sub> is partially confirmed. Also, the results indicate that H<sub>2</sub> was confirmed, considering that it has been proven that tourists' overall satisfaction influences their return intention.

The results of this paper prove the necessity of further improvements of Opatija Riviera's tourist offer which is in accordance with Alkier *et al.*'s research (2019). As the limitation of this paper the authors must emphasize the size of the sample. In the future, the authors will continue to monitor the tourist's attitudes and repeat the survey on a much bigger statistical sample in order to determine the state more clearly.

The results of the empirical research implicate the necessity of some improvements of Opatija Riviera tourist offer. The authors propose the following (Alkier *et al.*, 2019, p. 27):

- Tourist offer elements need to be harmonized continuously with the preferences of destination visitors based on their expressed attitudes (with a particular accent on their satisfaction);
- Gastronomic offer has been proven to have a significant impact on visitor's satisfaction, as well as on positive decision on revisiting Opatija Riviera, which implies that further efforts need to be given on providing high-quality gastronomic offer based on Mediterranean cuisine, which is characteristic for the Opatija Riviera;
- Further investments need to be made in the development of other elements of Opatija Riviera's tourist offer (accommodation capacities, cultural tourist offer, nautical tourist offer, health tourist offer, *etc.*);
- It is advisable to introduce new elements of tourist offer based on world destinations which can be used as examples of good practice, but without disturbing the destination's authenticity;
- It is advisable to develop a tourist offer while focusing on specific segments (families, seniors, business people, *etc.*).

## 5. Conclusion

The purpose of this study was to develop and test an integrated model, that combines the measurement and the structural model, of tourists' satisfaction with a destination. In terms of satisfaction the results are relatively satisfactory in terms of quality of accommodation services and ratio among quality provided and price that was paid, while the existence of internationally recognized brands was graded the lowest. The results for the gastronomic offer and overall satisfaction with the tourist offer can also be considered as satisfactory in terms of satisfaction, unlike for novelty and return intention.

The results are indicating that gastronomic offer and novelty have a statistically significant impact on the overall satisfaction of tourists that, furthermore, has a positive and statistically significant impact on return intention. The authors have proposed some developmental guidelines based on the determined current attitudes of visitors of Opatija Riviera.

These guidelines are subject to change based on the future attitudes that are going to be determined, considering that the authors will continue to gather information about the level of satisfaction until reaching a much higher statistical sample, based on which it will be possible to obtain a much clearer picture.

For future research, the authors propose monitoring of current trends on the tourist market, as well as continuing to gather information about the level of satisfaction of Opatija Riviera visitors with the tourist offer.

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# THE IMPACT OF BEHAVIORAL FACTORS ON PROPENSITY TOWARD INDEBTEDNESS AMONG YOUTH: A STRUCTURAL EQUATION MODELLING APPROACH

## UTJECAJ BIHEJVIORALNIH FAKTORA NA SKLONOST PREMA ZADUŽIVANJU MLADIH: PRISTUP ZASNOVAN NA STRUKTURALNOM MODELIRANJU

### Abstract

*Indebtedness is the phenomenon that is an issue of extreme importance when it comes to young women and men because it may reduce their opportunities for a lifetime. However, being in debt does not necessarily refer to a negative outcome. The purpose of this study is to construct an integrated model, that combines the measurement and the structural model, of a propensity toward indebtedness among youth by using behavioral factors. To gain a better understanding of the propensity toward indebtedness among youth we use a structural equation modelling approach. Prior to that, and for construction and validation of the constructs, confirmatory factor analysis is used. The theoretical model is evaluated based on the fit indices and the statistical significance of the estimated coefficients. The analysis results have revealed that propensity toward indebtedness among youth is mainly driven by the behavioral factors, i.e. risky behavior. It has been confirmed that the value of money significantly predicts materialism and that risk behavior significantly predicts responsible financial behavior. The results of this study are revealing the possible methodology of early detection of vulnerable young women and men when it comes to their propensity toward indebtedness. These results may produce useful pieces of information which might be helpful for decision-makers in the process of creating specific financial education programs tailored for young people and aimed at preventing their potential over-indebtedness.*

**Keywords:** propensity toward indebtedness, youth, behavioral factors, structural equation modelling

**JEL:** C3, C83, G40

### Sažetak

*Zaduženost je fenomen koji je od iznimne važnosti kada je riječ o mladima jer može negativno utjecati na njihove životne prilike. Međutim, biti zadužen ne mora nužno rezultirati negativnim ishodom. Svrha ove studije je izgraditi integralni model, koji kombinira mjerni i strukturalni model, sklonosti prema zaduženosti*

*mladih na osnovu bihejvioralnih faktora. Da bi se bolje razumjela sklonost prema zaduživanju mladih korišteno je modeliranje strukturalnim jednačinama. Prije toga, prilikom konstrukcije i validacije konstrukata, korištena je konfirmatorna faktorska analiza. Teorijski model je evaluiran putem indeksa fitovanja i statističke značajnosti estimiranih koeficijenata. Rezultati analize otkrili su da na sklonost prema zaduženosti mladih uglavnom utječu bihejvioralni faktori, tj. rizično ponašanje. Potvrđeno je da vrijednost novca značajno predviđa materijalizam te da rizično ponašanje značajno predviđa odgovorno finansijsko ponašanje. Rezultati provedenog istraživanja daju uvid u moguću metodologiju ranog otkrivanja ranjivih kategorija mladih ljudi kada je u pitanju njihova sklonost prema zaduživanju. Ovi rezultati mogu proizvesti korisne informacije koje bi mogle biti od pomoći donosiocima odluka i u procesu kreiranja specifičnih programa iz oblasti finansijske edukacije prilagođenih mladima, a sve u cilju sprečavanja njihove potencijalne prezaduženosti.*

**Ključne riječi:** sklonost prema zaduživanju, mladi, bihejvioralni faktori, modeliranje strukturalnim jednačinama

**JEL:** C3, C83, G40

## 1. Introduction

Indebtedness is the phenomenon that is an issue of extreme importance when it comes to young women and men because it may reduce their opportunities for a lifetime. However, being in debt does not necessarily refer to a negative outcome. If the debt helps to generate income or increase the net worth of a young person, that can be considered as good debt. Contrary, bad debt is the one that does not generate income nor increase the net worth of a young person. Although there are many other factors that may contribute to the individual indebtedness, it is argued that it is of critical importance to understand behavioral factors that could lead to over-indebtedness. The purpose of this study is to construct an integrated model, that combines the measurement and the structural model, of a propensity toward indebtedness among youth by using behavioral factors.

Having in mind the above said the authors propose the following research hypotheses:

*H<sub>1</sub>:* Value of money, materialism, risk behaviour and responsible financial behaviour influence propensity toward indebtedness.

*H<sub>2</sub>:* Risk behaviour influences responsible financial behavior.

*H<sub>3</sub>:* Value of money influences materialism

*H<sub>4</sub>:* Materialism influences risk behavior.

A possible limitation of this study is the small sample that limits the generalization of the findings. However, these results are expected to shed light on possible methodology of early detection of vulnerable young women and men when it comes to their propensity toward indebtedness. The paper is expected to produce useful pieces of information which might be helpful for government decision-makers in the process of creating specific financial education programs tailored for young people and aimed at preventing their potential over-indebtedness.

The paper is organized as follows. After the introduction, part two gives a short overview of the theoretical framework that is relevant to the main objective of the paper. Part three outlines the data and research methodology. Part four is the centre of the paper and contains analysis and discussion of the original empirical results. The last part contains some final remarks and conclusions.

## 2. Theoretical framework

According to Ranyard, McHugh and McNair (2017), a growing body of research has shown that being in debt can lead to a significant psychological detriment, including depression, stress and anxiety. That is why during the evaluation of debt problems not only economic but also behavioral factors need to be considered. In that respect, Xiao, Tang and Shim (2011), have pointed out that

behavioral intention is the most important factor in preventing risky debt behaviors. Interestingly, and when it comes to financial knowledge, Idris *et al.* (2018) came to the conclusion that an individual with good financial knowledge and debt literate, can also be associated with high debt and over-indebtedness.

It is evident that already a large body of recent research is treating the phenomenon of debt by combining both economic and behavioural factors. In this context, besides financial knowledge, as a core economic factor, following behavioural factors are mostly being used (Watson (2003), Mozafari, Mowlaie & Bahmani (2017), Azma *et al.* (2019), Flores & Vieira (2014), Watson (1998), Caetano, Patrinos & Palacios (2011), Stone & Maury (2006), Azimi Doosti & Karampour (2017), *etc.*): value of money, materialism, emotions, risk behavior, risk perception and financial behavior.

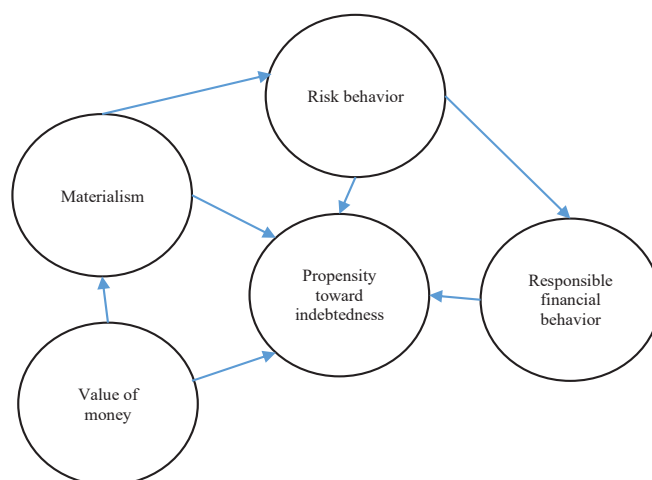
Value of money is the importance that individuals attribute to the money itself. Stone and Maury (2006) found evidence that the value of money impacts propensity toward indebtedness. Furthermore, Flores and Vieira (2014) found a positive impact of the value of money on materialism.

Materialism is related to consumption and can be defined as “the importance given to the possession and acquisition of material goods in achieving life goals or desired states” (Richins & Dawson, 1992, p. 32). In that respect, Watson (1998, 2003) has found that materialism positively impacts propensity toward indebtedness and that highly materialistic people are more likely to view themselves as spenders and have more favourable attitudes toward borrowing.

Emotions can be interpreted as an individual ability to express them (positive or negative) when handling financial decisions (Flores & Vieira, 2014, p. 2). Not surprisingly, Ting (2017, p. 55) claims that those with external indebtedness tend to feel more negative emotions. Similar results are reported by Azma *et al.* (2019) who have found that emotion and materialism are statistically significant for a propensity toward indebtedness, while financial literacy and risk perceptions are insignificant for a propensity toward indebtedness. This has also been supported by the results of Mozafari, Mowlaie and Bahmani (2017).

Furthermore, Caetano, Patrinos and Palacios (2011) stated that risk behaviour, as another behavioral factor, also has an impact on propensity toward indebtedness. Similar, Flores and Vieira (2014) presented results of the positive impact of materialism and risk behavior on propensity toward indebtedness and of the negative influence of risk perception, emotion, and value of money on propensity toward indebtedness. This has also been supported by the results of Azimi Doosti and Karampour (2017).

Based on the presented findings, the focus of this research will be on materialism, risk behaviour, the value of money and responsible financial behaviour. This theoretical concept is presented in Figure 1.

Figure 1. *Theoretical concept*

Source: Authors' own work

### 3. Data and methodology

#### 3.1. Data source and sample

In this research, youth is represented by the students from the University of Tuzla and the University of Bihać, both, from Bosnia and Herzegovina. Using the purposive sampling technique, data collection was carried out from April to August 2019, yielding a sample of 345 valid respondents. The majority, *i.e.* 295 students, or 85.5%, were enrolled in the Faculty of Economics. Table 1 gives a brief overview of the basic characteristics of the sample.

Table 1. *Overview of basic characteristics of the sample*

Characteristic		Frequency	Per cent
Gender	Male	87	25.2
	Female	258	74.8
Year of study	1 <sup>st</sup>	88	25.5
	2 <sup>nd</sup>	70	20.3
	3 <sup>rd</sup>	105	30.4
	4 <sup>th</sup>	82	23.8
Living environment	Urban	223	64.6
	Rural	122	35.4
Average monthly pocket money	less than 50 BAM	29	8.7
	51-100 BAM	67	20.0
	101-150 BAM	57	17.0
	151-200 BAM	54	16.1
	201-250 BAM	33	9.9
	251-300 BAM	17	5.1
	more than 301 BAM	78	23.3

Source: Authors' own work

The data collection instrument is a structured questionnaire with closed questions, divided into several sections. The first section addresses the propensity toward indebtedness, responsible financial behavior, value of money, materialism and risk behavior, whereas the second section considers specific socio-economic characteristics of the respondents.

### 3.2. Variables

In this research following variables were used: propensity toward indebtedness, responsible financial behavior, the value of money, materialism and risk behavior. These variables were measured using the scales developed by Flores and Vieira (2014), based on the work of Matta (2007), Disney and Gathergood (2011), Moura (2005) and Moreira (2000). Table 2 shows all variables used in each scale, with the respective means, and standard deviations. It is important to highlight that the scales used in this study are five-point Likert scales.

Table 2. Scales used, variables, means and standard deviations

Latent variable	Code	Item	Mean	St. dev.
Propensity toward indebtedness	IND1	It is not correct to spend more money than I make*	1.84	1.07
	IND2	I know exactly how much I owe in stores, or to the bank*	1.86	1.20
	IND3	I think it is normal for people to be in debt to pay their bills	2.60	1.22
	IND4	I would rather buy in instalments than to wait to gather money to buy in cash	2.33	1.24
	IND5	It is important to know how to control the expenses in my house*	1.90	1.07
	IND6	I would rather pay in instalments even if the total is more expensive	2.29	1.21
	IND7	There is no problem to have a debt if I know I can pay it	3.26	1.23
Responsible financial behavior	RFB1	I take notes and control all personal expenses	1.44	1.00
	RFB2	I set financial goals that influence money I have at my disposal (e.g., save a specific amount in a year, avoid overdrafts)	2.48	1.26
	RFB3	I follow a budget (pocket money) or a weekly or monthly expense plan	2.10	1.10
	RFB4	I am satisfied with my method to control finances	2.01	1.18
	RFB5	I pay my bills without any delay	2.23	1.09
	RFB6	In order to avoid finance charges, I pay instalments on time	2.16	1.20
Value of money	MV1	Money helps me to be happy	3.04	1.19
	MV2	The one who has money also has authority over others	2.88	1.26
	MV3	Spiritual rewards are more important than money*	4.11	1.19
	MV5	Money builds a better place	3.36	1.26
Materialism	M1	I admire people who possess expensive houses, cars, and clothes	2.26	1.19
	M2	I like to spend money on expensive things	2.58	1.25
	M3	Buying gives me pleasure	3.42	1.16
	M4	I like to possess things to impress other people	2.35	1.21
	M5	I like to have a lot of luxury in my life	2.53	1.24
	M6	It bothers me when I cannot buy everything I want	2.76	1.24
Risk behavior	RB1	I spend a great amount of money on the lottery	1.44	1.00
	RB2	I accept being a guarantor for someone	2.48	1.26
	RB3	I spend money impulsively, without thinking of the consequences	2.10	1.10
	RB4	I invest in businesses that have great chances of not working well	2.01	1.18
	RB5	I lend a great proportion of personal income to a friend or relative	2.23	1.09
	RB6	I prefer instalment purchase rather than saving and buying in cash	2.16	1.20

Note: \* - reverse coded item

Source: Authors' own work

The data in the previous table present the used latent variables, their codes, items, as well as the results of the mean and standard deviation. When observing *propensity toward indebtedness*, the highest mean was registered for the IND7, i.e. having no problem to have a debt if it can be paid off. When it comes to *responsible financial behavior*, the highest mean was registered for the RFB2, i.e. setting financial goals. When observing the *value of money*, the highest mean was registered for MV3, i.e. the importance of spiritual rewards. Finally, in case of *materialism*, the highest mean was registered for M3, i.e. purchasing pleasure, and in case of *risk behavior*, the highest mean was registered for RB2, i.e. being a guarantor for someone.

### 3.3. Model

Model estimation and validation employ structural equation modelling. Prior that, for construction and validation of the latent variables, confirmatory factor analysis was used. Figure 2 illustrates proposed structural model.

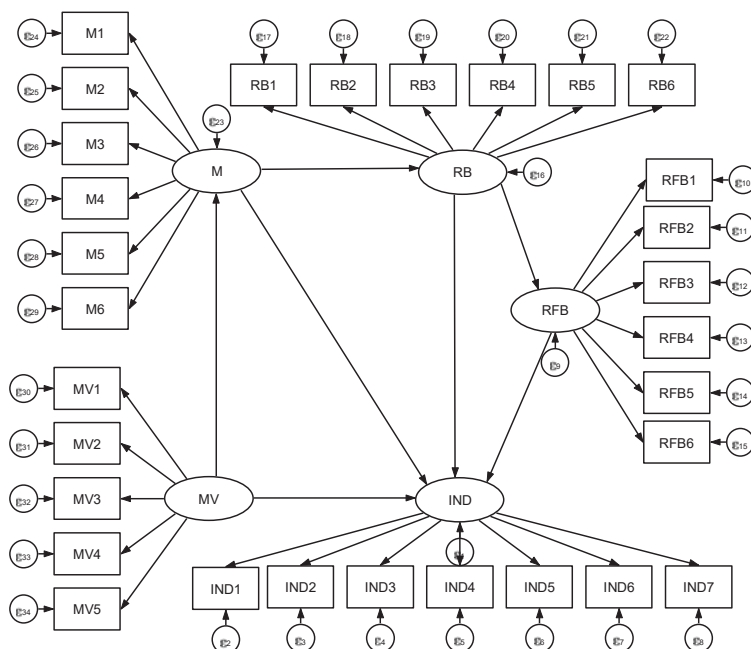


Figure 2. *Proposed structural model*

Note: M = materialism; IND = indebtedness; RB = risk behavior; RFB = responsible financial behavior; MV = money values.

