UNIVERSITY OF NIŠ

ISSN 0354-4699 (Print)
ISSN 2406-050X (Online)
COBISS.SR-ID 87230727

FACTA UNIVERSITATIS

Series
ECONOMICS AND ORGANIZATION
Vol. 16, Nº 1, 2019

Scientific Journal **FACTA UNIVERSITATIS**
UNIVERSITY OF NIŠ
Univerzitetski trg 2, 18000 Niš, Republic of Serbia
Phone: +381 18 257 095 Telefax: +381 18 257 950
e-mail: facta@ni.ac.rs http://casopisi.junis.ni.ac.rs/

Scientific Journal FACTA UNIVERSITATIS publishes original high scientific level works in the fields classified accordingly into the following periodical and independent series:

Architecture and Civil Engineering
Automatic Control and Robotics
Economics and Organization
Electronics and Energetics
Law and Politics
Linguistics and Literature
Mathematics and Informatics
Mechanical Engineering
Medicine and Biology
Philosophy, Sociology, Psychology and History
Physical Education and Sport
Physics, Chemistry and Technology
Teaching, Learning and Teacher Education
Visual Arts and Music
Working and Living Environmental Protection

SERIES **ECONOMICS AND ORGANIZATION**

Editor-in-Chief: **Dejan Spasić**, e-mail: *fueaoed@junis.ni.ac.rs*
University of Niš, Faculty of Economics
Republic of Serbia, 18000 Niš, Trg Kralja Aleksandra 11
Phone: +381 18 528 629, Fax: +381 18 523 268

UDC Classification Associate: **Miroslava Đorđević**, Library of Faculty of Economics, Niš
English Proofreader: **Andrijana Milošević**, University Library "Nikola Tesla"
The authors themselves are responsible for the correctness of the English language in the body of papers.

Secretary: **Olgica Davidović**, University of Niš, e-mail: *olgicad@ni.ac.rs*
Computer support: **Mile Ž. Ranđelović**, University of Niš, e-mail: *mile@ni.ac.rs*
Miloš Babić, University of Niš, e-mail: *milosb@ni.ac.rs*

The cover image design: **M. Ž. Ranđelović**
Publication frequency – one volume, four issues per year.

Published by the University of Niš, Republic of Serbia

Financial support: Ministry of Education, Science and Technological Development of the Republic of Serbia

Printed by "UNIGRAF-X-COPY" – Niš, Republic of Serbia

ISSN 0354 – 4699 (Print)
ISSN 2406 – 050X (Online)
COBISS.SR-ID 87230727

FACTA UNIVERSITATIS

SERIES **ECONOMICS AND ORGANIZATION**
Vol. 16, N^{o} 1, 2019

UNIVERSITY OF NIŠ

INSTRUCTIONS FOR CONTRIBUTORS

Contributions should be (preferably) in English, French or German.
Under the paper title, the name(s) of the author(s) should be given while the full name, official title, institute or company affiliation and the like should be placed at the end of the paper together with the exact mail and e-mail address, as well as short (running) title of paper.
Manuscript format. A brief abstract of approximately 100 to 150 words in the same language and a list of up to six key words should precede the text body of the manuscript. Manuscripts should be prepared as doc. file, Word version 6.0 or higher. Manuscript should be prepared using a Word template (downloaded from web address http://casopisi.junis.ni.ac.rs/index.php/FUEconOrg/about/submissions#authorGuidelines).
Manuscript length. Brief articles and discussions (10 pages or less) are encouraged. Otherwise, papers should present well-focused arguments of approximately 16 pages.
Style requirements. **Letters, figures and symbols** should be clearly denoted.
Equations should be typewritten and, with the number, placed in parentheses at the right margin. References to equations should be in the form "Eq. (2)" or simply (2). For equations that cannot be entered in a single line, use the Equation Editor in MS Word. In equations and in the text, *italicize* symbols that are used to represent variables or parameters, including subscripts and superscripts. Only use characters and symbols that are available in the Equation Editor, in the *Symbol font* or in *Times New Roman*.
All illustrations (figures, photographs, line drawings, graphs) should be numbered in series and all legends should be included at the bottom of each illustration. All figures, photographs, line drawings and graphs, should be prepared in electronic form and converted in TIFF or JPG (max quality) file types, in 300 dpi resolution, for superior reproduction. Figures, line drawings and graphs prepared using elements of MS Drawing or MS Graph must be converted in form of pictures and unchangeable. All illustrations should be planned in advance so as to allow reduction to 12.75 cm in column width. Please review all illustrations to ensure that they are readable.
All **tables** should be numbered with consecutive Arabic numbers. They should have descriptive captions at the top of each table and should be mentioned in the text.
References should follow the **APA Style** convention, in alphabetical order at the end of the manuscript. The list of references should be formatted so that the second row in each entry is indented (Paragraph Indentation, Special - choose Hanging, by 0.5cm). Wherever possible, the DOI number should be provided, too, in addition to other reference data.
The APA style **citation** is applied in the text (according to the instructions that can be downloaded from the link http://www.apastyle.org/ or using samples given in the template). Citations in the text should be given in brackets, stating the author's surname, year of publication and, possibly, pages, if it is a direct quote).
Electronic submission. Papers for consideration should be submitted to the Series Editor in electronic form via the Journal's home page: http://casopisi.junis.ni.ac.rs/index.php/FUEconOrg.

FACTA UNIVERSITATIS
Series: **Economics and Organization** Vol. 16, N° 1, 2019, pp. 1 - 12
https://doi.org/10.22190/FUEO1901001M

Original Scientific Paper

SECTORAL STRUCTURE OF BANK LOAN PORTFOLIOS: A SINGLE COUNTRY EXPLORATORY STUDY

UDC 336.77

Srđan Marinković[1], Jelena Minović[2]

[1]University of Niš Faculty of Economics, Niš, Serbia
[2]Institute of Economic Sciences, Belgrade, Serbia

Abstract. *The paper explores time-varying nature of sectoral composition of bank domestic credit to private sector. Bank credit to private sector could be roughly divided into household loans and business (enterprise) loans. The composition appears to have significant influence on economic growth. Nevertheless, thus far it has been an overly neglected issue in financial theory. The paper focuses on determinants of household to total domestic private loans ratio in Serbian banking industry based on monthly time series from the last fourteen years. We found that both credit supply and credit demand determinants influence the sectoral composition.*

Key words: *household and business loans, bank credit to private sector, Serbian banking industry, time series analysis*

JEL Classification: G21, E51, O16, C22

1. INTRODUCTION

It is widely agreed that financial development has strong influence on economic growth. Bank credit (to GDP) and bank credit to private sector are well-established indicators of financial development and also transition success (Scholtens, 2000). The first indicator is used to represent so called financial deepness (Beck et al., 2007), while the second one contains important information about the sectoral structure of bank credit portfolio. However, the sectoral structure of bank credit portfolio itself goes far beyond the proposed framework in the majority of studies concerning bank credit to private sector. Expressed as an aggregate measure, bank credit to private sector hides important information.

Received December 17, 2018 / Accepted February 18, 2019
Corresponding author: Srđan Marinković
Faculty of Economics Niš, Trg kralja Aleksandra 11, 18000 Niš, Serbia
E-mail: srdjan.marinkovic@gmail.com

If we allow ourselves some imprecision, private sector loans could be roughly divided into household loans and business (enterprise) loans. Bank credit to private sector composition, i.e. the ratio of household to business loans, varies internationally within wide boundaries. According to financial theory, the structure itself influences the growth potential (Beck et al., 2012), hence it becomes important policy issue.

The aim of this study is to explore the reasons behind the time-varying nature of sectoral structure of loan portfolio of commercial banks in Serbia. Although we could not find any similar research to be the ground for our study, the opposite is true for guidelines in our search for determinants which were spread throughout the financial theory. To the best of our knowledge, this is the first attempt to explore the determinants of the loan portfolio structure in a single-country framework.

The remaining part of this paper is structured as follows. We begin in Section 2 with a review of literature on determinants and effects of bank credit to domestic private sector, and specifically its composition. Section 3 describes the dataset. Section 4 proceeds with the description of research methodology, results, as well as the discussion of main findings. Finally, section 5 presents a conclusion.