Source: Authors' own work

## 4. Empirical results and discussion

For construction and validation of the latent variables, confirmatory factor analysis was used. The convergent validity of each latent variable is assessed by observing the following fit indices of the model: root mean square error of approximation (RMSEA), comparative fit index (CFI) and Tucker–Lewis index (TLI) and standardized root mean squared residual (SRMR).

Table 3. *Initial vs. final items*

Latent variable	Initial items	Final items
Propensity toward indebtedness	IND1, IND2, IND3, IND4, IND5, IND6, IND7	IND4, IND6, IND7
Responsible financial behavior	RFB1, RFB2, RFB3, RFB4, RFB5, RFB6	RFB1, RFB2, RFB3
Value of money	MV1, MV2, MV3, MV4, MV5	MV1, MV2, MV4
Materialism	M1, M2, M3, M4, M5, M6	M3, M4, M5, M6
Risk behavior	RB1, RB2, RB3, RB4, RB5, RB6	RB2, RB3, RB5

Source: Authors' own work

Equations of the proposed model are given in Table 4.

Table 4. Equations of the final proposed model

Latent variables	Equations
Propensity toward indebtedness	$IND = \alpha_1 + \beta_1 MV + \beta_2 M + \beta_3 RB + \beta_4 RFB + \varepsilon_{IND}$
Responsible financial behavior	$RFB = \alpha_2 + \beta_5 RB + \varepsilon_{RFB}$
Materialism	$M = \alpha_3 + \beta_6 MV + \varepsilon_M$
Risk behavior	$RB = \alpha_4 + \beta_7 M + \varepsilon_{RB}$

Source: Authors' own work

The final model obtained after modification is shown in Figure 3.

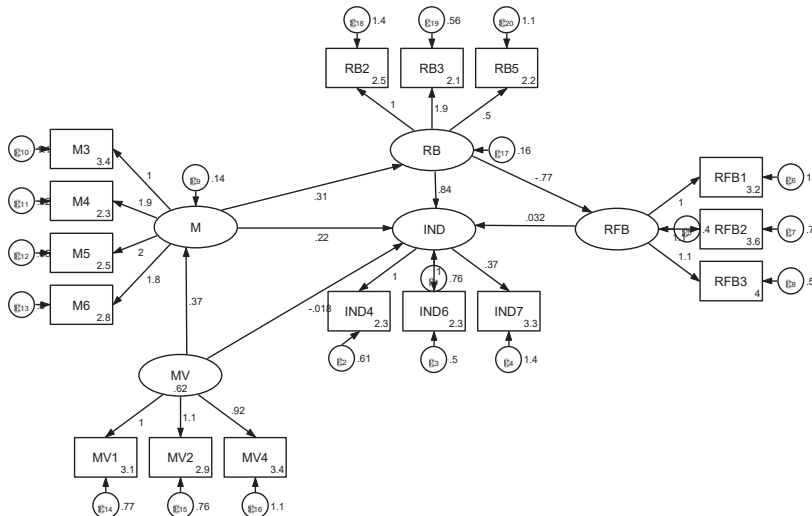


Figure 3. Estimated model

Note: M = materialism; IND = indebtedness; RB = risk behavior; RFB = responsible financial behavior; MV = money values.

Source: Authors' own work

Next, Table 5 illustrates the significance of relations of the final proposed model and Table 6 presents fit indices.

Table 5. Significance of relations of the final proposed model

Hypothesis	Parameters			
H <sub>1</sub>	$\beta_1$	SE	p-value	R <sup>2</sup> 0.163
	-0.015	0.104	0.885	
	$\beta_2$	SE	p-value	
	0.109	0.114	0.339	
	$\beta_3$	SE	p-value	
	0.370	0.134	0.006	
H <sub>2</sub>	$\beta_4$	SE	p-value	R <sup>2</sup> 0.208
	0.024	0.099	0.807	
H <sub>3</sub>	$\beta_5$	SE	p-value	R <sup>2</sup> 0.391
	-0.457	0.075	0.000	
H <sub>4</sub>	$\beta_6$	SE	p-value	R <sup>2</sup> 0.117
	0.625	0.054	0.000	
	$\beta_7$	SE	p-value	
	0.342	0.079	0.000	

Source: Authors' own work

Table 6. *Fit indices of the proposed model*

Fit index	Value
RMSEA	0.045
CFI	0.940
TLI	0.926
SRMR	0.049

Source: Authors' own work

It has been suggested that RMSEA values less than 0.05 are good, values between 0.05 and 0.08 are acceptable, values between 0.08 and 0.1 are marginal, and values greater than 0.1 are poor (Fabrigar *et al.*, 1999). The CFI value close to 0.90, and TLI over 0.90, show a relatively good fit (Bentler, 1990). When it comes to SRMR, a value less than 0.08 is generally considered a good fit (Hu & Bentler, 1999).

Based on the results presented in Table 5, it is reasonable to claim a statistically significant impact of risk behavior on propensity toward indebtedness (hypothesis H<sub>1</sub>). Risk behavior reduces the probability of experiencing negative feelings toward indebtedness because purchasing usually gives such people positive emotions (Flores & Vieira, 2014, p. 5). Furthermore, it is found that risk behavior significantly predicts responsible financial behavior (hypothesis H<sub>2</sub>), value of money significantly predicts materialism (hypothesis H<sub>3</sub>), and that materialism significantly predicts risk behavior (hypothesis H<sub>4</sub>). These findings are in accordance with the findings of Flores and Vieira (2014) and Azimi Doosti and Karampour (2017).

## 5. Conclusion

To date, a considerable body of research has sought to understand the propensity toward indebtedness among youth. However, this pioneering research was dealing with an in-depth analysis of propensity toward indebtedness among youth from Bosnia and Herzegovina.

The analysis results have revealed that propensity toward indebtedness among youth from Bosnia and Herzegovina is driven by the behavioral factors, *i.e.* risky behavior. Besides, it has been confirmed that the value of money significantly predicts materialism which means that the more young people value the money the higher their level of consumption and materialism will be. Furthermore, risk behavior significantly predicts responsible financial behavior. The nature of this relationship is inverse.

Although this empirical research was conducted on a relatively small sample size and the limited territory of Bosnia and Herzegovina, these results may produce useful pieces of information which might be helpful for decision-makers in Bosnia and Herzegovina in the process of creating specific financial education programs tailored for young people and aimed at preventing their potential over-indebtedness.

For future research, we propose a greater and more representative sample of young people and the inclusion of more detailed information about their profile such as demographic, cultural, economic characteristics as well as other behavioral factors (emotions, risk perceptions), *etc.*

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## THE ROLE OF PUBLIC PRIVATE PARTNERSHIP IN DEVELOPING CATASTROPHE INSURANCE MARKET

### ULOGA JAVNO PRIVATNOG PARTNERSTVA U RAZVOJU TRŽIŠTA OSIGURANJA OD KATASTROFA

#### Abstract

*Natural and man made disasters cause severe human, physical and economic damage, both for the economy and for the population. There is a widespread perception that property insurance is the most efficient and economical way to protect against financial losses caused by natural disasters. Regardless of this fact, in many countries in the world, natural disasters insurance is poorly developed, both on the supply side and on the demand side. The analysed trends in the coverage of the damage from the catastrophic risks on a global level in the period from 2000 to 2016 show that on average only 28.8% of the total damages are covered. Effective strategies for financing catastrophic risks must be tailored to the needs and capabilities of each country. For these reasons, the paper analyses various world experiences taking into account countries with different degrees of development and systems (Australia, Austria, the UK, the Caribbean, China, Romania, Russia, USA, Spain, France, Turkey and Romania). A special survey was conducted in North Macedonia, which was taken as a case study. The conclusions suggest that the insurance of catastrophic risks should be organized as compulsory insurance for households in urban areas. Regarding the risks, we consider that earthquake risk should be compulsorily followed by flood, although at the individual level the consequences of the flood affect relatively a smaller population coverage. Making a legally binding solution must be well thought out in the area of law enforcement. Regarding the operational aspects of implementing a legally binding solution, the principles of insurance should be used, and the world practice indicates that it is possible only with the involvement of the insurance companies.*

**Keywords:** catastrophe risk, insurance, public private partnership

**JEL:** G22, G32

#### Sažetak

*Prirodne i katastrofe nastale ljudskom greškom uzrokuju velike ljudske, fizičke i ekonomske štete, kako za privredu, tako i za stanovništvo. Rasprostranjena je percepcija da je imovinsko osiguranje najefikasniji i najekonomičniji način zaštite od financijskih gubitaka uzrokovanih prirodnim katastrofama. Bez obzira na tu činjenicu, u mnogim zemljama svijeta osiguranje od prirodnih katastrofa je slabo razvijeno, i na strani ponude i na strani potražnje. Analizirani trendovi pokrivanja štete od rizika od katastrofa na globalnom nivou u razdoblju od 2000. do 2016. godine pokazuju da je u prosjeku pokriveno samo 28,8% ukupne štete. Učinkovite strategije finansiranja rizika od katastrofa moraju biti prilagođene potrebama i mogućnostima svake zemlje. Iz tih razloga, rad analizira različita svjetska iskustva uzimajući u obzir zemlje različitog stepena razvoja i sistema (Australija, Austrija, Velika Britanija, Karibi, Kina, Rumunjska, Rusija, SAD, Španija, Francuska, Turska i Rumunjska). Posebna anketa provedena je u Sjevernoj Makedoniji, što je uzeto kao studija slučaja. Zaključci sugeriraju da osiguranje katastrofalnih rizika treba organizovati kao obavezno osiguranje domaćinstava u urbanim područjima. Što se tiče rizika, smatramo da bi rizik od zemljotresa trebao biti obavezan, praćen rizikom od poplava, mada na pojedinačnom nivou posljedice poplave utječu na relativno manju populaciju. Donošenje pravno obavezujućeg rješenja mora biti dobro osmišljeno u području provedbe zakona. U pogledu operativnih aspekata implementacije pravno obavezujućeg rješenja, potrebno je koristiti principe osiguranja, a svjetska praksa ukazuje da je ono moguće samo uz sudjelovanje osiguravajućih društava.*

**Ključne riječi:** rizik od katastrofa, osiguranje, javno privatno partnerstvo

**JEL:** G22, G32

## 1. Introduction

When disasters occur, countries with limited economic power often require assistance from international donor institutions or divert funds from other development projects to respond to the urgency of emerging needs. Although the importance of catastrophic risk financing is well known, markets for catastrophic risks are constrained by market imperfection which is a limiting factor for their expansion, especially in developing countries. The objective of the paper is to promote disaster risk financing as an integral part of the country's economic policy and as an important part of forming a proactive and strategic framework for disaster risk management. The paper will also explore the form of public intervention in order to develop the catastrophic risk insurance market in the country.

## 2. Basic premises

Particular attention is paid to developing countries achieving development goals in cooperation with international financial institutions (IFIs) and the donor community. Although the experience of the World Bank and the IFIs in encouraging disaster risk financing strategies is relatively new, nevertheless, based on the effects achieved in different countries, Cummins and Mahul (2009) set out the following five key principles for public intervention in the catastrophe risk insurance markets in developing countries:

- Promote catastrophe risk financing in the dialogue on disaster risk management with low- and middle-income countries.
- Enhance competitive catastrophe risk markets.
- Use risk-based price signals to encourage catastrophe risk management
- Limit public subsidy programs to those that minimize distortions of market price signals.
- Develop customized catastrophe insurance solutions.

The principles rely on the premises of public-private partnerships between the insurance sector, the state and international financial institutions. The background of this position lies in the market-enhancing theory (Lewis & Murdock, 1999) which recognizes that market failures can create suboptimal allocations of resources and that private sector coordination is not always effective. This view holds that public policy should facilitate the development of the private market, for instance, by improving information flows, but should not create permanent new government institutions to substitute for private solutions.

The most important conclusion from all the principles is that effective disaster risk financing strategies must be tailored to each country's needs and capabilities, and should rely on a combination of ex-ante and post-disaster financial instruments by stratifying disaster risk coverage. The first layer can be managed by setting up a reserve fund to cover small and recurring losses. Higher layers may be covered primarily with insurance to protect critical public funds, followed by reinsurance and the use of alternative risk transfer techniques such as CAT bonds.

## 3. Characteristics of the catastrophic risks insurance market worldwide

Setting the disaster risk financing is quite complex and has proven to be that there is no one size fits all solution. Countries that have left the development of catastrophic risk insurance markets to market mechanisms, and have noticed certain success in developing catastrophic insurance markets, are almost without exception highly developed countries with a long insurance tradition and high insurance penetration rates (UK, Australia and Austria) in the segment of voluntary household

insurance (CCS, 2009; COAG, 2004; OECD, 2005). The main feature of this type of catastrophic insurance market is negative selection. That means that those being more exposed to the risks and the main insured in the system, which opens the circle of increasing premiums and thus narrowing the number of policyholders and with it increasing the reluctance of insurance companies to offer coverage for certain risks in certain areas. This is also the reason for opening up a dialogue with governments to reach certain agreements such as the UK and Austria where we are constantly witnessing certain compromises with insurers in order to keep the offer open at affordable prices while asking the government to increase investment in risk prevention. The advantage for countries in this group is that they have not undertaken any potential commitments related to disaster risk (re)insurance, but are very active in the field of prevention and ex-post financing of the consequences of catastrophic risks. Given the set-up of this type of system, the role of public-private partnerships cannot be discussed for the reason that the role of the state is minimal and only appears as an interested party only when defining certain broader frameworks of market functioning.

Countries that have a developed market for catastrophic risk insurance through the solidarity model as a state strategy (Spain and France) have one major advantage with avoiding the negative selection because of the implicit mandatory feature of the programs, introduced through an additional mandatory premium at voluntary insurance (CCS, 2009; CCR, 2015). In this context, the example of Spain is more prudent because the state does not engage in reimbursement for non-insured citizens, *i.e.* there is no ex-post financing for individual cases or it is minimal, whereas in France this attitude is conditional on whether it will be declared a disaster through a publication in an official newsletter. In addition, the Spanish system, which is considered to promote less solidarity than the French one, has a larger coverage of subject insurance (property, persons, cars), than the French one which has less coverage (property and liability). Both systems are successful, working with damage coefficients that allow for permanent accumulation, but the success must be seen in the broader context, which is that they are large (by population) and developed (by density and insurance penetration) markets, and are characterized by the fact that there is no dominant catastrophic risk in these countries, although this is especially true for Spain, while in France floods are a significant risk.

The case of the United States, especially the flood insurance system, is the most frequently criticized catastrophe insurance system for inadequate debt-generating premium rates (Lloyd's, 2011). Although the system is not set up on a solidarity basis, the consequences of inadequate regulation are ultimately borne by all federal taxpayers (GAO, 2011; Gurenko, 2007).

The latest generation of catastrophic risk insurance systems, such as those in Turkey and Romania, deserve special attention (TCIP, 2016; Gurenko, 2006; PAID, 2017). Both are similarly set up as compulsory independent insurances by overcoming the problem of negative selection, but in terms of subsidies between different risk exposures the Turkish model is preferred because premium rates are set according to risk. In addition, a turning point in the Turkish model is the successful implementation of the compulsory component introduced in 2012 when compulsory insurance is linked to the use of utilities (electricity and water) which contributed to a 20% penetration rate in 2012 to 43% in 2016. China and Russia are analysed as well, as big countries. The short conclusion is that there is no risk disaster risk financing scheme, and that the catastrophe risk insurance is pure commercially offered with very low penetration rates (OECD, 2015).

#### 4. Research

In order to perceive the state of development of the domestic market a research was conveyed over insurance companies and general public, using combination of primary and secondary data.

The publicly available financial statements of insurance companies and Insurance Supervision Agency (ISA) statistical reports have been used for data on insurance companies and their

participation in catastrophic risk insurance. In order to obtain information on the extent of catastrophic risk insurance coverage, ISA in 2011 adopted a by-law regulation and provided for a special reporting form (SP-8) within the framework of regular statistical reporting through which insurance companies report: (i) fire risks; (ii) an earthquake; (iii) floods, torrents and high waters and (iv) hail and ice. Table 1 provides an overview of the gross written premium (GWP) for earthquake and flood for the period 2012 to 2016 in absolute amounts and as a share of the property insurance premium, in all non-life insurance premiums and as a share of total GWP.

Table 1. *Share of earthquake and flood premium in the structure of the GWP in the period 2012 to 2016*  
(000 denars)

Year		Property GWP	Non-life GWP	Total GWP
2012		1,393,087	6,415,488	7,013,622
2013		1,315,627	6,464,042	7,193,501
2014		1,379,199	6,742,404	7,630,733
2015		1,641,334	7,178,720	8,279,711
2016		1,555,075	7,429,950	8,721,620
	<i>Earthquake</i>	<i>% Property</i>	<i>% Non-life</i>	<i>% Total GWP</i>
2012	126,090	9.05%	1.97%	1.80%
2013	85,340	6.49%	1.32%	1.19%
2014	63,185	4.58%	0.94%	0.83%
2015	120,109	7.32%	1.67%	1.45%
2016	103,953	6.68%	1.40%	1.19%
	<i>Flood</i>	<i>% Property</i>	<i>% Non-life</i>	<i>% Total GWP</i>
2012	33,158	2.38%	0.52%	0.47%
2013	57,974	4.41%	0.90%	0.81%
2014	38,021	2.76%	0.56%	0.50%
2015	65,276	3.98%	0.91%	0.79%
2016	77,240	4.97%	1.04%	0.89%

Source: Author's own work

From this overview, we can conclude that the earthquake premium was highest in 2012, and then declines in absolute terms and in real terms in all mentioned categories. The trend in the floods is different, *i.e.* there is a steady upward trend with more than doubling in the period.

If we analyse the trend by the number of contracts concluded with earthquake and flood coverage (Table 2), we come to a different conclusion. The number of policies concluded involving earthquake risk at the end of 2016 is 667% higher than in 2011, which only leads to the conclusion that the average policy premium is significantly reduced. The number of concluded policies that include flood risk in the analysed period closely follows the development of the GWP.

Table 2. *Number of insurance contracts*

Year	Total	Earthquake	% Total	Flood	% Total
2012	1,023,983	1,346	0.13%	27,478	2.70%
2013	1,065,816	1,233	0.12%	27,971	2.60%
2014	1,135,156	2,812	0.25%	32,049	2.80%
2015	1,135,156	4,831	0.43%	34,210	3.00%
2016	1,292,749	8,979	0.69%	44,240	3.40%

Source: Author's own work

From this analysis, we can conclude that catastrophic risk insurance in the country records small developments in the analysed period, providing a very low level of protection against catastrophic events.

In order to see possible steps for further development of the market through the insurance companies' prism, we use the data collected through a questionnaire. The questionnaire for insurance companies consists of 10 questions with different types of answers (multiple answer option, one answer option, Likert scale with a numerical rating scale of 1 to 5, and one open question). The survey was conducted using a tool available to users online. The questionnaire, or link to the questionnaire, was distributed via email to the CEOs of all 11 non-life insurance companies. The response rate was 100%.

The general public questionnaire on perceptions of the impact of catastrophic risks and the techniques to deal with the consequences they bring, due to the inability and irrationality to investigate the entire population, was conducted through a sample survey. This method is also called the method of selection or representative study. The questionnaire was answered by 253 respondents, highlighting the fact that the limitation of this approach is that the sample may not be representative enough to allow generalization of the conclusions.

The data were collected through a questionnaire developed following the Kunreuther model (1977) and Slovic *et al.* (1977) who found that insurance purchase decisions consist of three stages: first, awareness of the dangers and their potential for damages; second, considering insurance as a disaster management mechanism; third, the collection and processing of insurance information. The design of the questionnaires is adapted from the research conducted by Wang *et al.* (2012) and considers the following three categories: first, hazard awareness and disaster experience; second, experience with insurance and insurance thinking as a disaster management mechanism; third, the acceptance of insurance and the willingness to pay. The questionnaire consists of 14 questions with different types of answers (multiple answers, one answer and two open-ended questions). The survey was conducted using a tool available to users online. The questionnaire or link to the questionnaire was distributed in different ways, by using target groups by sending the link to the questionnaire via email, as well as by using announcements with a call to participate in social network research (Facebook and LinkedIn).

#### 4.1. Insurance companies' data result

All insurance companies in the Republic of North Macedonia, on the question of which catastrophic risks are covered by their insurance products, stated that they offer flood and earthquake coverage, while the other risks are covered by a smaller number of companies (Figure 1).

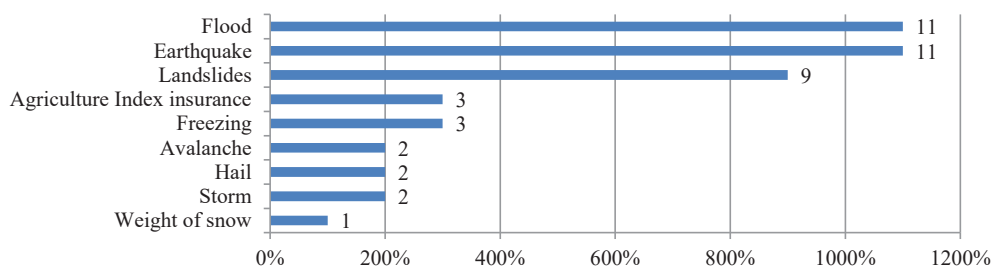


Figure 1. Insurance against catastrophic risks offered in the domestic market

Source: Author's own work

Asked how they have developed their insurance products, insurance companies had the three options with multiple choices. From the options offered 6 companies chose one way, 3 companies chose 2 ways, and 2 companies chose to use all offered ways in developing their insurance products. Most of them (8) independently developed insurance product, while 6 out of 9 insurance companies belonging

to insurance groups developed a product within the group. Four insurance companies, on the other hand, have adopted the products developed through the state-owned project Europe Re.

Asked if they were satisfied with the level of sales of insurance products that cover catastrophic risks, 72.7% of the companies responded that they were moderately satisfied, while the rest were more reserved in their sales. Our view is that this low penetration rate of catastrophic insurance sales indicates that the companies have either given too strong answers or their sales targets are too low. In both cases, the answer is not in favour of sales development.

In order to assess their perception, insurance companies were asked to assess their level of development of the national awareness of the consequences of catastrophic risks and the reduction of their effects through insurance. 91% or 10 companies consider the level of development as underdeveloped. This attitude of the companies is correlated with the current level of development and penetration rate in the insurance market.

One of the key questions for insurance companies in research is whether they believe that the state should somehow be involved in the creation of insurance products for catastrophic risks. On this question, 36% of insurance companies believe that the state should not be involved in the creation of insurance products for catastrophic risks, but should be left to the mechanisms of supply and demand.

In contrast, 64% of insurance companies believe that the state should offer a unified catastrophe insurance product, which is an encouraging signal in the context of promoting public-private partnerships between the state and the insurance sector. 37% believe that this product should be sold through all insurance companies for some intermediary fee, with the option to retain some of the risk within the insurance capacity, while 27% consider that product to be sold through the companies for insurance that will join voluntarily (Figure 2).

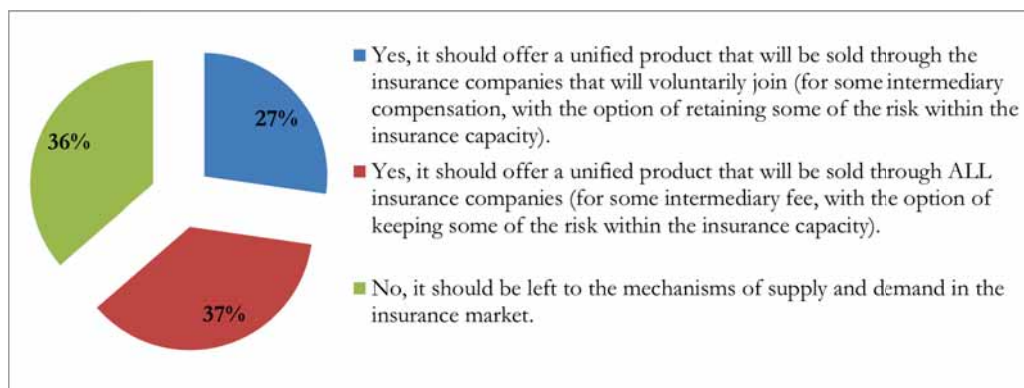


Figure 2. State involvement in the creation of catastrophic insurance products

Source: Author's own work

From a survey conducted to the general public, we came to the conclusion that citizens feel they are most exposed to earthquake and flood risks. Having in mind that the penetration rate of these two catastrophic risks is still very low in the country, we asked the insurance companies whether they consider that the insurance of these two catastrophic risks should be compulsory for the citizens. On this question, 46% of the insurance companies stated that they do not support the concept of compulsory insurance. In contrast, the majority (56%) favour compulsory insurance, with 18% favouring compulsory earthquake insurance, while 36% favour compulsory insurance in addition to earthquake and flood insurance (Figure 3). No company has stated that there is only compulsory flood insurance.

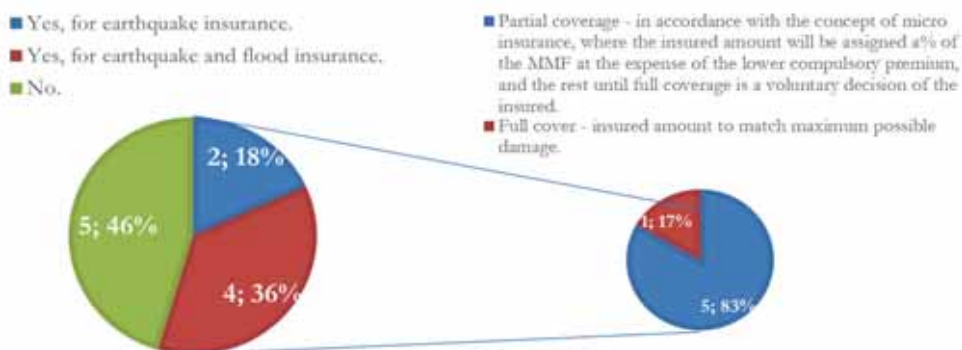


Figure 3. *Voluntary versus compulsory insurance*

Source: Author's own work

In addition to the previous question for those who chose compulsory insurance as an option, they were offered the option to choose between full or partial coverage. In this segment, only one insurance company (17%) prefers the concept of full coverage with compulsory insurance, while 5 insurance companies (83%) consider the form of partial compulsory insurance to be more acceptable, whereby under the concept of micro insurance, the insured amount should be set as a percentage of the maximum possible damage and with it the insured will be obliged to pay a lower premium. On the other hand, insuring the rest until full coverage will be a voluntary decision of the insured.

In order to find out the context of the economic policy of compulsory insurance, we asked the insurance companies whether they consider that the establishment of a certain type of compulsory insurance scheme should be followed by a simultaneous measure to exclude the state from ex-post indemnifying the uninsured citizens. Although in asking this question we thought that insurance companies would respond to such a measure with a consensus, given the fact that the existence of ex-post state intervention may be disincentive for insurers, yet 27.27% of companies believe that compulsory insurance should not be associated with a restriction on indemnifying uninsured citizens.

In order to conclude the research on the reasons for the low penetration of catastrophic risk insurance in the country, the insurance companies had the possibility of multiple response from the list of offered reasons. Most insurance companies attribute great attention to the insufficient awareness to the advantages offered by catastrophic risks insurance (72.7%) and insufficient awareness of the damages that can cause catastrophic risks (63.6%). Equally important is the expectation that the state will be involved in ex-post financing (63.6%). On the other hand, they give less importance to the premium level and to the role of distribution channels which are factors which in the theoretical elaboration of the problem are rated as very important for higher sales.

A major operational problem in processing catastrophic risks claims is that a high number of insureds may be affected at once. Depending on the extent of the consequences, the reporting of damage may be a problem, but an even greater problem is the process of assessing the damage caused by the insurance company, as it is expected to have limited human and material resources to handle it within 14 days, a time limit provided in the Article 975 of the Law on Obligations (Official Gazette of the Republic of Macedonia No. 18/2001, 4/2002, 5/2003, 84/2008, 81/2009, 161/2009 and 123/2013). Insurance companies have different views on this issue, although most believe that the deadline for disaster insurance should basically be longer than 14 days. Some of them consider that this deadline should be up to 30 days (36.4%), longer than 30 days (9.1%), up to 60 days (18.2%) and longer than 90 days (18.2%).

#### 4.2. Public research data results

In the first part, on the question of what are the most common catastrophic risks that threaten the area in which you live, the first 2 places, with a significant difference from the others, are reserved for earthquake (83.9%) and flood (79.24%), which corresponds to the real situation of exposure to risks in the Republic of North Macedonia.

Asking what was the most destructive disaster you have experienced in your area in the past 10 years, the public first identifies the consequences of flood risk (44.07%), followed by earthquake (35.17%), followed by the consequences of other risks. In this segment, we must take into account that the particular advantage given to the flood is due to the fact that the memory of the floods in Skopje in August 2016 is still freshly remembered, especially since the majority of respondents are from the Skopje region (66.5%). Only a small proportion of respondents (6.78%) reported that they did not face disastrous risks in the designated period.

The last part of this segment is about the consequences that the respondents had on their dwelling. Most of them responded that their dwellings passed without damage (56.8%), while the rest stated that their dwellings suffered varying degrees of damage. None of the respondents experienced complete demolition of the dwelling as a result of some catastrophic risk.

In the second part of the questionnaire which aims to examine the experience of the respondents with insurance and to understand the opinion of the insurance as a disaster management mechanism. Of particular importance for the survey is that 63.6% of respondents have had previous experience in purchasing property insurance. Although the question relates to an experience they have never had in the past and cannot be linked to official property insurance statistics that is significantly lower, this data is encouraging because the public recognizes and has experience with property insurance, which is particularly important as a basis for the further development of catastrophic risk insurance.

Regarding how respondents perceive insurance as a disaster management mechanism, 66.9% thought that insurance is very important in dealing with catastrophic risks, 30.9% thought its importance was relatively important, and 2.1% of the respondents think that this has no effect.

Regarding who should take the main responsibility and assume the burden of catastrophic damages, 66.5% of the respondents think that this should be compensated through the insurance companies indicating a positive perception of insurance as a mechanism for dealing with catastrophic risks. Then, 28.4% think that reimbursement should be the task of the state administration (25% for central government and 3.4% for municipalities), while 5.1% think that it should be an individual responsibility that corresponds to the concept of self-insurance.

Regarding the economic policy measures that the central government should take to reduce the disaster consequences that are most acceptable to you from the choice of answers, respondents believe that the Government should invest in improving disaster management capacities (46.6%) and should provide subsidies for catastrophic risks insurance (35.2%). A smaller proportion of respondents (12.5%) believe that the Government should directly engage in providing ex-post compensation.

In the third part of the questionnaire devoted to the acceptance and willingness of respondents to buy catastrophic insurance coverage, on the question of whether they would buy catastrophic insurance if it was subsidized by the state, 89% of the respondents stated that they are prepared to do so.

We can point out that the most complex and controversial was the question of what is the acceptable price for the respondents for annual insurance with catastrophic risks covered for a 50 m<sup>2</sup> dwelling. Respondents were given an explanation that they would receive MKD 1,589,400 ( $\approx$  EUR 30,496) in

case of complete destruction of the dwelling, an amount derived from the data of the State Statistical Office, where the national average for construction cost per 1 m<sup>2</sup> of living space is 37,510 denars ( $\approx$  EUR 610) in 2016 (excluding building land, including VAT).

Most of the respondents (74.58%) have submitted their proposal for an acceptable premium, but most of them have significant differences, starting with prices ranging from 300 to 50,000 denars. If we analyse the data collected without further clustering, the average premium is MKD 5,547, but with a large standard deviation of MKD 8,390.77. To this end, the proposed premiums are grouped by thresholds of 1,000 denars in order to see where the largest grouping of respondents is (Figure 4).

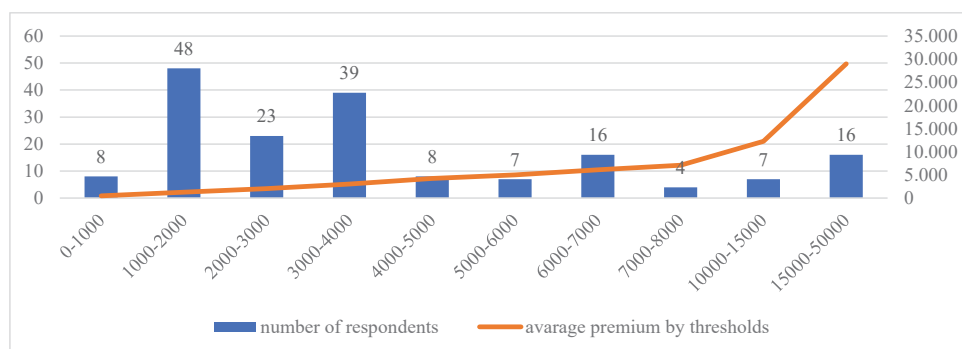


Figure 4: Affordable premium for catastrophic risk insurance at thresholds of 1,000 denars vs. number of respondents

Source: Author's own work

Having in mind the average premiums on the insurance market, we consider that the proposed premium amounts of over 10,000 denars for which 23 respondents stated that they are too large, *i.e.* indicate an unrealistic perception of the insurance market. When their impact is subtracted, the average premium is MKD 2,788 with a more acceptable standard deviation of MKD 1,774.

In order to compare views on the amount of the premium with the actual market prices, we requested non-binding insurance quotes that include earthquake and flood risk from 4 insurance companies. The annual insurance premium ranged from 2,500 to 6,000 denars. The differences were in the insured amount ranging from MKD 1.2 to 1.5 million, risk coverage and franchise. This leads to the conclusion that 2/3 of the respondents who made a proposal for an acceptable premium have correct expectations for the insurance price.

The answer to the two main reasons why respondents are not ready to buy insurance for catastrophic risks is found in the distrust of insurance companies that they will not be reimbursed (48.7%) as well as in their perception that they lack knowledge about insurance (32.2%). Also, there is a large proportion of respondents who think they cannot afford a premium (30.1%). Only part of the respondents (7.2%) have no restrictions to buy or already have catastrophic risk insurance. The survey was attended by 236 respondents with unequal regional representation. Respondents come from different age structures, with dominant participation in the age groups of 25 to 45 (74.2%). Most of the respondents (94.92%) stated that they have their own income.