2. LITERATURE REVIEW

It is theoretically understood that development of financial sector, especially banks, has a vital role for economic activity (Goldsmith, 1969; Levine and Zervos, 1998; Rajan and Zingales, 2003), and the findings are well documented in a vast number of research papers (King and Levine, 1993; Demirgüç-Kunt and Maksimovic, 1998). For decades now, financial science relies on several indicators in order to assess the level of development of banking sector or transition success. So far, the best candidates have been total bank credit and credit to private sector (Anderson and Kegels, 1998; Scholtens, 2000; Hermes and Lensink, 2000; Beck et al. 2007). Both indicators are usually recalculated so as to present a share of GDP. Expressed in that way, the indicators become useful for international comparisons. If a country has a credit to GDP figure close to its peers (best-performers) it is then considered financially developed. There is no absolute limit of this ratio. Interestingly, record values of this ratio may mean well developed banking sector, but also dangerous tendencies that may lead to a credit crisis and economy overheating. This is especially true if the high level is accompanied with the latest records of steep rise of credit to GDP ratio (for a review see Marinković, 2015). Thus, both an increase and a decrease of this ratio may be assessed as a shift toward or shift away from the equilibrium.

The total bank credit figures may mask extremely different developments. In a nutshell, the total bank credit volume consists of bank credit to public and private sector. If a public sector receives comparably high share of total bank domestic credit it is considered sub-optimal. It is often a consequence of under-developed private sector, hypertrophy of public sector and government spending, crowding out effect etc. On the other hand, a turn to private sector is traditionally considered a favorable development, since it may indicate discontinuation of financial and political relationship between credit providers and a local government, inherited from the past, more finance for productive investments, etc.

The stream of literature that investigates credit to private sector tells barely something about the structure of this aggregate (Cottarelli et al., 2005; Djankov et al., 2007). Moreover,

the literature on determinants of the sectoral structure of loan portfolio is nothing but scarce. There are just a few papers that investigate this issue. The paper of Beck et al. (2012) is developed in multi-country framework and sheds some light on possible macroeconomic and institutional determinants able to explain cross-country variations in the sectoral structure of loan portfolio. The authors found legal origin and religious composition factors that influence both financial development and credit composition to household and business (enterprise) sector. On the other hand, the composition itself seems to have influence on economic growth, i.e. enterprise credit is found positively associated with the growth and income inequality reduction, while household credit is found unrelated.

Table 1 Household credit: international comparisons

	Bank credit to GDP	Household credit share
Developing countries		
Bulgaria	0.219	0.340
Egypt	0.446	0.167
India	0.219	0.287
Indonesia	0.252	0.324
Macedonia	0.187	0.249
Mexico	0.186	0.532
Pakistan	0.225	0.224
Russia	0.147	0.223
Thailand	1.226	0.184
Turkey	0.179	0.355
Uruguay	0.392	0.505
Developed countries		
Belgium	0.744	0.578
Canada	0.962	0.804
Czech Republic	0.484	0.352
Denmark	0.894	0.851
France	0.850	0.601
Germany	1.053	0.380
Japan	1.549	0.309
Korea	0.698	0.552
Netherlands	1.639	0.616
Slovenia	0.340	0.293
Switzerland	1.603	0.623
United Kingdom	1.269	0.561
Of which market-based		
United States	0.498	0.764

Source: Beck et al. (2012), Table 1.

The sectoral structure of bank credit to private sector also seems to have an important effect on trade balance. Buyukkarabacak and Krause (2009) found a strong influence of household loans on trade deficits in a multicountry framework. The rationale for this regularity is the fact that household demand, financed by bank credit, increases consumption of consumer goods which are at least partly imported. The effect is as strong

as ardent is a country struggle to sustain foreign trade in balance. However, although business loans may also increase demand for consumer goods (in case of trade or tourism industry) in a major part it will end up with an increase of import of non-consumer goods like raw material or productive equipment. Therefore, if a country suffers from chronic and persistent trade deficits and also is prone to currency crisis, it should put on its radar the level of household loans as a policy issue.

The table above (1) presents data on bank credit to GDP and household credit share in total domestic private sector credit (a sum of household and business credit). All the data are from the Beck et al. (2012). The original list of countries is here shortlisted, but still gives a valuable overview of cross-country variety. It brings a basic idea that although the share of household credit varies from one country to another, it appears as a regularity that more developed countries have the structure of credit portfolio more inclined to household loans. Within the developed countries subsample, it is also the case that in market-based financial systems (e.g. the US) banks are additionally prone to finance households. An obvious explanation is that in such systems business finance in large part goes through financial markets (primarily bond and commercial paper markets).

2.1. Risk-return differences of household and business loans: searching for determinants

Beside the determinants that exert their influence on household/business loan structure from the sphere of overall financial and institutional developments, there have to be some other important elements that might explain either cross-country differences or the changing nature of bank loan portfolio structure.

If we delve into the drivers of demand and supply for different types of credit, we can observe some notable differences among the types of loans. With the supply side influences, we cover the reasons why credit providers may favor household credit over business credit and vice versa. First and foremost, do banks charge customers more on household loans relative to business loans? There is not an easy and straightforward answer to this question. Interest rates charged on prime business customers are usually comparable to yield that banks earn on risk-free assets (government securities) and, depending on economic conditions, they could be marginally higher or even lower than the yield on government securities. On the other hand, the highest rates are charged on most flexible credit arrangements granted to households (e.g. credit cards overdue). They could be several times higher that rates charged to a prime customer business loan.

However, information about return means almost nothing if it is not adjusted for risk. How about risk differences? Let us turn to the other side of risk-return relationship. Is there any hard fact that household loans could be considered less risky than business loans? At this moment we would underline a rule that helps link mutual interdependence between creditworthiness of business and household units. Namely, relative ability of those two sectors to repay bank debt depends on some institutional features. For instance, salary is the most important financial source for households to repay bank debt, while it is at the same time important business expense. Some institutional features may rank salaries high on the priority list among business expenses, make it rather fixed costs. If there is a minimum wage regulation, then this „priority effect" could be even more pronounced. Exactlythis priority may make household loans less risky than business loans, at least in hostile business

environment. Other differences are assets available for collateral; net wealth records, personal bankruptcy regulation etc. A major part of business assets belongs to „specific assets“ (non-pledgeable), e.g. know-how, tailor-made or specific purpose equipment (Holmström and Tirole, 2011), while household assets often can be transferable (e.g. houses and apartments) and better suited to collateral purposes. In terms of net wealth records the things are in favor of enterprises, which regularly have to keep record of all business transactions, assets, liabilities and net worth.

From the financial intermediation theory (Bhattacharya and Thakor, 1993) it comes clearly that a financial intermediary provides two types of services. They are brokers and asset transformers. In doing its transformation services, a financial intermediary transforms maturity, divisibility, default risk and liquidity. By doing this, financial intermediaries often expose themselves to various kinds of risk. Let us take into consideration maturity differences. Since asset-liability maturity mismatch is a crucial source of interest rate risk and liquidity risk in banks, providing that average maturity of liabilities is a short-term one, the assets that are of longer maturity will expose credit provider to comparably higher risk. Household and business loans are inhomogeneous in many relevant features: in terms of maturity, amounts, credit risk etc. However, if average household and business loans differ in those features, sectoral credit composition will make difference for banks risk exposure.

An important distinguishing element may be also different behavior of demand for household vs. business loans during some challenging phases of business cycle. For example, in crisis conditions or business recessions the demand for business loans is likely to be weaker. Some business units will postpone financing of new and complex business undertakings and remain dedicated only to current assets financing. Moreover, for business units bank credit is just one way to finance expenditures and development. On the other hand, households almost exclusively rely on banking loans and often borrow out of necessity besides opportunity. Therefore, we could expect that the credit demand in business sector is more interest rate elastic relative to that of household sector.

The elements that we have explored above shape risk-return relationship for a typical household and business loan. Unfortunately, many of those elements are not easy to test empirically. In the next section we will try to sample a set of operable indicators based on the inputs from financial theory.

3. DATASET

Our dataset comprises a dependent variable and a set of explanatory variables time series. Some data were available as early as year 2004. However, there were no records of full set of variables before 2005. Therefore, in this study data spans from January 2005 to November 2018. For all variables the source of data is National Bank of Serbia statistics, which is available publically. The ultimate data source for the dependent variable is Commercial banks assets and liabilities composition time series.

The dependent variable is defined as a share of household loans in total domestic private sector loans (HTL). Since domestic private sector loans excludes banks' claims on non-residents (foreign exchange reserves and other foreign assets), national government (central and local government units) and various claims on National Bank of Serbia (cash and both local and foreign currency deposits, repo stock etc.), this category generally

consists of bank claims on household and business sector. Business loans include several sub-categories (companies, public enterprises and other financial organizations), while household loans beside household loans category includes yet only loans to non-profit and other organizations. This latest sub-category has a minor influence on the structure.

Unfortunately, no variable able to represent demand side determinants is available with monthly frequency. Natural candidates would be household consolidated income and an adequate proxy variable for business sector financial condition. In order to capture at least some influence of changes in sectoral credit demand, we introduced a savings variable. It is clear that bank savings is just a part of total financial wealth of households and even smaller part of total household wealth. However, bank savings records still represent dynamics of overall financial position of households, assuming that the structure of household wealth remains constant overtime. The financial position itself indicates capacity to take out and repay debt, and can be very close to free household income (income in excess of regular consumption). The idea to include savings volume as a predictor into the regression model is also based on the assumption that household savings is primarily used to finance various forms of household loans. The assumption can be justified by the fact that household loans are better matched with savings in terms of divisibility (amounts), maturity and liquidity features. However, level data on savings are clearly trended. Therefore, we rearranged the variable so as to represent a share of savings in total banks assets and/or liabilities. This way, saving to total assets ratio (STA) represents a mixture of demand and supply side determinants of sectoral structure of bank credit to domestic private sector.

The next variable that entered the model is nominal foreign exchange rate (NER), expressed as RSD vis-à-vis EUR. A rationale for regressing the structure of commercial banks loan portfolio on exchange rate is to control for the effect that a change in exchange rate may have on the volume of different claims. Namely, because of high level of financial euroization, a volume of loan portfolio when expressed in reporting currency (RSD) becomes highly influenced by the exchange rate. If loans granted to business units differ from loans granted to households in terms of euroization extent, it may influence the very structure of loan portfolio. As we expected, the data on currency structure (includes also contracted hedge) of credit to household and credit to business sector revealed comparably higher share of credit euroization in business loans. Based on data from July 2008 onwards, business sector has an average share of local currency (non-hedged) claims of 22.7 %, with extreme values of 9.3 % to 33.4 %. At the same time, household sector reports 34.3 % of local currency claims (min. 20.7 %, max. 50.9%).

Propensity of banks to prioritize households' loans over business loans belongs to so-called supply-side determinants. In order to represent at least one determinant of this kind, we introduced a variable constructed as a difference between interest rate charged on household loans and interest rate charged on business loans. In order to avoid negative data, the variable is expressed as a ratio of the rate charged on household to the rate charged on business loans (IRR). If available, the rates were average volume weighted interest rates available from National Bank of Serbia (NBS) official statistical database. The data are annual rates and expressed in percentage. This is exactly where we faced the biggest challenge in sampling the data. Namely, the scope and format of the interest rate statistics of NBS were changed radically starting for reporting year 2010. The statistics for the previous period (January 2005 to June 2011) contains no information on average rate charged on total credit granted either to household or business sector. The report concerns only credits

granted in local currency, disaggregated based on maturity criterion and types of credit. Therefore, for this period, instead of aggregate data we used a sort of representative data. As a representative for a household loan (rate) we took short-term "household loan" in the local currency, while for a business loan we took the rate charged on "other lending" since the other two available types (export and agricultural loans) were less likely to represent a typical business loan. It is also a short-term local currency bank asset.

NBS interest rates statistics for the period starting from September 2010 onwards is more detailed and consistent. The report contains data on average volume weighted interest rate charged on all types of household loans (housing, consumer, cash and other loans) and takes into account currency and maturity composition. It is the same with business loans (loans to non-financial enterprises), which comprises main types or purposes (current assets, export, investment and other) disaggregated according to the range of currencies and maturities. Because the interest rate data available for different periods were inconsistent to each other, we have opted for separate specification (regressions). Although the regression model that we have applied here is generally the same, the first specification deals with the data from 2005 to 2010, while the second one operates with the data for the later period.

Table 2 Descriptive statistics

Series	Mean	Median	SD	Skewness	Kurtosis	J-B	Prob
Time series Y2005–Y2010							
HTL	0.337	0.361	0.055	–1.285	3.285	20.058	0.000
STA	0.229	0.229	0.021	0.230	2.111	3.008	0.222
NER	87.809	84.873	8.834	0.798	2.499	8.395	0.015
IRR	2.177	2.149	0.458	0.162	2.283	1.856	0.395
Time series Y2011–Y2018							
HTL	0.390	0.390	0.040	0.329	1.923	6.242	0.044
STA	0.304	0.311	0.014	–0.960	2.595	15.076	0.000
NER	116.142	118.168	6.662	–1.093	3.412	19.390	0.000
IRR	2.012	2.118	0.535	–0.106	2.132	3.128	0.209

Note: SD stands for Standard Deviation, J-B for Jarque-Bera.
Source: Authors' estimation

Based on visual data presentation and scatter plots (Appendix, table 5) there is a rather good fit between the regressand and almost all regressors unilaterally. Quite similar distribution of pair points in scatter plots of household to total domestic loans ratio (HTL) vs. savings to total assets ratio (STA) and HTL vs. NER (nominal exchange rate) indicates that there must be a joint influence of some variable, e.g. it may mean that nominal exchange rate has strongly influenced savings ratio. This was why we joined a scatter plot of STA vs. NER. This scatter plot indicates rather high correlation between those variables. A rationale for this regularity is strong influence of nominal exchange rate on savings to total assets ratio (STA). Knowing that high share of savings volume is foreign currency (largely EUR) denominated or indexed savings, while it is significantly less in terms of total banks' assets (ratio denominator), it comes expected that variability of STA becomes largely driven by exchange rate changes.

The table 2 presents descriptive statistics for time series. As already underlined, the data for each variable were subsampled into two continuing time series (Y2005–Y2010 and Y2011–Y2018) with no overlap, because we had to run separate regressions for two

periods. Based on Jarque-Bera test, all the variables, with exception of interest rate ratio (IRR), show normal distribution. However, for this kind of regressions normality of distributions is a desirable but not necessary condition.

4. RESEARCH METHODOLOGY, RESULTS AND DISCUSSION

Before performing the regression analysis, we transformed all variables in logarithm values, and tested the stationarity of all time-series variables (Table 3). In both periods, variables household to total (domestic private) loans (HTL), savings to total assets (STA), and nominal exchange rate (NER) are nonstationary, while the variable interest rate ratio (IRR) is stationary. Therefore, we transformed the nonstationary variables in stationary variables using the first differences (Δ) of level data.

Table 3 Unit root tests

Series	ADF test statistics	Significance level	Critical value for the level	H_0
Time series Y2005–Y2010				
HTL	–1.540	0.05	–3.473	cannot be rejected
STA	–2.992	0.05	–3.473	cannot be rejected
NER	–1.496	0.05	–3.473	cannot be rejected
IRR	–4.255	0.05	–3.473	rejected
ΔHTL	–8.019	0.05	–3.473	rejected
ΔSTA	–9.111	0.05	–3.473	rejected
ΔNER	–9.451	0.05	–3.473	rejected
Time series Y2011–Y2018				
HTL	–2.726	0.05	–3.459	cannot be rejected
STA	–1.495	0.05	–3.459	cannot be rejected
NER	–1.347	0.05	–3.459	cannot be rejected
IRR	–7.294	0.05	–3.459	rejected
ΔHTL	–9.720	0.05	–3.459	rejected
ΔSTA	–10.606	0.05	–3.459	rejected
ΔNER	–9.615	0.05	–3.459	rejected

Note: The null hypothesis H_0: unit root exists in the process; the alternative hypothesis: the process is stationary. Δ denotes first differences of variables. Schwarz automatic selection criterion of the lag length has been used for the unit root tests. Augmented Dickey Fuller test (ADF) is test statistics for a unit root.
Source: Authors' estimation

After having rearranged the data in order to satisfy stationarity condition of time series, the regression analysis followed (Table 4). We have two regressions: one is for the period 2005M01–2010M12, and second is for the period 2011M01–2018M10. Both regressions were estimated with time series of monthly frequency.