## 5. Conclusions and recommendations

Risk exposure data of the Republic of North Macedonia show that the consequences are greatest from floods and earthquakes, followed by the impacts of other climate factors. The impact of these two major risks was also identified in the public survey, while the research on farmers, appropriate to the

nature of the activity, identified are the impact of drought and the hail. Despite the identified risks and the awareness that they are present and can cause consequences, disaster risk insurance is minimally used, with a very low share of 1 to 2% in total GDP. All insurance companies in the domestic market offer catastrophic risks insurance, without exception for earthquake and flood. Insurance companies believe that national awareness of the consequences of catastrophic risks and the reduction of their consequences through insurance is low and consider these to be the main factors of insufficient demand, compounded by the expectation that the government will intervene in the event of a disaster. Most companies believe that the state should enter the insurance market by offering a unified catastrophe insurance product and are in favour of some form of compulsory insurance that should be followed by state measures that will not undermine insurance, that is, the public should receive the signal that they must consider insurance as the only mechanism to protect their own property. Regarding the solution in the Law on Obligations, our view is that the issue of insurance after a catastrophic event should be related to systemic solutions that already exist in the country. One mechanism is to link the prolongation of the fulfilment of the obligation to pay compensation with the declaration of a natural disaster by the Government of the Republic of North Macedonia. If so determined, insurance companies will have a defined deadline for postponing the payment of compensation, but must at the same time be prepared that the objective deadline for claims cannot depend on their human and material readiness to deal with them. The public recognizes, without exception, the major catastrophic risks, even though the majority of respondents did not experience a catastrophic event with total consequences on their property. Also, the majority are of the view that liability should be personal, *i.e.* reimbursement should be sought through insurance mechanisms. About 50% have realistic expectations for the price of insurance, but the factors that discourage them to buy insurance in the first place is the distrust towards insurance companies, and then price. The main conclusion of all surveys is that the current situation is unsatisfactory for all stakeholders and that a different solution is needed to deal with the consequences of catastrophic risks.

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## WHY YOUNG PEOPLE WANT TO LEAVE BOSNIA AND HERZEGOVINA: ASPIRATION OR DESPERATION?

### ZAŠTO MLADI LJUDI ŽELE DA NAPUSTE BOSNU I HERCEGOVINU: TEŽNJA ZA PROMJENOM ILI BIJEG OD OČAJA?

#### Abstract

*One of the major problems in Bosnia and Herzegovina is youth emigration which, in a simple definition, is the act of leaving a resident country with the intent to settle elsewhere. Young people from Bosnia and Herzegovina mainly emigrate to European countries in search of better living conditions. Emigration from Bosnia and Herzegovina is a continual process that is caused by many factors. The purpose of this study is to determine key factors that motivate young people to leave Bosnia and Herzegovina. In that respect, we use USAID MEASURE-BiH National Youth Survey (NYS) data set that consists of 4,500 randomly selected respondents from Bosnia and Herzegovina. The data collection took place in the period January-February 2018. Data were collected by using a survey questionnaire that, besides socio-demographic variables, addresses several factors such as education, employment, training, social capital, emigration, etc. The results of the probit model have revealed that push factors, such as employment opportunities, household income, living standard and experience with the corruption determine emigration decisions of young people from Bosnia and Herzegovina. Presented results may produce useful pieces of information which might be helpful for relevant decision-makers in Bosnia and Herzegovina in the process of creating such a model of economic and social policy that will mitigate the emigration of young people.*

**Keywords:** youth, emigration, probit model, BiH

**JEL:** C80, F22, J13

#### Sažetak

*Jedan od glavnih problema u Bosni i Hercegovini tiče se emigracije mladih ljudi. Emigracija, u najjednostavnijem smislu riječi, podrazumijeva napuštanje zemlje prebivališta. Mladi ljudi iz Bosne i Hercegovine, u potrazi za boljim životnim prilikama, uglavnom emigriraju u evropske zemlje. Emigracija iz Bosne i Hercegovine je kontinuirani proces koji je uzorkovan mnogim faktorima. Stoga, cilj ovog rada je da identifikuje glavne faktore koji motivišu mlade ljude da napuste Bosnu i Hercegovinu. Da bi se ovaj cilj realizovao korištena je USAID MEASURE-BiH National Youth Survey (NYS) baza koja se sastoji od 4.500 slučajno odabranih ispitanika iz Bosne i Hercegovine. Podaci su prikupljeni u januaru i februaru 2018.*

godine. Korišteni anketni upitnik, kao instrument za prikupljanje podataka, pored socio-demografskih faktora sadrži i ostale relevantne faktore, kao što su: obrazovanje, zaposlenost, obuka, socijalni kapital, emigracije etc. Rezultati estimiranog probit modela potvrđuju da push faktori, kao što su mogućnost zaposlenja, prihodi domaćinstva, životni standard etc. determinišu odluku o emigriranju kada su u pitanju mladi iz Bosne i Hercegovine. Ovi rezultati mogu biti od koristi relevantnim donosiocima odluka u Bosni i Hercegovini u procesu stvaranja takvog modela ekonomske i socijalne politike koji će ublažiti masovno iseljavanje mladih.

**Ključne riječi:** mladi, emigracija, probit model, Bosna i Hercegovina

**JEL:** C80, F22, J13

## 1. Introduction

One of the major problems in Bosnia and Herzegovina is youth emigration which, in a simple definition, is the act of leaving a resident country with the intent to settle elsewhere. In that respect, the Ministry of Human Rights and Refugees of Bosnia and Herzegovina (Bosnia and Herzegovina – Ministry of Security, 2018, p. 10) stated that the total number of persons originating from Bosnia and Herzegovina (including second and third generation of emigrants) reached a number of at least two million persons.

Young people from Bosnia and Herzegovina mainly emigrate to European countries in search of better living conditions. Emigration from Bosnia and Herzegovina is a continual process that is caused by many factors, *i.e.* economic, social, cultural, *etc.* However, it is probably true to say that the main reasons why young people leave Bosnia and Herzegovina have not yet been entirely clarified, so it is not obvious which one is dominant. Therefore, the main goal of this paper is to identify key factors that motivate young people to leave Bosnia and Herzegovina.

The starting point of this research study is related to addressing the following question: *What are the most important factors determining youth emigration decisions?*

When it comes to Central and Eastern Europe, Roman *et al.* (2010) stated that some of the most important migration motifs are: economic and demographic poverty, push and pull factors, unemployment, low wages, personal or professional development, political conflicts, insecurity, violence safety and security, poor governance, political freedom, corruption or human rights abuses.

In that respect, the central research hypothesis has been defined as follows: *Emigration decisions among youth from Bosnia and Herzegovina are mainly determined by the push factors.*

The concept of youth emigration is multidimensional. This is something that was recognized by Kovacheva and Hristozova (2019) who stated that facing different structural constraints in their countries of departure and reception, young people employ diverse strategies of settling down, achieving success and attaining happiness. Hence, there may be some possible limitations to our study. The first limitation refers to the omitted variables problem. There are many other variables, that are omitted from the USAID MEASURE-BiH National Youth Survey (NYS) data set, that affect youth decision to emigrate particularly in the case of the transitional countries such as Bosnia and Herzegovina. Another limitation of the study, and similar to Rodokanakis and Vlachos (2013), is that the data available are cross-sectional rather than longitudinal and therefore we cannot study any population changes across time.

The paper is organized as follows. After the introduction, the following section gives a brief outline of a theoretical background that is relevant to the research. The paper moves on describing the

methodology, after which follows the discussion of the results. In the end, a brief summary of the main conclusions is given in accordance with the analysis findings.

## 2. Theoretical framework

As stated by Xiangjing (2010) the *push-pull* theory is the most commonly used theory in migration studies. This theory was first reported by Ravenstein (1885) and later developed by many other authors, like Lee (1966) who developed a comprehensive theory of migration where the factors that determine the decision to migrate were classified into following categories:

- factors associated with the area of origin, or *push* factors;
- factors associated with the area of destination, or *pull* factors;
- intervening obstacles and
- personal factors.

*Push* factors are those that induce people to leave their current resident country. *Pull* factors are the reasons why an individual determine whether relocating to a new location would provide a significant benefit. Besides traditional economic factors, recent findings suggest that significant reasons for skilled migration are linked with education, social and cultural conditions but some may differ by country (Kalina *et al.*, 2018). Therefore, both, *push* and *pull* factors, can be divided into economic, cultural and environmental. The main tenets of *push* and *pull* factors are summarized in Table 1.

Table 1. Overview of *push* and *pull* factors

<i>Push factors</i>	<i>Pull factors</i>
<ul style="list-style-type: none"> <li>• Lack of professional development prospects</li> <li>• Lack of arable land, geographically isolation, lack of resources</li> <li>• High unemployment, lack of jobs</li> <li>• Prevalence of social issues, lack of guarantee of human rights</li> <li>• Wars and internal strife</li> <li>• Worsening natural disasters, climate change, famine, skyrocketing crime rates</li> </ul>	<ul style="list-style-type: none"> <li>• Developed countries or industrialized metropolitan areas</li> <li>• Countries with a modern communication system</li> <li>• Countries with a lack of labor as a result of the declining birthrates</li> <li>• Developed economies with above-average social welfare systems</li> <li>• Advanced democracies, where religious freedom and human rights are highlighted</li> <li>• Countries where English is the predominant language</li> </ul>

Source: Adapted from (Tan, Toan & Tuyet, 2019, p. 115)

Over the years numerous researches were conducted in order to determine key factors that determine the decision to migrate. In that respect, Xiangjing (2010) reported that, in China, government policy is the driven factor for the migration and that the *push* factor of origin is relatively weak and that the most attractive factor in the destination is the better education condition.

Tan, Toan and Tuyet (2019) concluded that, when it comes to migration of Vietnamese ethnic minorities during the past decades, there are many *push* and *pull* factors, co-existing with other aspects such as social factors, traditional customs, religions, education and skill levels. Bastianon (2019) investigated youth migration aspirations in Georgia and Moldova. She reported that individual capabilities, aspirations, and household capabilities significantly impact youth migration aspirations, while household aspirations are statistically insignificant.

Kosec *et al.* (2018) have also confirmed the importance of *push* factors in migration decisions among youth in Ethiopia. Tesfaye and Logan (2019) investigated the nexus between education and

migration among youth. Their findings have revealed that education has both direct and indirect impacts on youth migration. When it comes to nexus of unemployment and migration, Mueller *et al.* (2019) found that due to lack of job experience and social networks, many youth moving to urban destinations are more likely to be unemployed.

### 3. Data and methodology

#### 3.1. Data source and sample

In 2017, the United States Agency for International Development Bosnia and Herzegovina Mission (USAID/BiH) commissioned IMPAQ International (IMPAQ), under the Monitoring and Evaluation Support Activity (MEASURE-BiH), to conduct the National Youth Survey in Bosnia and Herzegovina (NYS-BiH). NYS-BiH provides insights into the state of BiH youth, examining their perceptions, attitudes, and experiences on relevant topics including education, employment, inter-ethnic relations, political and civic participation, and migration intentions (Monitoring and Evaluation Support Activity, 2018). The NYS-BiH was conducted in January and February of 2018. Table 2 gives a brief overview of the basic characteristics of the entire sample.

Table 2. *Overview of basic characteristics of the sample*

Characteristic	Frequency	%
<b>Entity</b>		
Federation of Bosnia and Herzegovina	2,910	64.7
Republika Srpska	1,480	32.9
District Brčko	110	2.4
Total	4,500	100.0
<b>Respondent's sex</b>		
Male	2,217	49.3
Female	2,283	50.7
Total	4,500	100.0
<b>Age category</b>		
M15-24	1,066	23.7
F15-24	934	20.8
M25-34	724	16.1
F25-34	776	17.2
M35-44	427	9.5
F35-44	573	12.7
Total	4,500	100.0
<b>Current marital status</b>		
Unmarried/single	2,720	60.4
Married	1,619	36.0
Widowed/Widower	31	0.7
Divorced/Separated	112	2.5
Domestic partnership.	18	0.4
Total	4,500	100.0

Source: Created by the authors based on USAID MEASURE-BiH National Youth Survey (NYS)

The sample contains 4,500 individuals age between 15 and 44 and it was constructed using a multi-stage stratified probability sampling approach. To ensure representative coverage, the sample was stratified by entities and Brčko District, ethnic majority areas, and geographic regions.

Within each region, the sample was further stratified to include municipalities of all sizes (Monitoring and Evaluation Support Activity, 2018).

The Youth Law of the Federation of Bosnia and Herzegovina (“Official Gazette of the FBiH”, No. 36/10), the Law on Youth Organisation of the Republika Srpska (“Official Gazette of the Republic of Srpska”, No. 98/04, 119/08 and 1/12) and the Law on Youth of Brčko District (“Official Gazette of the Brčko District”, No. 18/17) set the age of thirty as the upper age limit for youth. In that respect, our sample will include young women and men ranging from ages 18 to 30.

### 3.2. Methods

To gain a better understanding of the factors that motivate young people to leave Bosnia and Herzegovina descriptive statistics and chi-square independence test. Besides, we will use the following probit model in order to examine the likelihood of a positive attitude towards emigration among youth:

$$e = \alpha + \beta_1 \text{Marital status} + \beta_2 \text{Living Standard} + \beta_3 \text{Household Income} + \beta_4 \text{Employment Status} + \beta_5 \text{Experience with Corruption}$$

The dichotomous dependent variable was positive vs. negative attitude towards emigration. To estimate the model, we used probit regression analyses procedures using STATA version 13.

### 4. Empirical results and discussion

The first step in our analysis is to detect the most important problems that youth in Bosnia and Herzegovina is facing. Based on the results presented in Table 3, the majority of young women and men (50.89%) agreed that the most important problem that they have to deal with is their unemployment. These results are not surprising. It is well known that young people are most affected by unemployment in Bosnia and Herzegovina. According to the Agency for Statistics of Bosnia and Herzegovina (2019), the unemployment rate was the highest among young persons aged 15 to 24 years. It was 33.8% (31.3% for men and 37.9% for women). Youth unemployment is remaining the key development challenge that Bosnia and Herzegovina is facing.

Table 3. *The most important problems for youth in Bosnia and Herzegovina*

<i>Problem</i>	<i>Frequency</i>	<i>%</i>
Unemployment	400	50.89
Material and economic dependence	81	10.31
Alcoholism, drug addiction, delinquency	51	6.49
Social differences	35	4.45
The insufficient concern of society for the problems of young people	29	3.69
Lack of interest of young people in social problems	28	3.56
The subordinate position of youth	28	3.56
Education and school system	27	3.44
Moral crisis and lack of ideals	24	3.05
National disagreements	21	2.67
Housing issues	16	2.04
Lack of freedom of speech, voice and opinion	13	1.65
Alienation in relations between people	13	1.65
Inefficiency and inactivity of youth organizations	11	1.40

Source: Created by the authors based on USAID MEASURE-BiH National Youth Survey (NYS)

When it comes to satisfaction with certain aspects of life in Bosnia and Herzegovina (Table 4), the majority, or 93.64% of young women and men, from Bosnia and Herzegovina are dissatisfied with the opportunities for economic independence.

Table 4. (Dis)satisfaction with certain aspects of life in Bosnia and Herzegovina

	Satisfied		Dissatisfied	
	Frequency	%	Frequency	%
Secondary education	316	40.20	470	59.80
Undergraduate and graduate studies	245	31.17	541	68.83
Postgraduate studies	212	26.97	574	73.03
Way of studying	282	35.88	504	64.12
Employment opportunities	56	7.12	730	92.88
Opportunities for resolving housing issues	88	11.20	698	88.80
Opportunities for economic independence	50	6.36	736	93.64
Opportunities for young people to engage in what they want	102	12.98	684	87.02
Opportunities for promotion in profession or career	105	13.36	681	86.64
Opportunities for political activism	114	14.50	672	85.50
Opportunities for fun and recreation	372	47.33	441	52.67
Opportunities for free expression of opinions	193	24.55	593	75.45

Source: Created by the authors based on USAID MEASURE-BiH National Youth Survey (NYS)

Out of total 2,458 respondents, 346, or 14.08%, said that they were definitely planning to leave Bosnia and Herzegovina. 864, or 35.15%, stated that they are thinking about that. Contrary, 342, or 13.91%, respondents said that they were definitely not going abroad while 906, or 36.86%, stated that they hadn't thought about it yet.

The dominant reason for planning or thinking of moving abroad (Table 5) is connected to work opportunities. 73.06% of young people from Bosnia and Herzegovina stated this reason as the main when it comes to their decision to move abroad.

Table 5. The main reason for planning or thinking of moving abroad

	Frequency	%
Job/work opportunities	884	73.06
A better life for children	123	10.17
Overall political situation	79	6.53
Further education	54	4.46
Lack of (quality) public services (e.g. health or education services)	24	1.98
New social and cultural experiences	19	1.57
Marriage/family reunion	12	0.99
Fear of conflict or interethnic tension	9	0.74
Violation of rights and freedoms in Bosnia and Herzegovina	6	0.50

Source: Created by the authors based on USAID MEASURE-BiH National Youth Survey (NYS)

Next, a chi-square test of independence was performed to examine the difference between the intention of moving abroad and several variables, *i.e.* household income, marital status, living standard, employment status and experience with the corruption.

We found that a statistically significant difference between the intention of moving abroad and the following variables:

- household income,  $\chi^2(33, N = 2,458) = 113.01, p < 0.001$ ,
- marital status,  $\chi^2(12, N = 2,458) = 20.49, p < 0.010$ ,
- living standard,  $\chi^2(12, N = 2,458) = 106.83, p < 0.001$ ,
- employment status,  $\chi^2(3, N = 2,458) = 25.93, p < 0.001$ ,
- experience with the corruption,  $\chi^2(6, N = 2,458) = 70.98, p < 0.001$ .

Furthermore, and in order to evaluate the impact of the variables used in the chi-square test on the likelihood of positive attitude toward emigration probit model was used. The entire model (with all predictors included) is statistically significant ( $p = 0.000$ ). This means that the model as a whole fits significantly better than a model with no predictors. Previously said is confirmed by the Hosmer and Lemeshow test with ( $p = 0.1797$ ). The model correctly classifies 61.32% of cases. Table 6 displays the results of the estimated model together with the marginal effects.