Table 4 Regression results and diagnostics

	Regression 1	**Regression 2**
Savings to total assets (STA)	0.093	**0.208***
	[0.071]	[0.121]
Nominal exchange rate (NER)	0.047	–0.046
	[0.072]	[0.091]
Interest rate ratio (IRR)	**–0.038****	**0.008****
	[0.009]	[0.003]
Constant	**0.036****	–0.002
	[0.007]	[0.002]
Diagnostics		
R^2	0.243	0.100
F	7.177	3.285
	(0.000)	(0.024)
BG(5)	3.944	1.051
	(0.004)	(0.393)
Q(10)	48.034	9.907
	(0.000)	(0.449)

Note: Standard errors of estimated parameters are given in square brackets, and p–values are in parenthesis. Values of determination coefficient (R^2), F–test for regression significance, Ljung–Box (Q–test) statistics of residuals, and Breusch–Godfrey's (BG) test of serial correlation of fifth order are given. ** denotes statistical significance at 1% level; * denotes statistical significance at 10%.
Source: Authors' estimation

Both regressions are statistically significant according to the *F*–test. However, second regression has a satisfactory statistical property, in the sense that, according to the Breusch–Godfrey (BG) test, there is no autocorrelation of fifth order in the residuals of this model. Similarly, according to the Ljung–Box statistics (Q–test) there is no autocorrelation of tenth order in the residuals of this model. In second regression, two explanatory variables (STA and IRR) are positive and statistically significant at the 0.1 level and at 0.01 level respectively. However, first regression does not have satisfactory statistical property according to both the BG test and the Q–test. In first regression, constant term is positive and statistically significant at the 0.01 level, while IRR is negative and statistically significant at the 0.01 level.

Determination coefficient is relatively small in both regressions. For instance, in second regression R^2 is barely 0.1 indicating that only 10% of variance of the dependent variable (HTL) can be explained with the set of explanatory variables. Such results do not diminish quality of inference about explanatory power of each tested statistically significant variable. It only warns that the model specifications are not reliable for any prognostic purpose, for instance because of omitted variables possibility.

For further discussion, we will focus on second regression, since this one has necessary statistical properties. Firstly, a change in nominal exchange rate has no direct influence on sectoral credit structure. It might be that the variable has some power to explain the structure but it likely goes via saving to total assets ratio. Savings to total assets ratio itself is related to household loans share in total domestic private loans exactly as we would predict. The higher share of household savings in bank total assets, the higher would be a share of household loans over the share of business loans. Interest rate ratio has the same way of influence (positive sign of the regression coefficient). The variable has a direct positive influence on the dependent variable, which means that if the difference between interest rates charged on household loans and business loans increases, banks will favour more lucrative type of loans. Nevertheless, the fact that banks prioritize household loans does not have to bring eventually a change in bank credit portfolio. For that to be in place, households must accept the increase in relative credit costs. The latest finding probably might be explained with assumed difference in interest rate elasticity of credit demand between household and business sectors.

5. CONCLUSION

The causal relationship between financial development and economic growth remains one of the most frequently studied topics positioned on the borderline of macroeconomics and financial economics. The main contribution of this strand of literature is economic policy relevance of bank credit activity, especially credit to private sector. However, one specific issue remains on the margins of interest of scientific community. This is the composition of bank credit to private sector; how much of this credit activity is directed to households vs. enterprises.

This paper is aimed to fill a gap in the literature concerning drivers of the composition within a single country framework. To the best of our knowledge, this is the first investigation of this kind. The paper brings some empirical evidence but it is equally intriguing in its attempt to assemble ideas concerning risk-return differences of household and business loans, which may shape demand and supply for those loan types. Unfortunately, data availability limited our intents to undergo appropriate empirical tests in order to verify our cogitations.

Nevertheless, the regression analysis confirms that a share of household loans in bank domestic credit to private sector is related to both credit supply and credit demand determinants. We introduced one proxy for each group of determinants and found the share of household savings in total bank assets/liabilities (STA), as well as the interest rates margin charged on household over business loans (IRR) statistically significant. Moreover, the direction of influence in both cases complies with the theory prediction. Somewhat disappointing regression fit indicates that there are likely some determinants remaining out of the model.

Acknowledgement: *The authors are grateful to the Ministry of Education, Science and Technological Development of the Republic of Serbia for the funds and support that made this research possible (OI 179066; OI 179015; III* 47009*).*

REFERENCES

Anderson, W.R. & Kegels, C. (1998). *Transition banking: Financial development of Central and Eastern Europe*. Oxford: Clarendon Press.

Bhattacharya, S. & Thakor, A. (1993). Contemporary banking theory. *Journal of Financial Intermediation*, 3, 2-50.

Beck, T., Büyükkarabacak, B., Rioja, K.F. & Valev, T.N. (2012). Who gets the credit? And does it matter? Household vs firm lending across countries. *The B.E. Journal of Macroeconomics*, 12 (1), 1-46 doi: 10.1515/1935-1690.2262

Beck, T., Demirgüç-Kunt, A. & Martinez Peria, S.M. (2007). Reaching out: Access to and use of banking services across countries. *Journal of Financial Economics*, 85, 234-266.

Buyukkarabacak, B. & Krause, S. (2009). Studying the effects of household and firm credit on the trade balance: The composition of funds matters. *Economic Inquiry*, 47 (4), 653-666 doi: 10.1111/j.1465-7295.2008.00173x

Cottarelli, C., Dell'Ariccia, G. & Vladkova-Hollar, I. (2005). Early birds, late risers, and sleeping beauties: Bank credit growth to the private sector in Central and Eastern Europe and in the Balkans. *Journal of Banking and Finance*, 29, 83-104.

Demirgüç-Kunt, A. & Maksimovic, V. (1998). Law, finance and firm growth. *Journal of Finance*, 53, 2107-2037.

Djankov, S., McLiesh, C. & Shleifer, A. (2007). Private credit in 129 countries. *Journal of Financial Economics*, 84, 299-329.

Goldsmith, R.W. (1969). *Financial structure and development*. New Haven: Yale University Press.

Hermes, N. & Lensink, R. (2000). Financial system development in transition economies. *Journal of Banking and Finance*, 24 (4), 507-524.

Holmström, B. & Tirole, J. (2011). *Inside and outside liquidity*. Cambridge (MA): The MIT Press.

King, G.R., Levine, R. (1993). Finance, entrepreneurship, and growth: Theory and evidence. *Journal of Monetary Economics*, 32, 513-542.

Levine, R. & Zervos, S. (1998). Stock markets, banks, and economic growth. *American Economic Review*, 88, 537-558.

Marinković, S. (2015). Managing the financial crisis: Credit crunch and response in Serbia. In: Thomas, M. & Bojicic-Dzelilovic, V. (Eds.), *Public policy making in the Western Balkans* (pp. 171-196). Dordrecht: Springer Science+Business Media.

Rajan, G.R. & Zingales, L. (2003). *Saving capitalism from the capitalists.* London: Random House Business Books.

Scholtens, B. (2000). Financial regulation and financial system architecture in Central Europe. *Journal of Banking and Finance*, 24 (4), 525-553.

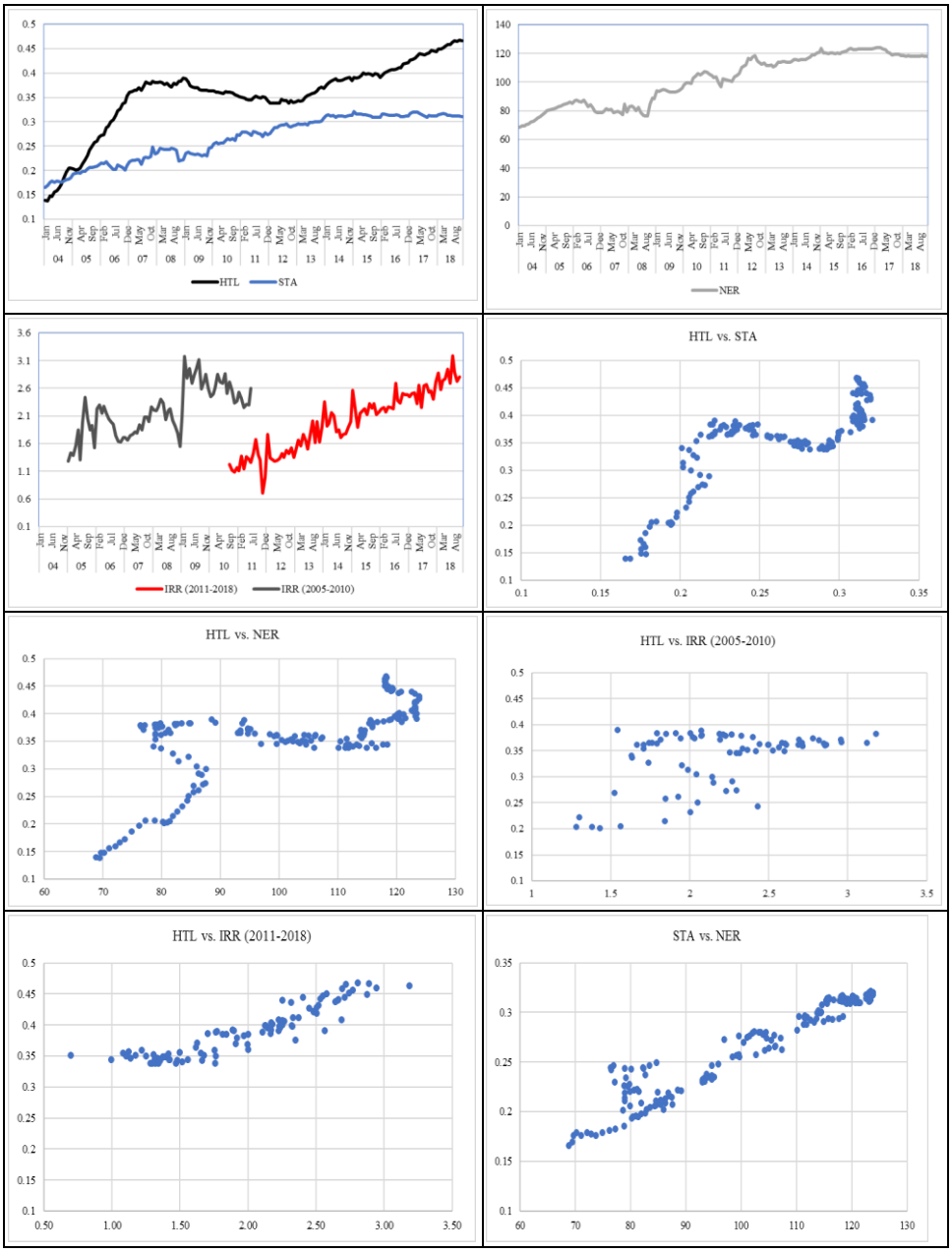
SEKTORSKA STRUKTURA KREDITNOG PORTFELJA BANAKA: ISTRAŽIVANJE NA PRIMERU JEDNE DRŽAVE

U radu istražujemo varijabilitet sektorske strukture bankarskih kredita privatnom sektoru. Bankarske kredite privatnom sektoru pojednostavljeno delimo na kredite stanovništvu i kredite privredi. Iako se očekuje da sektorska struktura ima značajan uticaj na privredni rast, ovo pitanje je do sada ostalo zanemareno u finansijskoj teoriji. U radu se istražuju determinante učešća kredita stanovništvu u ukupnim domaćim kreditima privatnom sektoru u bankarskom sektoru Srbije na bazi vremenskih serija mesečnih podataka za poslednjih četrnaest godina. Utvrdili smo da na ovako definisanu sektorsku strukturu kreditnog portfelja banaka utiču kako determinante kreditne ponude tako i determinante kreditne tražnje.

Ključne reči: *krediti stanovništvu i privredi, bankarski kredit privatnom sektoru, bankarski sektor Srbije, analiza vremenskih serija*

APPENDIX

Table 5 Dynamics of variables and scatter plots



Source: Authors' calculation based on NBS statistics

FACTA UNIVERSITATIS
Series: **Economics and Organization** Vol. 16, N° 1, 2019, pp. 13 - 30
https://doi.org/10.22190/FUEO1901013K

Original Scientific Paper

THE IMPORTANCE OF SCIENCE FOR IMPROVING COMPETITIVENESS OF NATIONAL ECONOMY

UDC 330.341.1:001.892

Miloš Krstić[1], Bojan Krstić[2], Ratomir Antonović[3]

[1]University of Niš, Faculty of Science and Mathematics, Serbia
[2]University of Niš, Faculty of Economics, Serbia
[3]Faculty of Law, Security and Management "Konstantin Veliki", Niš, Serbia

Abstract. *The aim of the paper is to examine the interdependence of the selected indicators from the Global Competitiveness Report and the Innovation pillar, which is used as a proxy indicator of the science competitiveness. This relationship is analyzed within the sample of 9 countries. The analysis uses available information sources in WEFs annual reports. The key contribution of this paper consists in providing clearer into factors competitiveness in the analyzed countries and pointing out the priority actions for the authorities to improve and increase the competitiveness level of science, and its contribution to the national economy competitiveness level. The research results can serve policy makers in shaping strategies and policies for the competitiveness improvement and the future of economic development in the analyzed countries.*

Key words: *competitiveness, science, young talents, highly skilled professionals, innovation*

JEL Classification: I23, O15

INTRODUCTION

Competitiveness is a multidimensional concept that includes a multitude of different aspects and factors that determine it. Observed from the microeconomic aspect, competitiveness is the ability of the company to continuously meet the needs of consumers with high quality products and services that will enable it to achieve long and stable profit. Observed from the macroeconomic aspect, competitiveness is not uniquely determined. In the attempt to answer the question: What is national competitiveness? Porter also points to various understandings of

Received December 14, 2018 / Accepted February 28, 2019
Corresponding author: Miloš Krstić
Faculty of Science and Mathematics, University of Niš, Višegradska 33, 18000 Niš, Serbia
E-mail: krsticmilo3@gmail.com

this term: "There are attitudes that consider competitiveness as a macroeconomic phenomenon, which is determined by the level of interest rates and budget deficit, as well as the movement of the exchange rate, but also the structure and price of the labor force. Attitudes that connect competitiveness with natural resources, but also those who consider that competitiveness is determined by macroeconomic policies for protecting domestic production, promoting exports, subsidizing, etc." (Porter, 2004, p. 76).

Without diminishing the importance of the aforementioned positions, Porter points out that the prosperity of a nation is not inherited, but created by the strategic choices. It links national competitiveness with productivity on the macro level and believes that the standard of living of citizens can only be improved if enterprises are able to achieve a high level of efficiency (productivity, profitability) and increase it over time. Thus, the efficiency of a country is ultimately determined by the efficiency of enterprises operating in that country (Porter, 2004, p. 31).

For comprehensive overview of the competitiveness of a national economy, it is necessary to properly understand the role of the science sector in improving the competitiveness of national economy. In this sense, we will begin by establishing the basic characteristics of the science sector in developing countries, which are comparable, according to their structural and economic-historical characteristics and the trajectory of economic dynamics. Then, statistical and analytical data on scientists and their professional career will be presented. In the last part of this work, special attention will be devoted to determination of science indicators that represent the "lack" of the country, but that are important for improving the competitiveness of the economy. For this purpose, the methodology of the *World Economic Forum* for measuring the competitiveness of a country will be used.

The key contribution of this paper is reflected in clearer understanding of the role and significance of the indicators of the competitiveness of science in improving the competitiveness of the national economy and providing recommendations in the form of desirable activities of the competent state organs in order to maintain the existing competitive advantages and minimize weakness.

1. Basic Characteristics of the Science Sector in Developing Countries

Science is one of the most perfect forms of accumulation and systemization of knowledge and experience. Science is a system for diffusion, sharing and transfer of knowledge. It develops general and specific methodologies and methods of research. Mastering these methods and methodologies substantially rationalizes the researcher's strength, "releases" researcher from many unproductive jobs, and shortens the path towards discovering the new one.

There is growing evidence that science contributes significantly to the overall power of the state, economic prosperity and growth of the living standards (Medianik, 2017). Without modern science it is impossible to build innovative economy and respond to new challenges and the international standards.

In developing countries, where science is not developed, this sector is characterized by: 1) rigid scientists' payments scheme with low basic wages, 2) numerous formal criteria for the evolution of productivity of scientists that, as a rule, are non-transparently

implemented; 3) "poor" academic mobility, and 4) social networks and informal contacts that play a major role in the career development of researchers or during acquiring of scientific titles (Gershman & Kuznetsova, 2013).

In many countries, the development of science takes place under conditions of visible contradictions between the society's expectations regarding the quality of research results, on one hand, and the real contribution of science to the development of economy and increase in the well-being of citizens, on the other. The science sector faces problems such as: low reputation and influence of the scientific profession, relatively low wages, obsolete infrastructure and equipment, the high average age of researchers and the "brain drain" (Gokhberg et al., 2011).