Table 6. *The estimated model with the marginal effects*

<i>Independent variable</i>	<i>B</i>	<i>S.E.</i>	<i>Sig.</i>	<i>MEMs</i>	<i>S.E.</i>	<i>Sig.</i>	<i>AMEs</i>	<i>S.E.</i>	<i>Sig.</i>
Marital status									
Married	-0.321	0.117	0.006	-0.127	.046	0.006	-0.121	0.044	0.006
Living standard									
Average	-0.322	0.136	0.018	-0.124	.051	0.015	-0.120	0.049	0.015
Good	-0.629	0.168	0.000	-0.246	.063	0.000	-0.237	0.061	0.000
Household income									
Up to 300 BAM	0.674	0.330	0.041	0.255	.125	0.041	0.246	0.121	0.041
301 to 500 BAM	0.901	0.233	0.000	0.344	.082	0.000	0.332	0.076	0.000
501 to 1000 BAM	0.782	0.204	0.000	0.298	.070	0.000	0.288	0.068	0.000
1001 to 1500 BAM	0.617	0.213	0.004	0.232	.074	0.002	0.225	0.072	0.002
1501 to 2000 BAM	0.606	0.236	0.010	0.228	.082	0.007	0.220	0.082	0.007
2001 to 2500 BAM	0.673	0.289	0.020	0.255	.107	0.018	0.246	0.103	0.017
Employment status									
Currently employed	-0.228	0.101	0.024	-0.091	0.040	0.024	-0.087	0.038	0.024
The experience with corruption									
A direct witness	-0.029	0.160	0.856	-0.012	0.064	0.856	-0.011	0.060	0.856
Heard of such a case	0.206	0.101	0.042	0.081	0.040	0.042	0.077	0.038	0.042
_cons	-0.233	0.215	0.278	-	-	-	-	-	-

Source: Created by the authors based on USAID MEASURE-BiH National Youth Survey (NYS)

According to the estimated marginal effects, best predictors that the young women and men from Bosnia and Herzegovina will have a positive attitude towards emigration are household income, living standard, marital status, employment status and experience with the corruption.

The predicted likelihood of having a positive attitude towards emigration is 25.50% greater for an individual whose household income is up to 300 BAM. When all covariates are at their means, the predicted likelihood of having a positive attitude towards emigration is 24.60% greater for these individuals comparing to those with no household income. The expected change is statistically significant.

When it comes to living standard, the predicted likelihood of having a positive attitude towards emigration is 12.40% smaller for an individual with an average living standard, and 24.60% smaller for individuals with a good living standard comparing to individuals with a bad living standard. When all covariates are at their means, the predicted likelihood of having a positive attitude towards emigration is 12.00% smaller for individuals with an average living standard and 23.70% for individuals with a good living standard. The expected change is statistically significant.

Speaking of marital status, the predicted likelihood of having a positive attitude towards emigration is 12.70% smaller for individuals who are married comparing to singles. When all covariates are at

their means, the predicted likelihood of having a positive attitude towards emigration is 12.10% smaller for these individuals. The expected change is statistically significant.

When it comes to employment status, the predicted likelihood of having a positive attitude towards emigration is 9.10% smaller for individuals who are currently employed comparing to those who are not. When all covariates are at their means, the predicted likelihood of having a positive attitude towards emigration is 8.70% smaller for employed young women and men. The expected change is statistically significant.

Their experience with corruption also has an impact on the predicted likelihood of having a positive attitude towards emigration. To be more precise, this likelihood is 8.10% greater for those individuals who have heard of such a case when comparing to those who have not. When all covariates are at their means, the predicted likelihood of having a positive attitude towards emigration is 7.70% greater for those young women and men who have heard of such a case. The expected change is statistically significant.

Presented results are indicating that in Bosnia and Herzegovina *push* factors mainly determine the emigration decisions of young people.

## 5. Conclusion

To date, a considerable body of research has sought to understand the impact of different factors on migration decisions in general. However, our research is a comprehensive one dealing with an in-depth analysis of *push* and *pull* factors that determine emigration decisions among youth. The present findings demonstrate that *push* factors, such as employment opportunities, household income, living standard and experience with the corruption determine emigration decisions among youth from Bosnia and Herzegovina. Presented results may produce useful pieces of information which might be helpful for decision-makers in Bosnia and Herzegovina in the process of creating such a model of economic and social policy that will mitigate the emigration of young people. Workforce migration and the brain drain phenomenon constitute a real problem in Bosnia and Herzegovina. Young emigrants from Bosnia and Herzegovina, are often educated and successful individuals and they represent significant potential for the country's development. That is why this multidimensional phenomenon needs to be carefully examined. Further research suggests a need for more in-depth analysis of other potential factors that determine emigration decisions among youth.

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**THE INDICATORS AND IMPLICATIONS OF DEMOGRAPHIC AGEING IN BOSNIA AND HERZEGOVINA****INDIKATORI I IMPLIKACIJE DEMOGRAFSKOG STARENJA U BOSNI I HERCEGOVINI****Abstract**

*The research and knowledge of demographic factors (fertility, population ageing, migration, etc.) of certain population is important because of their relevance in determining the direction of socio-economic development. One of the characteristic demographic processes in Bosnia and Herzegovina is the process of the population's demographic ageing. The process of demographic ageing is a demographic problem that has an impact on almost all the spheres of socio-economic life, like the pension, health and education system, as well as a labor market. The numerical reduction and the working contingent's ageing bring in question faster economic development of a country. It is important to note that the process of demographic ageing is closely linked to natural movement of population. Namely, the decrease in birth rate affects the reduction of the young population's, reduces the number of the most reproductive, mature and work ready population. As a consequence of these demographic changes, there is an increase in the proportion of old people in the total population, as well as an increase in the total population's ageing. Regarding to that, the subject matter of the research relates to the process of demographic ageing in Bosnia and Herzegovina, while the main aim of the work is to identify the main reasons and consequences of the demographic ageing in Bosnia and Herzegovina. The planned research will be realized on the basis of the scientific methods of internal research (desk research). Statistical methods (descriptive and inferential statistics) will be used for the analysis and elaboration of the collected data.*

**Keywords:** demographic statistics, demographic ageing, age structure, ageing index, Bosnia and Herzegovina

**JEL:** J11, J14, C22

**Sažetak**

*Istraživanje i poznavanje demografskih faktora (fertilitet, starenje stanovništva, migracije i dr.) nekog stanovništva važno je zbog njihove relevantnosti u određivanju smjera društveno-ekonomskog razvoja. Jedan od karakterističnih demografskih procesa na prostoru Bosne i Hercegovine je i proces demografskog starenja stanovništva. Proces demografskog starenja je demografski problem koji ima uticaj na gotovo sve sfere društveno-ekonomskog života, polazeći od penzionog, zdravstvenog obrazovnog sistema pa sve do tržišta rada. Brojčano smanjenje i starenje radnog kontingenta dovodi u pitanje brži ekonomski razvoj zemlje. Važno je istaći da je proces demografskog starenja tijesno povezan s prirodnim kretanjem stanovništva. Naime, smanjenje nataliteta utiče na smanjenje mladog kontingenta populacije, čime se smanjuje priliv stanovništva u zrelu, tj. radno i reprodukcijski najvitalniju dob. Kao posljedica ovih demografskih promjena dolazi do povećanja udjela starih osoba u ukupnom stanovništvu a samim tim i ukupnog starenja populacije. Imajući u vidu navedenu problematiku, predmet istraživanja odnosi se na proces demografskog starenja u Bosni i Hercegovini, dok je osnovni cilj rada identifikacija glavnih uzroka i*

*posljedica demografskog starenja u Bosni i Hercegovini. Planirano istraživanje realizovat će se na temelju primjene naučnih metoda internog istraživanja (desk research). Za analizu i elaboriranje prikupljenih podataka koristiće se statističke metode (deskriptivna i inferencijalna statistika).*

**Cljučne riječi:** demografska statistika, demografsko starenje, starosna struktura, indeks starenja, Bosna i Hercegovina

**JEL:** J11, J14, C22

## 1. Introduction

The demographic ageing process together with the overall depopulation is a demographic problem that influences almost all spheres of the socio-economic life. Demographic ageing increases the disbalance between pensioners and the economically active population, resulting in an increase in pension expenditure, health services, social assistance and other payments to the population of older age, and therefore a very likely further increase in public expenditure. It should also be noted that the reduction and ageing of the working contingent is questioning the faster economic development of the country.

Research and knowledge of demographic factors of a population is important due to their relevance in determining the direction of socio-economic development. One of the characteristic demographic processes is the process of demographic ageing, which is also the subject of this work's research. The aim of the work is to make a scientific analysis of changing in age structure of population in Bosnia and Herzegovina in the period between 1971. and 2013. and to identify the main causes and consequences of demographic ageing. This will be done based on the collected data from statistical and other secondary sources, as well as by using theoretical and empirical literature. The basic purpose of the work is scientific contributing to the knowledge of demographic ageing in Bosnia and Herzegovina.

The work is structured in the following way. After the introductory part, the second part shows a short review of research studies. The third part relates to the theoretical analysis of the research, and in the fourth part the most important indicators of demographic ageing in Bosnia and Herzegovina are explained.

## 2. Overview of the demographic ageing research

The demographic ageing process and its impact on the economic development of one country was the subject of study of numerous authors. In the following, a brief overview of the research on this topic was given. In the work, a brief overview of the research on this topic is given. Auerbach and Kotlikoff are considered to be the ones who have conducted a survey about connection between demographic ageing and public finances.

From the results of their research, three the most important impacts of the demographic transition in the United States are: (1) a huge growth in the income tax rate, (2) significant changes in Social welfare System and (3) radical reduction of social fees (Auerbach & Kotlikoff, 1985, pp. 153-168). The authors came to the similar conclusions exploring the effects of population ageing in Japan, Germany and Sweden.

It is important to mention the research of the group of Japanese authors who in 1997 shaped the model of the general balance for Japan to reflect the fiscal implications of the population's ageing and proposed necessary reforms. Their analysis also showed the negative effects of the population's ageing. That confirmed the results of previous literature (Yashiro, Oshio & Matsuja, 1997, pp. 3-24).

King and Jackson in empirical research for Canada come to the conclusion that population's ageing is not a major challenge for public finance, but they emphasize the importance of reducing public debt in a short time because that would allow greater maneuvering space in the future (King & Jackson, 2000, p. 42). The results of a survey conducted by Diaz-Gimenez and Diaz-Saavedra indicate a long-term non-sustainability of Spain's pension system with current demographic trends (Diaz-Gimenez & Diaz-Saavedra, 2009, pp. 147-167).

Exploring the impact of the population's ageing on public finances in the European Union, Žokalj (2016) came to the results that are consistent with previous research. In his work, he concludes that population's ageing increases pension expenses and social protection expenses. Keeping in mind that the impact is higher on growth of budget expenditures than revenues, increased number of the older population has a negative impact on the budget balance (Žokalj, 2016, pp. 383-408).

In their research, the authors Mečev and Vudrag (2012) stated that population's ageing has a highly negative impact on demographic and economic development in Croatia. Demographically speaking, population's ageing negatively affects the structure of the population, while economically speaking population's ageing affects the growth and reduction of the population in the working age and level of the population's activity (Mečev & Vudrag, 2012, pp. 37-41).

In Serbia, the research on the impact of demographic ageing on the sustainability of public Finance is also conducted. In their work, the authors Zdravković, Domazet and Nikitović (2012) are examining the demographic ageing and pension systems in the context of the sustainability of public finances in Serbia. Based on the analysis, the authors concluded that the expected changes in the age structure of the population, which will increase the number of pensioners and pension expenses, in combination with a high unemployment rate, will negatively influence the sustainability of the pension system, but also the budget deficit as a whole (Zdravković, Domazet & Nikitović, 2012, pp. 19-44).

The most significant number of works relating the impact of population ageing on specific categories of public expenditures is from the area of health economics. In the following, only some of them will be mentioned. Chawla, Kawiorska and Chelleraj (1998) with the application of multivariation analysis of healthcare expenses on the data for Poland in the period from 1960. to 1995. came to the result that there was a weak positive correlation between the population older than 65 years and increased health expenses (Chawla, Kawiorska & Chelleraj, 1998), while Di Matteo and Di Matteo (1998), using regression analysis, came to the knowledge of how growth of elderly population increases approximately for 1.3 % the annual real health expenses per citizen (Di Matteo & Di Matteo, 1998, pp. 211-228).

Callen *et al.* explored the impact of ageing population on several economic variables, including the budget deficit. The results of the survey showed a negative link to the increase of the elderly population and the budget deficit on a sample of 115 countries from 1960. to 2000. Yoon, Kim and Lee analyzing the data for the OECD countries confirm the negative impact of population ageing on the budget balance, since the increase in the older population increases the growth of budget expenditures rather than revenues (Yoon, Kim & Lee, 2014, pp. 5-23).

### 3. Theoretical framework of the notion of demographic ageing

The ageing population has been an important topic of debate in scientific and political circles for decades. Until the mid-twentieth century, the attention of scientists was focused on individual ageing, which is defined as the process of progressive, irreversible changes in the structure and functions of the human organism. On the significance of the demographic ageing of the fifties, the

last century was among the first to warn the prominent French demographer Alfred Sauvy (Puljiz, 2016, pp. 81-95).

There is no unique, generally accepted definition of demographic ageing in demographic literature. Most commonly, it implies the process of increasing the population of the year 60 and more (or 65 and more) years in the total population (Wertheimer-Baletić, 1973, p. 219). If an old population is in total greater than 7%, the country is considered to have an old population. Some authors define demographic ageing as a process of quicker increase in the number and population of the elderly (65 years old) in relation to the working age population, *i.e.* working contingent (from 15 to 64 years). In this case, as a reliable indicator of population ageing, the coefficient of the elderly dependencies is used.

Wertheimer-Baletić (1973) also points out that demographic ageing should be distinguished in relation to biological, *i.e.* individual ageing. Biological ageing reflects the general growth of living standards and the advancement of medical science. This is dealt by the special branch of medicine – geriatric, while demographic ageing and its implications for demographic development is dealt by demography. When it comes to sociological, socio-psychological and similar aspects of ageing issues, they are the subject of the Study of Gerontology (Wertheimer-Baletić, 1973, pp. 220-222).

The most important cause of the demographic ageing process in the literature is the decline in the fertility of the population over a longer period of time and its retention at a low level (“dejuvenilization” or “ageing from below”). Namely, the decline of birth rate affects the reduction of the young contingent of the population, thereby reducing the influency of the population in maturity, *i.e.* working and reproductive vitality. This resulted in a new decline in birth rate/fertility and the ageing of the fertile and working contingent of the population, which significantly accelerates demographic ageing. Regarding to this, it is important to point out that countries with high birth rate (fertility) are characterized by a young age structure, while in areas that have low birth rate, structure with a high proportion of mature and old, with a small proportion of young population is developed.

The process of demographic ageing can be analyzed based on changes in age structure, using different indicators. Among the analytical indicators of the age structure, we distinguish three groups of indicators: medium values, ageing coefficient and age dependency coefficient.

We include the average age and the median age of the population in the group of indicators of medium value.

*Average age of the population* indicates the middle years of life of the population at the time of the census. The Formula for calculating the average age of the population is:

$$\bar{x} = \frac{\sum x_i f_i}{\sum f_i}$$

where  $\bar{x}$  signifies average age,  $x_i$  is a high-class environment and  $f_i$  frequency of the population.

Given that the average age as the arithmetic environment is the relatively most sensitive medium value, the degree of her representative depends on the characteristic of the entire population distribution by age, it means the representation of the highest and lowest values in distribution.

*Medial age* marks the value of a numeric characteristics (a year of age) that shares a total population in two equal parts. In the first part there is a population that is equal or has less years

from defined values, and in the second part is located the population that has just as many years of age as the value of the medians. It is calculated based on the formula:

$$M_e = L_1 + \frac{\frac{\sum f_i}{2} - f_{k-1}}{f_{Me}} \cdot i$$

where  $M_e$  marks the medial age, the  $L_1$  the lower limit of the medial interval,  $\sum f_i/2$  total population (frequencies) divided by two,  $f_{k-1}$  frequencies in the cumulative sequence “less than” in the line that precedes the medial and  $f_{Me}$  frequency of medial intervals. Medial age is a better indicator than the average age, since the media is not affected by the extreme values of the population's age. In an interpretation of mid-value (average and medial age) as an indicator of demographic age, the following should be considered.

The average or medial age calculated for multiple census and presented in the timeline for some long period (50 to 100 years) are well-showing the direction of change in the age structure, mainly the ageing process. So if the average or medial age in the long period shows a trend of increases, it is undoubtedly that the population is becoming older (Wertheimer-Baletić, 1973, pp. 212-213).

*The age coefficient* implies a change in the part of the old population in total. It can be mathematically displayed using the formula:

$$x_{(60 \text{ and more})} = \frac{P_{(60+)}}{P} \cdot 100 \quad \text{or} \quad x_{(65 \text{ and more})} = \frac{P_{(65+)}}{P} \cdot 100$$

The age coefficient is a basic indicator of ageing levels, as the process of ageing implies a constant increase in the participation of a senior contingent in the population.

Apart from the age coefficient, in practice, it is often used an index of age, known as the ageing index. The ageing index displays the relation of the young population (up to 14 or 19) according to residents older than 60 or 65.

$$x_s = \frac{P_{(60+)}}{P_{(0-20)}} \cdot 100 \quad \text{or} \quad x_s = \frac{P_{(65+)}}{P_{(0-15)}} \cdot 100$$

The critical value of this index is 40 % or 0.40. The population is believed to have gone into the ageing process if the value of this index is higher than critical value. The biggest flaw in this indicator is that it does not take into account the entire contingent of 20 to 59 years, which can affect the size of a senior contingent in the near future. In the following table stages of demographic age and criteria for their determination are shown (Radivojević, 2018, p. 194).

Table 1. Overview of the main indicators of demographic age

Stages of the demographic age	Demographic age indicators				
	An average age	Younger than 20 (%)	Younger than 40 (%)	Older than 60 (%)	Ageing index
Early demographic youth	< 20	58+	85+	< 4	< 0.07
Demographic youth	20-25	50-58	75-85	4-7	0.07-0.14
Demographic maturity	25-30	40-50	65-75	7-11	0.14-0.28
Threshold of demographic ageing	30-35	30-40	58-65	11-15	0.28-0.50
Demographic age	35-40	24-30	52-58	15-20	0.50-0.83
Deep demographic age	40-43	20-24	45-52	20-25	0.83-1.25
The deepest demographic age	43+	< 20	< 45	25+	1.25+

Source: Radivojević, 2018, p. 194

*Age addiction coefficient* represents a part of the old population in (65 and more years) compared to the working-able population, that means working contingent (age of 15 to 64).

$$k_{d,s} = \frac{P_{(65 \text{ and more})}}{P_{(15-64)}} \cdot 100$$

When calculating this coefficient, it is assumed that the contingent of active persons corresponds to the working contingent, which means that the beginning and end of the working life's period are equal to the biological boundaries of the working age (15-64 years).

When it comes to the demographic implications of population ageing, it should be said that they are complex and long-term. Namely, the ageing of the population over a longer period of time causes the ageing of the fertile contingent (decreases the proportion of the population in the young age groups), which affects the decline in the general birth rate. In this way, comes to the accelerated population's demographic ageing. In the literature, this process is called the effect of the generation's move (Živić, 2003, pp. 307-319).

Undoubtedly, demographic ageing is an unfavorable process that has an impact on the movement of the total population, general social opportunities and economic development (Nejašmić & Toskić, 2013, pp. 100-103). H. Mendras says: "In a society where the percentage of old ones is excessively large, it is evident that a satisfactory and balanced social life is difficult to establish. Moreover, it can be considered that ageing has repercussions on the mentality, the level of optimism and the spirit of the population's entrepreneurship" (Mendras, 1986, pp. 205-206).

The process of demographic ageing especially affects the following components of the total and structural movement of the population (Wertheimer-Baletić, 1973, pp. 225-226): (1) slows the rate of population growth, (2) reduces the birth rate, (3) increases the general mortality rate, (4) decreases population migration, and (5) affects changes in the age and gender structure of the total population and the working contingent.

Ageing also has its socioeconomic implications that can be seen from two aspects. Namely, demographic ageing affects the size of the inflow of young generations in the working age, which causes changes in the structure of the working contingent, but also in the economic activities of the population. As a consequence of these changes, a lack of workforce may occur. The second aspect concerns the fact that increasing the participation of the elderly, mostly economically inactive population, causes the changes in the volume and structure of public and personal spending. This applies especially to significant provisioning of funds for health, social and pension care of old people, while other forms of consumption have low effect (e.g. technical innovations).

Regarding this, important to note is that population ageing determines the deterioration of the number of pensioners and the number of employees, thus opening the issue of financial sustainability of pension systems. In this way, pension systems that rest on the principle of inter-generational solidarity are the most vulnerable category, and precisely on such principle the pension system in Bosnia and Herzegovina is based. The growing number of pensioners can lead to a rise in conservatism, to social tensions and to counter different interests, to the political conflict between the active population and the pensioners. The effect of ageing on the level of general mortality is reflected over the level of specific mortality in the older years. Namely, rapid ageing causes, by the power of the biological phenomenon of death due to the high risk of death after the age 60, a certain increase in the general rate of mortality.

#### 4. Analysis and discussion of research results

One of the most important structures of the population is the age structure, since it affects the economic development of a certain population. It represents a “key determinant of bio reproduction potential whose level of exploitation (in the sense of birth intensity) depends on the future volume of the fertilising and working-capable contingent” (Emirhafizović & Zolić, 2017, pp. 11-12). Based on the age structure of a population for a long period of time, it is possible to see the entire demographic development. It is formed under the influence of fertilities, mortality, migration trends and activities of irregular factors (*e.g.* wars).

According to the census in 2013, the population's age structure in Bosnia and Herzegovina is very unwelcome: the high part of the working contingent (70.39 %), along with very low participation of the younger population (15.40 %) can lead to the lack of workforce. In comparison with the previous state (1991), the number of young people (0-14 years) has been reduced for 34.50 %, while the percentage of persons from the age 65 and more, has been more than doubled (increase by 118.50 %). It is interesting to note that the proportion of children under the age of 15 is almost equal with the population of 65 years old (Figure 1).

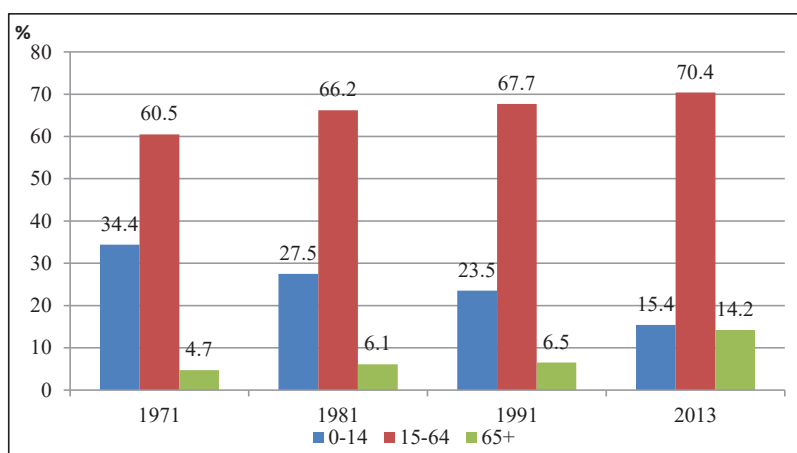


Figure 1. Age structure of the population of Bosnia and Herzegovina according to the census in the period from 1971. to 2013.

Source: Authors' research

Changes in the age structure of Bosnia and Herzegovina has been followed by two parallel trends: the increase in the elderly with 65 years and more and a decline in youth (0-14 years). As can be noticed in Figure 1, age structure in 1971 was in transition from the young (expansive) in mature (stationary) type. The reduction of the participation of the young population (from 34.4 % in 1971 to 15.4 % in 2013) has been noted. On the other hand, we have an increase in the participation of the working contingent (from 60.5 % in 1971 to 70.4 % in 2013), and especially the participation of the old contingent (from 4.7 % in 1971 to 14.2 % in 2013).

If we compare data from the population census 1991 and 2013, it can be noticed that the population of Bosnia and Herzegovina is characterized by a very rapid ageing and a high degree of old age. Change index 2013/1991 clearly demonstrates the reduction of the number of youngest categories of population (especially the categories 0-4, 5-9 and 10-14, where the population has decreased for about 50 %). A complete different situation is with the older categories of population where an increase in number of citizens has been noted. It specially refers to the oldest categories of

population (70-74, and over 75) where the number of citizens has been doubled comparing the census from 1991 (Table 2).

Table 2. *The structure of the population of Bosnia and Herzegovina according to age, by five-year age groups, 1991 and 2013*

Age	1991.		2013.		Index 2013/1991
	Number	Percentage	Number	Percentage	
0-4	332422	7.59	174064	4.93	52.36
5-9	347379	7.94	176980	5.01	50.95
10-14	347590	7.94	192675	5.46	55.43
15-19	360008	8.22	242742	6.87	67.43
20-24	359991	8.22	228056	6.46	63.35
25-29	371776	8.49	252318	7.15	67.87
30-34	361854	8.27	252633	7.15	69.82
35-39	334569	7.64	249266	7.06	74.50
40-44	276412	6.32	241138	6.83	87.24
45-49	201165	4.60	260928	7.39	129.71
50-54	257382	5.88	276575	7.83	107.46
55-59	241011	5.51	258537	7.32	107.27
60-64	198647	4.54	223251	6.32	112.39
65-69	124752	2.85	153569	4.35	123.10
70-74	62922	1.44	140455	3.98	223.22
75+	96691	2.21	207972	5.89	215.09
Ukupno	4377033	100.00	3531159	100.00	80.67

Source: Authors' research

In the following, the age pyramid of the population of Bosnia and Herzegovina is shown according to the census from 1991 and 2013. (Figure 2). It illustrates the dramatic changes in the age structure that occurred in the period between the last two censuses.

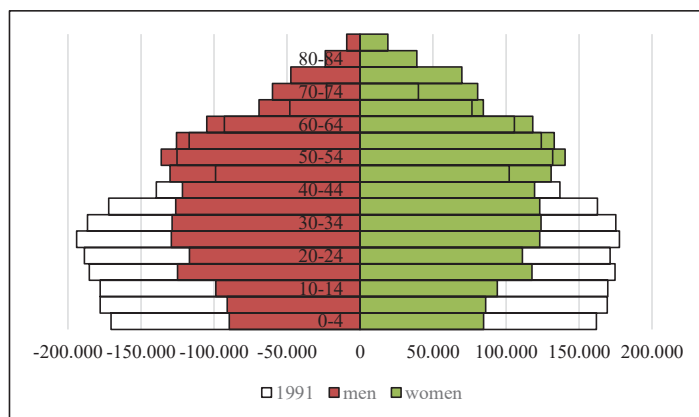


Figure 1. *The age and sexual structure of the population of Bosnia and Herzegovina according to the census from 1991 and 2013*

Source: Authors' research

As it was previously stated, one of the most reliable analytical indicators of the age structure of the population, and consequently the demographic ageing process, is an ageing index (the relationship between the old and the young population). The following table shows the most important indicators of Bosnia and Herzegovina's population demographic ageing in the period from 1971 to 2013.

Table 3. *Selected indicators of population ageing structure in Bosnia and Herzegovina*

	1971	1981	1991	2013
Number of citizens in 000	3,746	4,124	4,377	3,531
An average age	26.9	29.6	34.0	39.5
Ageing index	13.7	22.1	27.7	92.3
Old people's age dependency coefficient	7.8	9.2	9.6	20.2

Source: Authors' research

Based on the data from the previous table, we can conclude that in the period of 42 years (1971.-2013.) the average age of the population has been increased for 12.6 years (or 46.8 %).

The age-old dependence coefficient is a very significant indicator that shows us the extent to which the active population is weighted by the working inactive contingents of the population. According to the data in the previous table, we can observe that the age dependency coefficient of old in Bosnia and Herzegovina increased from 7.8% in 1971 to 20.2% in 2013 or for 159%. This means that working-vital potential base of the Bosnian and Herzegovinian population is more and more narrowed, which is negatively reflected in the movement of birth rate and fertility, as well as the economic activity of the population, and consequently the overall economic development of the country.

For the purpose of determining the relationship between demographic ageing and public finances in Bosnia and Herzegovina, the ageing index and the level of expenditures in the period from 2003 to 2016 have been analyzed. It should be noted that in this period the level of public expenditures in Bosnia and Herzegovina has been doubled (index 205.5), which means that it grew at an average annual rate for 5.7%. In the same period there was an increase in the population ageing index, but at slightly lower average annual rate (4.2%). This indicates the conclusion that there is a positive correlation between the analyzed variables. The following table shows the value of Pearson's correlation between the level of expenditure and the ageing index of the population of Bosnia and Herzegovina in the period 2003-2016.

Table 4. *The level of correlation between public expenditures and Bosnia and Herzegovina's population ageing index in the period 2003-2016.*

		Expense	Ageing index
Expense	Pearson correlation coefficient	1	0.861**
	Significance		0.000
	Number of observations	14	14
Ageing index	Pearson correlation coefficient	0.861**	1
	Significance	0.000	
	Number of observations	14	14

\*\* . Level of significance 0.01

Source: Authors' research

The results of the correlation analysis show a statistically significant correlation between demographic ageing and public expenditures (Pearson's coefficient value is 0.861). It is important to note that demographic trends, primarily, negatively affect public pension expenses. It reduces also the number of work-active young population and increases the number of old population with the

reduction of the overall population. With smaller number of employees, there is a decrease in the number of insurers contributing contributions to the Pension and disability insurance fund, and the number of pensioners is growing. According to demographic projections, the number of pensioners in European countries will increase significantly until 2040 when a number of *baby boom* generation born in 50s and 60s of the last century will retire. According to assessments, pension expenses for the *baby boom* generation will be increased in the comparison to previous expenses for between 25% and 30%.

The stated tendencies have opened the question of the sustainability of the existing system for pension financing, but also the overall long-term sustainability of public finances. Most of the pension systems in the EU are public character, based on the inter-generational solidarity system (pay-as-you-go). Public pension systems are subsidized by funding from the state budget in most cases. In order to improve the planning of pension reforms, the European Commission has developed a methodology for the projection of costs related to the ageing of the population.

With the population ageing, health costs are also growing. Expenses for healthcare of people in the older age are significantly higher than for the younger and middle generations. According to the assessments stated by B. Palier and Mr. Esping-Andersen, old people in the age above 65 to health care consume 3.2 times more than the other population, while those older than 75 for health services spend 4.1 times more than the junior contingents of the population (Esping-Andersen, 2010, pp. 11-18).

## 5. Conclusion

As the most important cause of the demographic process of ageing in literature, is the decline of population fertilities over a longer period of time and its retention at a low level. It is known that the collapse of the birth rate affects the reduction of the young contingent of the population, which reduces the influx of population in maturity, (working and reproductive most vital age). It should be emphasized, also, that increasement in the participation of the elderly, mostly economically inactive population, changes the volume and structure of public and personal spending. This applies especially to the significant allocation of funds for the health, social and pension care of old people. Changes in the demographic population structure negatively affect public pension expenditures. The reason is that it reduces the number of participation of the younger workforce and increases the participation of the old population, with the reduction of the overall population. With reduced number of employees, there is a decrease in the number of insurers contributing contributions to pension insurance, and the number of pensions is rising. To slow down the process of ageing Bosnia and Herzegovina's population and mitigate its consequences, it is necessary to increase the birth rate, which would encourage the support of the age structure.

When it comes to the age structure of Bosnia and Herzegovina, it should be emphasized that it is extremely unfavourable. Namely, the data from 2013 state the following: The high part of the working contingent (70.39 %), along with very low participation of the younger population (15.40 %) can lead to lack of workforce. In comparison with pre-war conditions (1991.) the number of young people (0-14 years) has been reduced for 34.5 %, whereas the percentage of the person of the completed 65 to the oldest life age, has been more than doubled (increase for 118.5 %). It is interesting to notice that the participation of the children under the age of 15 has almost been equalled to the participation of the population of the 65 years old. Also, the results of the survey showed that the coefficient of the old in Bosnia and Herzegovina increased from 7.8% to 20.2% in the period 1971-2013, or for 159%. This means that this indicator also points out the fact that the working-vital substation of Bosnia and Herzegovina is becoming more narrowed, which reflects negatively on the economic activity of the population, and consequently the overall economic development of the country.

Comparing the level of public expenditures with the ageing population of Bosnia and Herzegovina in the period 2003-2016, statistically significant correlation between these two indicators (Pearson correlation coefficient is 0.861) has been noted. According to the everything stated, it is necessary to lead a long-term active population policy and thus manage demographic processes and try to reverse the negative trends that have prevailed for decades.

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## IMPACT OF THE PERFORMANCES OF EXPERIENTIAL QUALITY ON THE TELECOMMUNICATION SERVICE USERS SATISFACTION IN BOSNIA AND HERZEGOVINA

### UTJECAJ PERFORMANSI ISKUSTVENOG KVALITETA NA ZADOVOLJSTVO KORISNIKA TELEKOMUNIKACIJSKIH USLUGA U BOSNI I HERCEGOVINI

#### Abstract

*In the companies with a high number of users, such as telecommunication operators, it is very important to quickly adapt it to the new business conditions and fulfil on time user requirements. An eclectic subjective quality evaluation involves conducting research in the real environment with service users. The goal of the research is to determine basic scientific methods, the intensity and direction of the impact of performances of experiential quality on the level of satisfaction of the telecommunication service users in Bosnia and Herzegovina. Empirical research was based on the primary data collection by doing field research via test method, and by using a highly structured questionnaire as an instrument for data collection. Data collection was done on the basis of a randomly stratified sample, according to the share of mobile operators within the total number of users. A review of all the variables included in this research is based on the views of the users of telecommunication services. A multiple regression analysis was used to examine the impact of the independent variable X (the experiential quality performance) on the dependent variable Y (satisfaction of the telecommunication service users). The generated research results indicated that there is a statistically significant impact of four out of five performances of experiential quality on the level of telecommunication service users' satisfaction, namely: the context of use, subjective assessment, usability and technology performance, while results for performance expectations did not indicate that there is statistical significance. All this implies the conclusion that it is necessary to constantly have an insight into the users' experience regarding the use of telecommunications products or services.*

**Keywords:** telecommunication services, quality of service (QoS), quality of experience (QoE), the performances of experiential quality, the telecommunication service users satisfaction

**JEL:** L96, L15

#### Sažetak

*U kompanijama sa velikim brojem korisnika, kao što su telekomunikacijski operatori, veoma je važno brzo prilagođavanje novim uslovima poslovanja i pravovremeno ispunjavanje zahtjeva korisnika. Razumijevanje promjenljivih potreba korisnika zahtijeva subjektivna ispitivanja kvaliteta koja se obično obavljaju u kontrolisanom okruženju kao što su: laboratorije, podaci dobiveni mjerenjem tehničkih mrežnih parametara i sl. Međutim, eklatantna subjektivna evaluacija kvaliteta uključuje provođenje istraživanja u stvarnom*

okruženju sa korisnicima usluga. Uvidom u naučnu i stručnu literaturu, može se konstatovati da je istraživanje uloge i značaja performansi iskustvenog kvaliteta novo i otvoreno područje istraživanja, te da se istoj u svijetu pridaje sve više pažnje, s obzirom da pripada području istraživanja kvaliteta proizvoda/usluga kao osnovne odrednice zadovoljstva. Cilj istraživanja jeste da se na osnovu naučnih metoda utvrdi intenzitet i smjer uticaja performansi iskustvenog kvaliteta na nivo zadovoljstva korisnika telekomunikacijskih usluga u Bosni i Hercegovini. Empirijsko istraživanje realizovano je na temelju prikupljanja primarnih podataka terenskim istraživanjem, korištenjem metode ispitivanja, pri čemu je korišten visoko strukturirani anketni upitnik kao instrument za prikupljanje podataka. Prikupljanje podataka je izvršeno je na osnovu slučajnog stratifikovanog uzorka, a prema udjelu mobilnih operatora u ukupnom broju korisnika. Ocjene svih varijabli uključenih u ovo istraživanje, temelje se na stavovima korisnika telekomunikacijskih usluga. Za ispitivanje uticaja nezavisne varijable  $X_i$  (performanse iskustvenog kvaliteta) na zavisnu varijablu  $Y_i$  (zadovoljstvo korisnika telekomunikacijskih usluga), korištena je simultana višestruka regresijska analiza. Generisani rezultati istraživanja ukazali su da postoji statistički značajan uticaj četiri od pet performansi iskustvenog kvaliteta na nivo zadovoljstva korisnika telekomunikacijskih usluga, i to: kontekst korištenja, subjektivna procjena, upotrebljivost i tehnološke performanse, dok rezultati za performansu očekivanja nisu ukazali da postoji statistička značajnost. Sve to implicira na zaključak da je neophodno konstantno vršiti uvid u iskustvo korisnika u vezi sa korištenjem telekomunikacijskih proizvoda ili usluga.