Most research and development organizations in developing countries are state owned. These organizations spend a large part of budgetary resources, have poor performance, and are not sufficiently competitive in market conditions. These organizations are under great pressure to adapt to the fast-changing dynamics of innovation, including increased competition for key resources (primarily for highly skilled staff) and changes in public procurement priorities in the area of science, technology and innovation. Not surprisingly, state-owned scientific organizations are the key subject of numerous reforms, although the size of the sector indicates that the implementation of such reforms is not a quick and painless process.

Many countries emphasize providing decent wages to researchers with strict requirements regarding employment in the science sector and acquiring scientific titles (Altbach et al., 2012). However, in countries that do not have sufficiently developed science, there are still low basic wages and minimal differences between payment grades. This situation does not contribute to attracting young researchers and retaining good staff and does not allow the increase of international competitiveness of domestic researches. Countries that do not have sufficiently developed science need to focus, first of all, on the increase of the basic wages, which requires the increase of resources from the budget for science (Gershman & Kuznetsova, 2013). For most developing countries, this goal is unattainable, given the available resources. The solution to this problem is to provide additional resources from non-governmental funds.

On the whole, the introduction of new mechanisms for researchers' payment in research organizations means that researchers can earn wages that are comparable to the salaries in the business sector. As a result, many scientists, including young researchers, will be able to buy an apartment by raising loans form banks. Nevertheless, increasing researchers' wages, without solving other problems like the increasing productivity or the reduction of unreasonable demands for salary increasement, would be risky. The new mechanism for paying scientific work would be largely meaningless without taking into account these important factors. In addition, the increase in researchers' wages can lead to the influx of workers from other sectors into the science sector. However, such inflow does not automatically improve the situation in the science sector. On the contrary, the quality of research and development can be deteriorated by the arrival of incompetent people who are mostly motivated by money (Gokhberg et al., 2011). Gershman and Kuznetsova point to the importance of linking wages of researchers with the productivity of their work. They indicate that more adequate incentives (wages) will be effective only if other measures are applied, like: provision of modern equipment, improvement of working conditions, etc. (Gershman & Kuznetsova, 2013).

It should be noted that the results of the researches of the science sector in the countries of Central Europe indicate that the scientific system in these countries was strongly shaken in the 1990s. The scientific environment was faced with the difficulties caused by the decapitalization of physical infrastructure and the increase in the average age of researchers. The decapitalization of physical infrastructure is considered one of the most important structural problems in the national scientific systems of the countries of Central Europe, while the increase in the average age of scientific workers caused decrease in wages, which led to internal and external "brain drain" (Bulgarian Ministry of Education and Science, 2002). After all, policies in the field of science were not always properly organized and that had a negative impact on their quality. This situation was the responsibility of several ministries that had easily taken into account the poor state of the industry and bad policies in the field of science and technological development.

The structure of working hours of researchers in economically underdeveloped countries depends on the level of wages (that is compensated by consulting, tutoring and others), as well as by insufficient equipment for work and the absence of scientific information. Because they have quality equipment and reliable information, researchers in developed countries may have advantage in terms of time over researchers in countries where science is not developed enough. Therefore, the improvement of technical infrastructure and strengthening of the base of scientific information should, in some way, enable the partial leveling (decreasing) of the differences in the competitiveness between researchers in countries with developed science and researchers in countries with in sufficiently developed science.

As already pointed out, measures to increase the productivity of researchers can produce the expected effects only in combination with complex institutional and legal measures that are often not directly related to science. Institutional and financial aspects of the organization of science are the subject of "fierce" discussion in many countries that do not have developed science. According to Gershman and Kuznetsova, in Russia, 90% of research teams in some areas of science are inefficient, and many of them have no chance of improving their productivity. For example, in the field of biomedicine, only 450 of nearly 4000 laboratories are productive (Gershman & Kuznetsova, 2013). Significantly increasing wages without systemic reforms in the science sector can be "disastrous". This would not help to solve the problem of "dead wood" (unproductive researchers). Increasing wages without wider system changes means that non-productive researchers should be fed by increased wages. Institutional reforms must follow the radical modernization of material and technical infrastructure, including premises and equipment. The practice of "sticking plaster" with investments from the budget in several priority areas is not adequate for solving the accumulated problems.

The problem of inadequate information of researchers about the state policy in the field of science and technology has several aspects (Gokhberg et al., 2011). The low level of information among researchers reflects the low quality of policies that should be modified based on continuous feedback and interaction with the scientific community and specific target groups. Information about state policy in the field of science and technology is important for stakeholders, scientific institutes and universities that strive to increase efficiency (productivity) within existing limitations.

In general, scientists in developing countries are characterized by passivity, even regarding issues that directly affect their interests. According to the research of Gershman and Kuznetsova, in Russia 16% of managers of scientific institutes and universities and

36% of researchers of scientific institutes and universities obtained about the changes to remuneration mechanisms during the same research. This fact seems quite surprising, given the degree of "sharp debates" and significant media coverage. It showed that in Russia scientists with universities were better informed in relation to researchers of scientific institutes and universities (Gershman & Kuznetsova, 2013).

2. Scientists and Their Career

Scientists represent a relatively small proportion of the total population, but their significance is quite high (OECD, 2010). Given that they have specialized education and their contribution to science, one should expect that scientists will play an important role in knowledge economy and improve competitiveness of a country. Information on the career of scientists and their contribution to science, innovation and economics are important not only for policy makers and state institutions that finance their training and integration into scientific and innovative systems, but also for employers who are interested in the competencies of scientists. Unfortunately, the information on these experts is scarce due to the fact that standard statistical sources are too small (Auriol et al, 2013).

Significant changes have occurred in the structure of the labor market and in the organization of research activities that have contributed to the expansion of the trajectory of the career of the persons with the highest academic title the doctor of philosophy. In the run-up to the economic and financial crisis in 2008, doctors of science often changed jobs and did not intend to preserve jobs in the higher education sector. With the increase in the number of doctorate holders, some asked the question: How to successfully exploit this potential in the innovation system?

In the countries whose data are available, at least 50% of the persons with the title 'doctor of science' work as researchers. In Portugal and Poland, more than 80% of those with the highest academic title work as researchers, while the share of these experts is lowest (close to 60%) in Turkey, Spain and Romania (Figure 1). Doctorate holders in the natural sciences and engineering are the most frequently employed as researchers, except in Portugal and Poland where there are no obvious differences across fields.

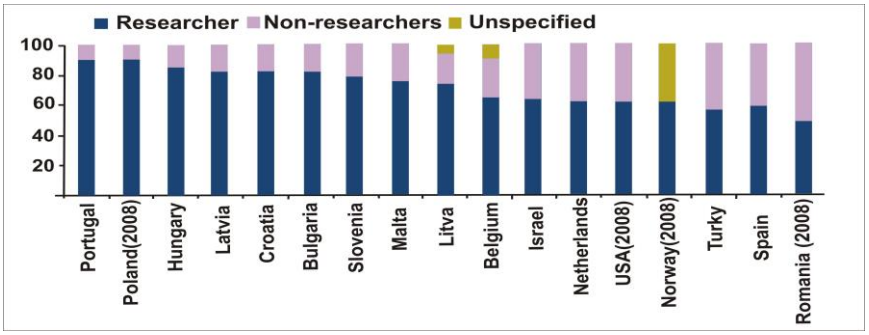


Fig. 1 Distribution of persons with the highest academic title doctor of philosophy by professions
Source: Auriol, L., Misu, M., & Freeman R. (2013). Careers of Doctorate Holders: Analysis of Labour Market and Mobility Indicators. Paris: OECD Publishing.

The main sector of employment for researchers is higher education (Figure 2). The largest share of doctors of philosophy who work as researchers in the higher education sector and the first place on the list of countries whose data are available was recorded by Poland, while the lowest share was recorded by the Netherlands. In Belgium, the United States and the Netherlands, the business sector also employs a large number of researchers.