**Ključne riječi:** telekomunikacijske usluge, kvalitet servisa/usluga (QoS), iskustveni kvalitet (QoE), performanse iskustvenog kvaliteta, zadovoljstvo korisnika telekomunikacijskih usluga

**JEL:** L96, L15

## 1. Introduction

In order to survive and maintain market share in an increasingly competitive market and meet the expectations of increasingly demanding users, mobile operator /service providers are devising new business strategies that characterize the introduction of new attractive services, a culture of quality and customer orientation, which should ultimately result in satisfaction and customer/user loyalty in the long run. The notion of Quality of Service (QoS) has emerged with the development of packet data and mobile data services for data transfer and Quality of Experience (QoE). Quality of Service is a concept that needs to describe the network ability to provide service of the appropriate quality level. QoS is essentially a technical concept, which allows operator/service provider objective measurement of performance reliability and quality of networks and services based on Key Performance Indicator (KPI) and Key Quality Indicator (KQI). The QoE experiential quality term is used to describe all elements of end-user perception, including the network and its performance. The user's perception of the quality of the network and individual services is expressed not by technical vocabulary, but most often by a description expressed as a result of people's feelings after using services such as: satisfied, dissatisfied, excellent, bad, good, fast, slow, *etc.* It is the subjectivity of different users, as well as their different expectations from the network and services, that demand objective (measurable) reliability and quality of performance, to explore also subjective (experiential) factors that impact the overall perception of end-users. The main objective of this paper is to determine basic scientific methods, the intensity and direction of the impact of performances of experiential quality on the level of satisfaction of the telecommunication service users in Bosnia and Herzegovina. Empirical research was based on the primary data collection by doing field research via test method, and by using a highly structured questionnaire as an instrument for data collection.

## 2. An overview of previous research

The quality of telecommunication services depends on many factors. These factors can be antecedents that separate constructs that affect the quality of service and components of the quality of service that represent the quality itself. Dabholkar, Shepherd and Thorpe (2000, p. 143) stated that the transition from component to antecedents would represent a natural evolution in the

development of constructs, and that such observation at quality factors would be closer to way of how people actually evaluate services. Garvin (1984) points out that quality is excellence, which is only possible to learn through experience about the product/service. According to Garvin (1984, p. 25), quality exclusively can assess the user, *i.e.* the level of quality depends on the degree of fulfilment of subjective demand during the consumption of products or services, which is a pure subjective approach to the assessment of quality. Some authors highlight the importance of selective approach to the assessment of quality. Thus, for example, a user of a complex telecommunications service, such as a mobile service, does not necessarily base its global quality assessment on all elements and characteristics of the service, but can use a choice of the most important elements and characteristics in making a global quality assessment (Engelhardt & Schütz, 1991, p. 395). Experiential quality is variable that is a dynamic category depends on telecommunications trends. Changes in user requirements can result of technology changes, changes in the degree of market concentration, and changes in the structure of user's needs and expected benefits (Sparks & Legault, 1993, p. 20).

The actuality of telecommunication trends and the changing demands of users inspire researchers in the field of experiential quality, for the purpose of getting as close as possible to the "eye of the user", that is, to explore the optimum of experiential quality that will be highly rated by the users, and from the aspect of the telecommunication service company to be effective and efficient, according to business performance indicators. Kim and Choi (2010), in their QoS/QoE measurement correlation study, propose numerical image measurement methods for IPTV services to satisfy optimal QoE. This method involves measuring of the QoS parameters in the network and correlating them with the experiential quality of the QoE. Network providers can predict the expected quality of service and enhance multimedia services through proposed QoE control processes by implementing a proposed model (Kim & Choi, 2010, p. 1381). QoE is very important for all participants in the communications ecosystem, which consists of the following: people, business and technology, because in different contexts of usability, their constant interaction takes place. Each participant in the communication ecosystem has its own goals, roles, and there is a causal connection, and Laghari, Crespi and Connelly (2012, p. 64) propose a holistic approach and model of QoE measurement, as well as a method of prediction in a model that implies: technology characteristics (QoS), business characteristics and contextual characteristics (social context).

In a study exploring the experiential quality of video streaming and its factors, Minhas (2012) proposes the use of a four-layer hourglass QoE model that has an influence on the experiential quality and argues that QoE cannot be accurately estimated with general QoS parameters alone, because other factors are involved as well. Moreover, the study highlights the conditions under which QoE becomes the sole function of QoS (Minhas, 2012, p. 37).

Ljubojević (2014) proposes, by identifying and systematizing the factors that affect the experiential quality of linear Internet video content, to use a model for the creation of linear In-stream video ads, with the highest possible level of experiential quality, and with an acceptable level of dissatisfaction with the inserted ads. Using this model aligns the interests of the users and the goals of the advertising campaign (Ljubojević, 2014, p. 3).

Liotou *et al.* (2015) identify key challenges for experiential quality management in mobile 4G and 5G networks, and proposes a user-centric framework for end-to-end network management, as well as the introduction of QoE managers and QoE controllers. According to the authors, operators with QoE aspirations, using this framework, should incorporate QoE logic and intelligence, and thus can quickly adapt to all specific user requirements and needs.

### 3. The performances of experimental quality

QoE is envisioned as a multidimensional concept consisted of two goals, namely the performance of technology in terms of QoS, but also as concept of what people can do with that technology, their expectations about it, the extent to which the technology meets their expectations and in what context they are used or intend to use.

The Performances of Experiential Quality (QoE) are the following (Baraković, Baraković & Bajrić, 2010, p. 15): technology performance, usability, subjective evaluation, expectations and context.

As a precondition of achieving QoE are *performance technologies*. The user evaluates the technical performance and their accuracy with four levels: services/applications, server, network and device/user terminal. Thereby, it takes into account factors such as availability, reliability, quality, completeness, and effectiveness. First of all, the service user and applications are being evaluated from the aspect of quality and reliability. Another technology issue is the issue of the availability and integrity of servers that are being used. The next issue related to performance technology is the user's network rating on accessibility, reliability, packet loss, delays, and latency (non-coverage). The user needs to the assessment of the functionality of its devices, processor and memory to become aware that the QoE depends on how he perceives the device that it uses.

*Usability* is a performance, in the behavioral sense, related to user's behavior during usage of a device or technology, ease of handling, or adaptability and interaction between and human and device/technology. If the service or technology is complex to use, then users will not rate it with a high QoE.

*Emotional utility* of the user is included here as well, that is, emotions and feelings that users achieve during the use of a service, device or technology. Very often, when considering usability performance, emotional usefulness is ignored as one of the preconditions for satisfaction. International standard ISO 9241-11:1998 (1998) provides guidance on usability and defines usability as: "a measure (volume) in which users use a product to achieve certain goals with efficiency, effectiveness and satisfaction in a particular context of use". Therefore, by the definition, usability is considered as: goal achievement effectiveness (accuracy and completeness), goal achievement efficiency (resources used to achieve accuracy and completeness), user's satisfaction (relief from anxiety or discomfort and a positive attitude towards the product/service) and the context of use (hardware, software and materials, and the physical and social environments in which the product/service is used).

*Subjective assessment* is a performance that tells us more about whether the technology works well enough so that the user is satisfied. In technical terms it can all work very well, and that the expectations are not fulfilled. A certain type of services can be very easy to use for one user and very complex for another. So, the user performs a subjective assessment of the services, networks and devices. The user assesses the service according to the time response service, then its contents and attractiveness, but also from the aspect of security of usage, *i.e.* the complexity of authentication and applications for use. When it comes to networking, the most important issues for the user are ease of access to the network and availability at every place and time, as well as speed, which depends on the type, coverage and optimization of the network being accessed. Users need to be aware of the device features that they are using and that the experiential quality also depends on the functionality of the user's device. In the case of a mobile device, features that may reflect experiential quality are, for example, the processor and memory of the device, battery consumption, or display issues.

*Insight into the expectations of users* of service is very important so that you can give the previous subjective assessment. Conclusions, whether the technology works well enough to satisfy user and the quality of the service delivered, can only be made if one knows what its expectations are. Some users will, for example, be happier with a lower quality of answering services, if the price of the services is lower. Therefore, subjective evaluation is closely associated with the expectations of the user, *i.e.*, depends on the degree in which they fulfilled the expectations of the user.

*Contextual aspects* will also affect the empirical quality. It is necessary to consider for this variable an experiential quality in a broader context and it is necessary to distinguish the following contexts from which users' expectations may depend: protection of human and environmental health, personal/social, cultural and technological context. Users expect that their health and environment will not be endangered by the use of the service or they want to feel privacy when using the service, and that in the personal/social context they are certain that they will not be exposed to any abuse and use by unauthorized persons. Satisfaction with the price and the payment can be viewed in the technology context, so if the price is high to access to some new technology, it will simultaneously reflect on the amount of the QoE.

#### 4. The telecommunications services users satisfaction

User's satisfaction with the services provided is a key issue at today's liberalized telecommunications market. Users are increasingly becoming more demanding, more technologically educated, more price-sensitive and less error-tolerant. Since the telecommunications market in Bosnia and Herzegovina is almost saturated in terms of population and current coverage of mobile telephony (according to the 2016 annual report of the Communications Regulatory Agency, (2017), in Bosnia and Herzegovina, 96.4% of the population uses a mobile phone), there is a fiercely competitive struggle for each user, both in urban areas where telecommunications operators generate the highest revenue and profits per user, as well as in rural areas and the acquisition of new users, which typically has to invest up to five times more resources per user. User's fluctuation is also widespread in the telecommunications business. Kotler and Keller (2006) cite the problems faced by US mobile telephony operators and report that many mobile operators lose 25% of their subscribers each year, estimated to be a USD 2-4 billion loss. Due to intense competition, users in the search for the best solution, change the operator at least three times a year, and the authors suggest that fostering and keeping of existing users needs to take an equal marketing approach in theory and practice, together with the skills of gaining new users, and compare the problem of fluctuation with "adding water to a pierced bin" (Kotler & Keller, 2006, p. 155).

Accordingly, there are two basic ways of keeping existing users. The first way is to set bigger barriers to competition, and the second way is to provide a higher level of user's satisfaction, which is considered a better approach because it nullifies incentives for competition. Acknowledging the fact that a high level of satisfaction leads to the loyalty of users, for telecommunication companies it is a pleasure and the goal, but the means of marketing, with the high costs of marketing, can impact on other interested parties, *i.e.* must not disregard the interests of business partners, employees, distributors, suppliers and shareholders. One of the ways of achieving a high level of satisfaction is the achievement of high-level experiential quality.

#### 5. Research methodology

##### 5.1. Variables and indicators of the research

The central research hypothesis is: Performances of experiential quality significantly impacts the level of telecommunication service users satisfaction, thus creating the assumptions for subjective

measurements, analyzes and continuous improvement of the quality system in the telecommunications market.

The overall aim of the research in this paper is to determine the intensity and direction of the impact of experiential quality performance on the telecommunications service user's satisfaction, and for the purpose of its implementation and answer the research questions, two working hypotheses were defined, namely:

*H<sub>1</sub>*: The level of telecommunication service users satisfaction with individual performances of experiential quality is high

*H<sub>2</sub>*: There is a statistically significant correlation between performances of experiential quality from the aspect of telecommunication service user's perceptions.

Indicators for measuring the independent and dependent variables were established in order to carry out an objective review of the central research hypothesis. Indicators for the measurement of the independent variables are: technology performance, usability, subjective evaluation, expectations and context of usage. Indicators for the measurement of the dependent variables are: the technical quality of services, simplicity of the service usage, and content of the service, support and price.

### *5.2. Research methods and source of data*

In elaboration of certain theoretical and methodological outcomes of the observed problem, and certain application considerations, in the paper have been used: hypothetical-deductive method, method of induction and deduction, method of analysis and synthesis, analytical-deductive method, comparative method, method of logical reasoning, understanding and interpretations and methods based on statistical analyses (descriptive statistical analysis, correlation analysis and multiple regression analysis). The empirical research was conducted based on the collection of the primary field data research, using methods of interrogation, in which a highly structured questionnaire was used as a form for data collection. The questionnaire used a five-point Likert scale. Target respondents were users of telecommunication services in the area of Tuzla Canton, Republika Srpska and Zenica-Doboj Canton.

### *5.3. Determining the type and size of the sample*

Data were collected on the basis of a random stratified sample, based on the share of mobile operators in the total number of users. The selection of the stratification criteria according to the research objective was represented by the strata extracted from the basic set and used in the research, namely: BH Telecom, M-Tel and HT Eronet.

The stratified sample belongs to the random sample category and allows evaluation of the degree of reliability of drawing conclusions about the parameters studied. Shares of mobile operators according to the number of users in 2016 are: BH Telecom 46.85% of users, Telekom Srpske (M-Tel) 38.30% of users and HT Eronet 14.55% of users (CRA BiH, 2017a, 2017b).

In order for the sample to represent the basic set by its basic characteristics, its size was obtained according to a proportional arrangement. In the sample has been collected a total of 234 survey questionnaire with the completed answers. Users from the following cities/municipalities: Tuzla, Banovići, Živinice, Gracanica, Doboj Istok, Doboj, Janja, Bijeljina, Modriča, Doboj Jug, Tešanj, Zenica and Kakanj provided answers.

Accordingly, in Table 1, is presented the size and structure of the sample.

Table 1. *The size and structure of the sample*

Mobile operator	The total number of users in 2016 (%)	Sample	
		Number of the surveyed users in the sample	The total number of users in the sample (%)
BH Telecom	46.86	110	47.01
M-Tel	38.30	90	38.46
HT Eronet	14.55	34	14.53
$\Sigma$	99.71	234	100.00

Source: Authors' own work

#### 5.4. Results, interpretation and discussion of empirical research

The Table 2 shows the results of the evaluation variables performance experiential quality, which are expressed via measures of the central tendency, that is, arithmetic mean, mode, and median, while the measure of dispersion is represented by the results of standard deviation.

Table 2. *Evaluation variables of performances of experiential quality*

Technology performance	Arithmetic average	Standard deviation	Modus	Median
Mobile network that I use is well covered, reliable and always available for use	4.09	0.894	4	4
During the conversation it happens that I don't hear the person whom I talking to, or the line breaks	2.95	1.279	4	3
Services and applications of the mobile operator that I use are well designed and meet my needs	3.76	1.000	4	4
I own a mobile device whose functionality supports advanced services	4.36	0.926	5	5
Internet service via mobile SIM card is fast, available (anywhere) and available (at any time)	3.49	1.128	4	4
It often happens that the network is congested due to which I can't make the call, send or receive a message, connect to the Internet, etc.	3.04	1.313	3	3
Usability	Arithmetic average	Standard deviation	Modus	Median
The service is simple to use (speech, SMS, MMS and Internet service)	4.28	0.831	5	4
Services are costumed to my knowledge of technology	4.45	0.839	5	5
During the usage of mobile services are present emotions and feelings	3.09	1.348	3	3
Using mobile services I make benefit for myself (I am applying them in the business, I am informing myself about services, I'm learning, having fun, etc.)	4.12	0.999	5	4
Mobile device I use is complicated to use (I don't make a good interaction between the device-man)	2.12	1.315	1	2
Subjective assessment	Arithmetic average	Standard deviation	Modus	Median
My previous experience with the technology can be described as excellent	4.10	0.966	5	4
Response time from the moment of referral of my request/problem to the operator is fast	3.68	1.148	4	4
Authentication (login) for use of the services is a complex process (interface-communication with the user)	3.14	1.124	3	3
Access to use of mobile service is simple (enter into subscription contract, or the purchase of prepaid start packages)	3.98	0.924	4	4
I feel completely safe while using advanced technologies and services via the mobile network	3.46	1.089	3	3
Processor (CPU) and memory (RAM/ROM) of my mobile devices support the work of the different types of services	4.12	0.997	5	4

and applications				
Display on the screen (display) of my device's high quality (HD resolution)	4.15	0.970	5	4
<i>Expectations</i>	<i>Arithmetic average</i>	<i>Standard deviation</i>	<i>Modus</i>	<i>Median</i>
For the service that I'm paying I expect a greater diversity of content	4.01	1.032	5	4
For the service I'm paying I expect to deliver better quality than what is now	4.08	1.016	5	4
Quantity of delivered units of minutes, messages and megabits meets my expectations from the tariff I use	3.43	1.192	4	4
I expect that the pricing policy and sales action of my mobile operator to be attractive	4.23	0.857	5	4
I expect from my mobile operator to follow the modern technology and services (mobile phones, tablets, laptops, sticks, mobile's routers, and higher access speed of the Internet, etc.)	4.40	0.735	5	5
<i>The context of usage</i>	<i>Arithmetic average</i>	<i>Standard deviation</i>	<i>Modus</i>	<i>Median</i>
I have a good feeling about the social and social responsibility that offers this mobile operator	3.61	0.944	3	4
I like to be connected with the image of my mobile operator	3.40	1.150	3	3
My mobile operator keeps the environment (the bills are sending to me via e-mail, uses environmental shopping bags, recycles old appliances, etc.).	2.86	1.164	3	3
Wireless reception and mobility comfort makes life and work in the private and public environment easier	4.15	0.909	5	4
The use of mobile technology allows me to keep my privacy	3.49	1.128	3	4

Source: Authors' own work

We observed at individual performances of experiential quality scores in Table 2, and noticed at which intervals their averages, mode values, medians, and standard deviation ranges are moving, and we gained insight into ratings by relevance to telecommunication service users. Accordingly, it has been found that the level of the telecommunication service users' satisfaction with some performances of experiential quality is high. In order to analyse the correlation between experiential quality performance from the aspect of telecommunication service users' perception, it is necessary to determine the intercorrelation between all 28 variables that represent performances of experiential quality, and the second working hypothesis was tested. In Table 3 are shown the results of the intercorrelation between performances of experiential quality, in terms of user perceptions.

Table 3. *Correlation of experiential quality variables from the aspect of telecommunication service users' perceptions*

Variables		Technology performance	Usability	Subjective assessment	Expectations	The context of usage
Technology Performances	Pearson correlation	1	.399**	.381**	.251**	.350**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	234	234	234	234	234
Usability	Pearson correlation	.399**	1	.501**	.187**	.444**
	Sig. (2-tailed)	.000		.000	.004	.000
	N	234	234	234	234	234

Subjective Assessment	Pearson correlation	.381**	.501**	1	.198**	.459**
	Sig. (2-tailed)	.000	.000		.002	.000
	N	234	234	234	234	234
Expectations	Pearson correlation	.251**	.187**	.198**	1	.218**
	Sig. (2-tailed)	.000	.004	.002		.001
	N	234	234	234	234	234
The context of usage	Pearson correlation	.350**	.444**	.459**	.218**	1
	Sig. (2-tailed)	.000	.000	.000	.001	
	N	234	234	234	234	234

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Authors' own work

Therefore, by correlation analysis we find that there is a linear positive relationship between the majority of the analysed variables, and we will present them according to the strength of impact as follows: subjective assessment and usability ( $r = 0.501$ ), subjective assessment and context of use ( $r = 0.459$ ), usability and context usage ( $r = 0.444$ ), technology performance and usability ( $r = 0.399$ ), technology performance and subjective assessment ( $r = 0.381$ ), technology performance and usage context ( $r = 0.350$ ), and technology performance and expectations ( $r = 0.251$ ). In order to test the central research hypothesis, we calculated the parameters of the simultaneous multiple regression analysis model, ANOVA and the necessary beta coefficients.

Table 4. Simultaneous multiple regression analysis model for the dependent variable "the telecommunication service users satisfaction"

Model	R	R square	Corrected R squared	Standard error assessment
1	.708 <sup>a</sup>	.501	.491	.4721417

a. Predictors: (Constant), Context of usage, Expectations, Technology performance, Usability, Subjective evaluation

b. Dependent Variable: user satisfaction

Source: Authors' own work

In the table it is visible, that the coefficient of multiple linear correlations is 0.708, which points to the conclusion that between the observed variables there is an extremely strong positive linear correlation. Based on the parameters in the model we can conclude that the coefficient of determination is  $R^2 = 0.501$ , which means that the selected model simultaneous multiple regression analysis interpreted 50.1% of all deviations, which implies the conclusion that the model is representative.

Statistically speaking, it shows how high percentage of the dependent variable is explained by the variability of the independent variables, that is, in our case, this coefficient shows how much of the variance of the dependent variable is of the telecommunication service users' satisfaction. (50.1% dependency of the dependent variable at all five independent variables).

Thus, performances of experiential quality significantly explain just over half of the variance of the dependent variable. Using analysis of variance, we found that the presented model of simultaneous multiple regression analysis is statistically significant since the value of *Sig.* is less than 0.05 ( $p \approx 0$ );  $F(5.228) = 45.862$ .

Therefore, the model is suitable for further data processing.

Table 5. ANOVA - Variance analysis of simultaneous multiple regression analysis

<i>Model (source of variation)</i>	<i>The sum of the squares</i>	<i>Degrees of freedom</i>	<i>Centre square</i>	<i>Empirically The F-ratio</i>	<i>Sig. (empirical level of significance)</i>
Regression (interpreted by the model)	51.118	5	10.224	45.862	.000 <sup>b</sup>
Residual (unexplained residual deviations)	50.825	228	.223		
Total	101.943	233			

a. Dependent Variable: user satisfaction

b. Predictors: (Constant), Context of usage, Expectations, Technology performance, Usability, Subjective evaluation

Source: Authors' own work

Furthermore, in order to make the most important step in examining relations and testing the impact of experiential quality performance on telecommunication service users' satisfaction, in the next presentation we conducted simultaneous multiple regression analysis and calculated the necessary beta coefficients, which will show the importance of each independent variable in predicting or influencing dependent variable and the extent to which all independent variables combine to explain the variation of the dependent variable. The obtained results are shown in the table below.

Table 6. Evaluation of an independent variable in the model of simultaneous multiple regression analysis - coefficients

<i>Model</i>		<i>Non-standard coefficients</i>		<i>Standard coefficients</i>	<i>the t- test</i>	<i>Sig.</i>	<i>VIF</i>
		<i>B</i>	<i>Standard error</i>	<i>Beta</i>			
1	Constant	.188	.299		.629	.530	
	Technology performance	.118	.065	.098	1.824	.049	1.318
	Usability	.212	.068	.180	3.125	.002	1.518
	Subjective assessment	.235	.064	.212	3.671	.000	1.523
	Expectations	-.048	.056	-.042	-.857	.393	1.096
	The context of usage	.418	.055	.426	7.640	.000	1.419

a. Dependent Variable: user satisfaction

Source: Authors' own work

The extent in which beta coefficients defines which independent variables have the greatest impact on the variance of telecommunication service users' satisfaction, based on the standardized beta coefficients presented, we can conclude that the maximum beta coefficient is 0.426, which is actually the value for the variable "usage context". This individual variable contributes mostly to explaining the dependent variable "user satisfaction", followed by variable of "subjective assessment", with a beta of 0.212, "usability" whose beta is 0.180, and "technology performance" with a beta of 0.098. Accordingly, looking at the significance of the p-value from the previous table, we can conclude that four of the five independent variables have a statistically significant impact on the dependent variable, the telecommunication service users' satisfaction.

In addition to interpreting the results of standard beta coefficients and the empirical significance level, it is necessary to examine whether there is a problem of multicollinearity. The value of this coefficient in the model ranges from 1.096 to 1.523, which is considered an adequate value ( $VIF < 5$ ).

In addition, we can draw the following conclusions:

- ✓ The most significant predictor are performances of experiential quality, that is, the use context variable ( $\beta = 0.426$ ;  $t = 7.640$ ;  $p \approx 0$ ).
- ✓ Important predictors of telecommunication service users' satisfaction are also variables: subjective assessment ( $\beta = 0.212$ ;  $t = 3.671$ ;  $p \approx 0$ ), usability ( $\beta = 0.180$ ;  $t = 3.125$ ;  $p < 0.05$ ) and technology performance ( $\beta = 0.098$ ;  $t = 1.824$ ;  $p < 0.05$ ).

- ✓ The predictor, that is, the independent expectation variable does not have a satisfactory empirical level of significance, because according to the obtained results, its value is  $p > 0.05$ .
- ✓ The value of B ponder were positive for the four experiential quality performances, except for the expectation variable whose value was negative, which was reflected in the other results for this variable ( $\beta = -0.042$ ;  $t = -0.857$ ;  $p > 0.05$ ).
- ✓ The standard error values are very small for all five performances of experiential quality and are ranging from 0.055 to 0.068, implying that all the results of simultaneous multiple regression analysis can be accepted.

Therefore, to summarize, conducted simultaneous multiple regression analysis from the aspect of users, showed a statistically significant impact of four variables, i.e. performances of experiential quality of the telecommunications service users' satisfaction. Therefore, ultimately, on the basis of the results of empirical research we confirm a statistically significant impact of the experiential quality performance on user satisfaction, with a statistically very significant point: the context of use, subjective assessment, usability and technology performance.

## 6. Conclusion

The conducted research deepens the understanding of the impact of performances of experiential quality of the telecommunication service users' satisfaction. All business processes of a telecom operator/telecommunication service provider have a direct or indirect ultimate goal, which is the satisfaction and loyalty of their users. In the largely undifferentiated telecommunications market of Bosnia and Herzegovina, the role of quality in differentiating services is a key factor in achieving competitive advantages, as this creates a base of satisfied and loyal customers.

Also, business processes run properly, without delays, interruptions, deficiencies, complaints, refinements and similar indicators that indicate the extent to which outputs (results of business processes) match customer requirements (inputs), affect lower costs. Understanding of the changeable needs of users requires subjective quality tests, which are typically performed in controlled environments, such as: labs, exam tables, data obtained by measuring technical network parameters, *etc.*

However, the most accurate subjective evaluation of quality involves conducting research in a real environment with users, that is, where the services are used and consumed. Users' satisfaction, as the primary goal of any telecom operator, cannot be fully achieved without taking into account the experiences of users that are consuming services, and feedback can be obtained based on identified and measured performances of experiential quality, which will serve as the basis for constant improvement of business processes and differentiation from the competition. Simultaneous multiple regression analysis revealed that there was a statistically significant effect of the independent variable on the performances of experiential quality on the dependent variable and the telecommunication service users' satisfaction ( $R = 0.708$ ;  $F(5.228) = 45.862$ ;  $p \approx 0$ ). Assessing independent variables in the simultaneous multiple regression analysis model, it was found that four out of the five predictors, that is, performances of experiential quality are statistically significant and those are: the context of use, subjective evaluation, usability, and technology performance.

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## Umjesto zaključka

Šesta internacionalna naučna konferencija „Ekonomija integracija“, na temu „(E)migracije i konkurentnost zemalja Jugoistočne Evrope“, organizovana je na osnovu kontinuirano iskazanog interesa velikog broja učesnika (istraživača, praktičara i naučnika iz oblasti ekonomije i biznisa) na sada već tradicionalnim, prethodnim ICEI konferencijama. Radovi iz osam tematskih područja, rezultirali su konkretnim naučnim i pragmatiskim spoznajama, koje mogu poslužiti kao konkretni odgovori, odnosno prijedlozi, vezani za unapređenje saradnje između relevantnih donosilaca odluka, istraživača te menadžera i vlasnika kompanija, kako bi se sinergetskim djelovanjem kreirao povoljan poslovni ambijent u nacionalnom i regionalnim okvirima.

Učesnici Konferencije apostrofirali su, između ostalog, da su migracije iz zemalja Jugoistočne Evrope prema Evropi do sada uglavnom bile vođene ekonomskim motivima. Značajan utjecaj na ekonomsku dimenziju emigracija imao je koncept četiri ekonomske slobode, na kojem se temelji jedinstveno tržište Evropske unije (sloboda kretanja roba, kapitala, ljudi i poslovnih poduhvata). Međutim, recentna dešavanja pokazuju da migracije imaju dominantno politički karakter, zbog čega emigracije predstavljaju poseban izazov kako za ekonomsku tako i političku nauku. U suštini, iseljavanje stanovništva je rezultat različitih faktora – pored ekonomskih, na odluku o odlasku stanovništva utiču i loša politička situacija u zemljama regiona, politička nestabilnost, nizak životni standard (u raznim sferama života, kao što su: zdravlje, školstvo, bezbjednost i dr.), zatim nepotizam i koruptivno okruženje. Neka od novijih istraživanja provedena u zemljama Srednje i Istočne Evrope pokazuju da su presudni potisni faktori nedostatak transparentnosti državnih politika i loš kvalitet obrazovnog sistema.

Fenomen (e)migracija, reflektovan kroz eroziju humane supstance, a naročito kroz osipanje visokokvalifikovane radne snage, ostavlja značajne posljedice po zemlje odlaska te predstavlja, možda i presudno, ograničenje zemlje za osiguranje konkurentne pozicije na regionalnom, ali i globalnom planu. S druge strane, migracije su inherentne ljudskoj civilizaciji i postoje od kada postoji i ljudska vrsta. To je proces koji nije moguće zaustaviti. Stoga se, razumljivo, kao ključno pitanje nameće na koji način je moguće staviti potencijal migracija u funkciju ekonomskog razvoja zemalja regiona Jugoistočne Evrope. Zemlje ovog regiona u posljednje dvije decenije suočene su sa velikim emigracijama i odlivom mozgova, a relevantna naučna istraživanja ukazuju da će se ovaj trend nastaviti i u narednim godinama. Istovremeno, zemlje Jugoistočne Evrope bilježe visoke iznose doznaka iz inostranstva, značajan dio stranih investicija u te zemlje iniciraju i pomažu migranti, povratnici i transnacionalne mreže migranata. Iako su prepoznati brojni modeli i načini povezivanja (e)migracija stanovništva i razvoja zemalja, još uvijek je nedovoljno iskorišten potencijal dijaspore za razvoj i prosperitet zemalja Jugoistočne Evrope. Uloga migracija je ključna za zemlje u razvoju jer može utjecati na povećanje ulaganja i uspostavu razvojnih veza, kao i stimulisati razmjenu ideja, dobrih praksi, kulturnih, poslovnih i drugih saradnji. Shvaćanje iseljništva kao pokretačke snage u velikoj mjeri bi promijenilo sliku zemalja Jugoistočne Evrope i pokazalo kako su potencijali za njen razvoj veliki te da glavni ključ za taj razvoj leži u rukama njihovih ljudi, ma gdje oni bili.

Na kraju, za nadati se da će ako ne svi, onda barem većina zaključaka i preporuka radova sadržanih u ovom zborniku, poslužiti nosiocima različitih nivoa vlasti, kreatorima ekonomskih politika, privrednim subjektima, visokoškolskim institucijama i svim drugim interesentima, kako u BiH tako i u drugim zemljama regiona Jugoistočne Evrope, u pravcu jačanja saradnje, i to ne samo na deklarativnoj osnovi, već i kroz konkretne projekte i aktivnosti.

Urednice

## Instead of conclusion

The sixth international scientific conference “The Economy of Integration” with the topic “(E)migration and Competitiveness of Southeastern European Countries”, was organized on the basis of constant interest by a large number of participants (researchers, practitioners and scientists in the field of economy and business) at previous, now traditional, ICEI conferences. The papers in eight subtopics resulted in specific scientific and pragmatic knowledge that can serve as specific answers and suggestions for the improvement of cooperation among the relevant decision makers, researchers and company managers and owners so as to use synergy to create positive business environment in national and regional contexts.

The Conference participants emphasized, among other things, that migration from the countries of Southeastern Europe to Europe has so far mainly been led by economic motives. A significant effect of economic dimension of emigration was caused by the concept of four economic freedoms that serve as the basis for the single market of the European Union (free movement of goods, free movement of capital, freedom to establish and provide services, free movement of persons). However, recent events have showed that migration bears a dominantly political character, which is why it is a specific challenge for both, economic as well as political science. Basically, population emigration is the result of different factors – apart from the economic ones, bad political situation in the region, political instability, low standard of living (in different spheres of life such as healthcare, education, safety, etc.), nepotism and corruptive environment also affect population’s decision to leave the country. Some recent research in the countries of Central and Eastern Europe show that the crucial pressing factors are the lack of transparency of state policies and low quality of education.

On the one hand, the phenomenon of (e)migration, reflected in the erosion of human substance and especially of brain drain, leaves significant consequences on home countries and is perhaps a decisive limitation for countries to secure competitive positions in the regional as well as global plan. On the other hand, migration is inherent to human civilizations and has been here since the beginning of the human species. It is an unstoppable process. Therefore, it is understandable that the key question is in which way the potential of migration can be put into the function of economic development of the countries of Southeastern Europe. In the last two decades, the countries in this region have faced large migration and brain drain and the relevant scientific research show that this trend is likely to continue in the years to come. At the same time, the countries of Southeastern Europe have registered huge amounts of foreign remittances as significant foreign investment is initiated and supported by migrants, returnees and transnational migrant networks. Although numerous models of networking between (e)migration and development of the countries have been recognized, the diaspora potential for the development and prosperity of Southeastern European countries has still not been sufficiently used. The role of migration is crucial for developing countries as it can affect the increase in investment and the establishment of development links, as well as stimulate the exchange of ideas, good practice, cultural, business and other types of cooperation. Seeing emigration as the driving force would largely change the image of Southeastern European countries and show that the potentials for the development of these countries are huge and that the key solution for the development is in the hands of their people, wherever they are.

Finally, we hope that if not all, then the majority of the conclusions and recommendations presented in the papers in the proceedings would be of use to different authorities, creators of economic policies, companies, higher education institutions, and all the other interested parties in Bosnia and Herzegovina as well as in other countries of Southeastern Europe, in strengthening cooperation, not purely declarative but through specific projects and activities.

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