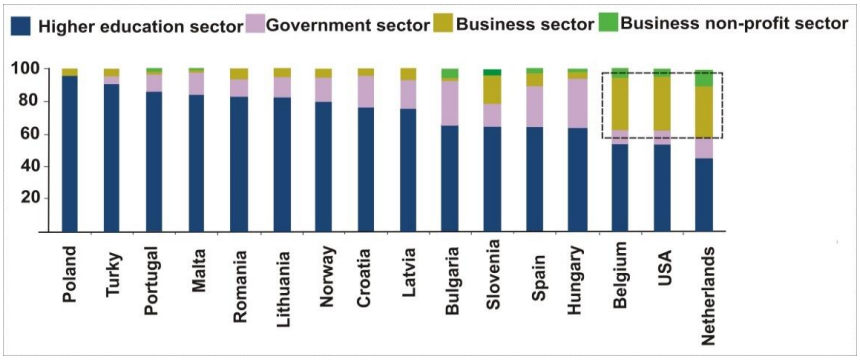


Fig. 2 Distribution of researchers in the sectors
Source: Auriol, L., Misu, M., & Freeman R. (2013). Careers of Doctorate Holders: Analysis of Labour Market and Mobility Indicators. Paris: OECD Publishing.

Given that they traditionally choose the higher education sector, a large proportion of doctorate holders in the business sector point to high demand for individuals with specialized knowledge outside the higher education sector and/or less employment opportunities in the higher education sector.

If we observe the availability of scientists and engineers and company spending on *R&D*, the business sector appears as the main *R&D performer*. The efficiency of the transfer of knowledge of researchers into the industry and the cooperation or degree of interconnection between universities and industry in order to develop innovation activities depends on how effectively the competences of scientific staff are used.

During the previous round of the CDH project[1], it was determined that the business sector primarily employs researchers dealing with natural and technical sciences (Auriol, 2010). Figure 3 shows that the business sector employs natural scientists from natural and technical sciences mostly in countries like Belgium, the Netherlands and the United States. About half of the total number of researchers dealing with natural and technical sciences is employed in the business sector in these countries. The business sector of these countries is able to "strengthen" its intellectual potential to some extent by employing experts with the title 'doctor of science' in the field of social sciences and humanities. However, their inflow does not exceed 10% (Figure 3). Many researchers in countries, whose data are available, work in the business non-profit sector. Although in

[1]The CDH project is a recent initiative launched by the Organization for Economic Cooperation and Development (OECD), the UNESCO Institute for Statistics and Eurostat. These organizations have created databases of doctors of philosophy in different countries in order to obtain statistically robust (reliable or valid) data on scientists and their professional career.

the business sector there is a great demand for researchers in the field of natural and technical sciences, their supply is significantly low in Poland, Portugal and Turkey.

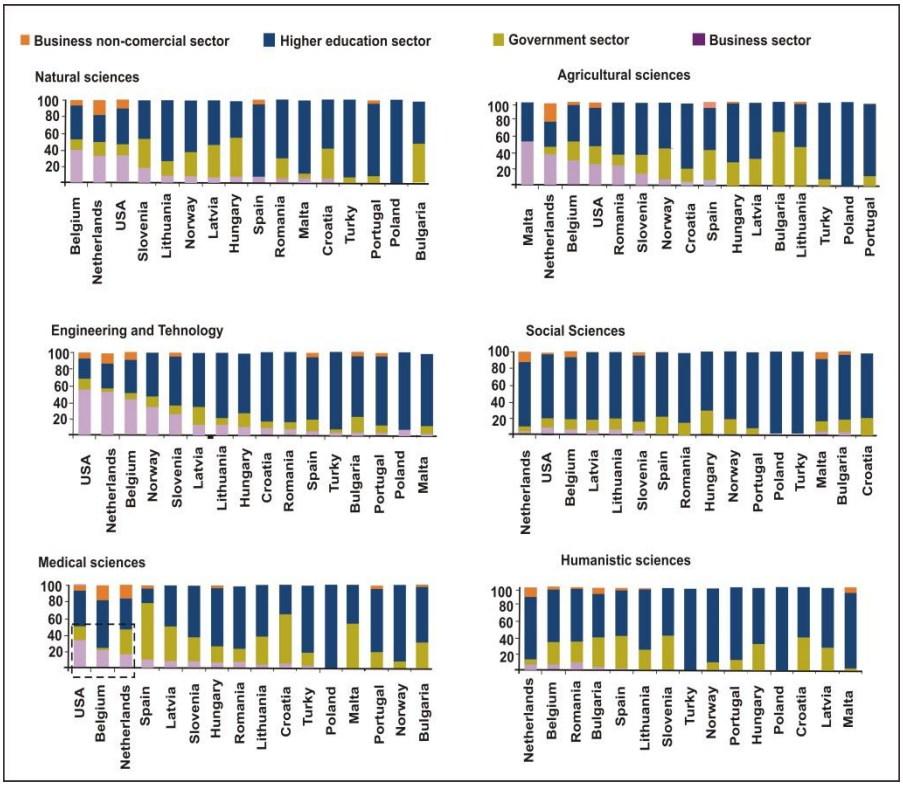


Fig 3 Distribution of researchers by fields of sciences and sectors
Source: Auriol, L., Misu, M., & Freeman R. (2013). Careers of Doctorate Holders: Analysis of Labour Market and Mobility Indicators. Paris: OECD Publishing.

The main goal of many countries is the employment of young and creative professionals in the science sector. Still, young people are losing interest in science. In the United States the main reasons for this are: the long time it takes to obtain an advanced degree, the additional unstable postdoctoral training before securing a tenured position, the lowering researchers' lifetime earnings expectations and finding a balance between family decisions and research career. Female researchers are pariculary bz the latter. The situation is similar in other countries (OECD, 2008).

Starting from these cognitions, we will discuss the analysis of the indicators of country's competitiveness in the field of science in the second part of the paper. The goal is to examine their role in improving the competitiveness of the science sector.

3. RESEARCH HYPOTHESES AND METHODOLOGY

World Economic Forum (*WEF*) analyzes a number of factors that affect the country's competitiveness in many segments of life. These factors are classified in 12 pillars of competitiveness. Each of the pillars consists of a large number of sub indicators.

In order to improve the competitiveness and innovation of science, in our opinion, the following sub indicators are of great importance: hiring and firing practices, country capacity to retain talent, country capacity to attract talent, availability of the latest technology and foreign direct investment and technology transfer.

The latest pillar of the *WEF* titled Innovation can be considered a composite index of competitiveness of science that is formed as the weighted average of the following sub indicators: 1) capacity for innovation, 2) quality of scientific research institutions, 3) company spending on *R&D*, 4) university-industry collaboration in *R&D*, 5) government procurement of advanced technology products, 6) availability of scientists and engineers, 7) *PCT* patents applications/million pop.

The aim of this research is to examine the relationship between the 12th pillar of the *WEF* – Innovation or "Global innovation index", on one hand, and the above-mentioned factors of the competitiveness of science, on the other. In line with the research objective, the following hypotheses will be tested:

H1: Linear combinations of the observed indicators of competitiveness of science that are in the deepest connection with global innovation index are:

1) foreign direct investment and technology transfer/availability of the latest technology,
2) hiring and firing practices/availability of the latest technologies,
3) availability of the latest technologies/country capacity to retain talent, and
4) country capacity to attract talent/availability of the latest technologies.

H2: The individual indicators of the competitiveness of science that most affect the global innovation index in the analyzed countries are: the country capacity to retain talent, the country capacity to attract talent, the availability of the latest technologies and the foreign direct investment and technology transfer.

The sample covered 9 countries. The criteria for selecting countries in the sample are: 1) similar characteristics and the path of development of science and 2) the degree of social development. In the sample, we considered countries that faced the inherited institutional structure of the socialistic scientific system and the process of transition to the capitalist economy at the end of the last century. These are countries that had insufficiently developed financing mechanisms of science, a high degree of bureaucratization, fragmentation and centralization of science that did not correspond to the market economy model, universities with weak links to science and military-industrial complex that limited the transfer of technology to the civil sector (Schuch, 2014). The level of social development is expressed by gross domestic product *per capita* per purchasing power parity in current dollars (*GDP per capita, PPP* (current $)) in 2017 (Table 1). The data on per capita GDP per capita purchasing power parity are found in the World Bank's World Development Indicators. They are downloaded from the website of this institution *https://data.worldbank.org/*.

Table 1 Gross domestic product per capita PPP (in current US dollars) of selected countries in the sample

Countries	GDP per capita, PPP (current $) in 2017
Bulgaria	20,329.3
Croatia	25,264.4
Hungary	28,107.9
Latvia	27,598.3
Montenegro	18,765.1
Poland	29,026.2
Romania	25,840.8
Serbia	15,090.0
Lithuania	32,095.5

Source: https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?end=2014&start=1990&view=chart

The analysis used the method of multiple linear regression. *The Global Competitiveness Report* and World Bank's *World Development Indicators* are the informational basis for this research. The analysis used programs for processing and presentation of statistical data: *SPSS* and *MatLab*.

3.1. Results of research and discussion

3.1.1. Analysis of selected countries according to the Innovation pillar

According to the report of the *WEF* for 2017/2018, Serbia is ranked 95th in terms of the value of the Innovation pillar. Compared to 2013/2014, the value of the pillar Innovation came up by 0.2, which led to the positive shift of Serbia by 17 positions (from the 112th place to the 95th place on the *WEF* list). Table 2 shows the ranks and results of the Innovation pillar for Serbia from 2013/2014 to 2017/2018.

Table 2 Republic of Serbia –The Innovation pillar, 2013/2014-2017/2018

Year	Innovation		Change	
	Result	Rank	Result	Rank
2013/2014	2.9	112	-	-
2014/2015	2.9	108	0	↑4
2015/2016	2.9	113	0	↓5
2016/2017	3.0	108	↑0.1	↑5
2017/2018	3.1	95	↑0.1	↑7
Total	-	-	↑0.2	↑12

Source: WEF, The Global Competitiveness Reports 2013/2014, 2014/2015, 2015/2016, 2016/2017 and 2017/2018

Also, the next diagram illustrates the moving of the Innovation pillar for Serbia in the period from 2013/2014 to 2017/2018. The diagram was obtained from the data from Table 2.

The red line in Figure 4 shows the movement of the results of the Innovation pillar, while the blue line shows the movement of the ranks of this pillar in the period from 2013/2014 to 2017/2018. Based on Figure 4, we see that Serbia achieved the greatest "positive shift" in 2017/2018.

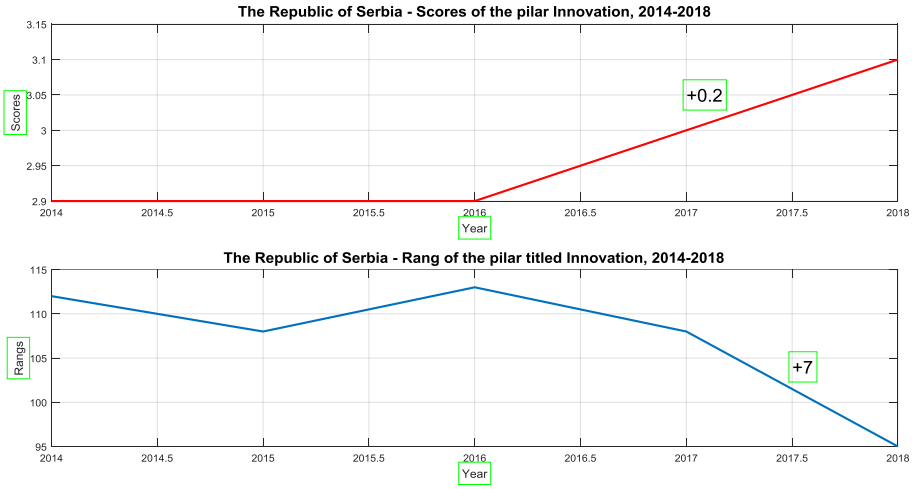


Fig 4 The Republic of Serbia – Scores and Rang of Innovation pillar, from 2014 to 2018
Source: The authors in Matlab

The following table illustrates the ranking of selected countries in the sample according to the rank and the value of the Innovation pillar (Table 3). This comparison provides a more precise picture of the competitiveness of science in the observed countries (Krstić & Stanišić, 2014, 93).

Table 3 The Innovation pillar - ranking of analyzed countries

Country	Innovation 2013/2014 – world list of countries		Rank within the analyzed countries in 2013/2014	Innovation 2017/2018 – world list of countries		Rank within the analyzed countries in 2017/2018	Change of score
	Rank	Score		Rank	Score		
Bulgaria	105	3.0	8	68	3.3	3	+0.3
Croatia	79	3.1	6	106	2.9	9	-0.2
Hungary	71	3.6	5	79	3.5	5	-0.1
Latvia	70	3.2	4	68	3.6	4	+0.4
Montenegro	54	3.4	2	91	3.2	6	-0.2
Poland	65	3.2	3	59	3.4	2	+0.2
Romania	97	3.0	7	96	3.1	8	+0.1
Serbia	112	2.9	9	95	3.1	7	+0.2
Lithuania	44	3.6	1	41	3.7	1	+0.1

Source: WEF, The Global Competitiveness Reports 2013/2014 and 2017/2018

Lithuania, Montenegro, Latvia and Poland are the best ranked among the analyzed countries according to the rank of the Innovation pillar in 2013/2014 (Table 3). A similar situation is in 2017/2018. The best ranked countries are: Lithuania, Poland, Bulgaria, and Latvia. The worst ranked country in 2013/2014 is Serbia, while the worst rank in 2017/2018 was recorded by Croatia. We also note that Latvia and Bulgaria achieved a significant positive change in the observed period. A decrease in the Innovation pillar in 2017/2018 compared to 2013/2014 are realized in Croatia, Montenegro, and Hungary (-0.2).

3.1.2. Analysis of indicators of competitiveness of science in selected countries

In order to provide a more relevant evaluation and more complete presentation of competitive advantages and disadvantages of the selected countries in the field of science, we will carry out a comparative analysis of the parameters of the observed countries in the field of science.

Table 4 Results of the WEF indicators in selected countries

Selected sub indicators	Bulgaria	Croatia	Hungary	Latvia	Montenegro	Poland	Romania	Serbia	Lithuania
Hiring and firing practices	67	131	27	91	73	97	51	80	111
Country capacity to retain talent	119	131	126	118	100	89	132	134	109
Country capacity to attract talent	118	135	112	122	107	113	131	132	117
Availability of latest technologies	68	65	43	41	79	64	71	87	31
FDI and technology transfer	47	111	48	80	72	37	86	101	32
Availability of scientists and engineers	93	95	91	109	85	52	80	68	57

Source: WEF, The Global Competitiveness Reports 2017/2018

The analysis of the data presented in Table 4 leads to the conclusion that Lithuania is best ranked according to the following parameters: availability of latest technologies and FDI and technology transfer. Hungary is the best country by the indicator hiring and firing practices. Poland has the best position among the analyzed countries according to country capacity to retain talent and availability of scientists and engineers.

Based on the data in Table 4, Serbia is best ranked according to availability of scientists and engineers and hiring and firing practices. Among the analyzed countries, Serbia is ranked as the worst according to the following indicators: capacity of the country to retain highly qualified personnel, capacity of the country to attract young talents and the foreign direct investment and technology transfer.

The biggest mistake of Serbia is that it allowed the outflow of highly educated and professional people, among which certainly there are those who possess exceptional skills, knowledge and abilities. The question that arises logically is: why do highly educated and professional individuals leave Serbia?

Namely, the outflow from the country is generally influenced by two types of factors. *Pull factors* are factors that attract individuals to move to another country, and these are usually: high profits, better working conditions, greater career opportunities, and so on. *Push factors* are those that encourage individuals to leave the country. These are usually lack of prospects and the impossibility of professional development (Đorđević, 2016, 119).

3.1.3 Analysis of the interdependence of the Innovation pillar and indicators of competitiveness of science

In order to examine the interdependence of the Innovation pillar and the indicators of competitiveness of science in the observed countries, we use the standard multiple linear regression method based on the calculation of the coefficient of determination. The coefficient of determination shows the influence of the value of the observed indicators of competitiveness of science on the Innovation pillar.

The basic form of the regression model is (Green & Salkind, 2014):

$$Y = B_1 X_1 + B_2 X_2 + B_0,$$

where: Y - dependent variable (the Innovation pillar (*Inn*)), X_1, X_2 – independent or explanatory variables, like: hiring and firing practices (*hfp*), country capacity to retain talent (*crt*), availability of the latest technologies (*alt*), availability of scientists and engineers (*ase*), B_1 and B_2 are partial slopes for independent variables, a B_0 is an additional constant. Multiple linear regression shows which indicator of competitiveness of science in the model (a linear combination) better explains variations or changes in the results of the global innovation index (Pallant, 2011).

So, here we have: 1) one dependent quantitative variable - the index of global innovation or the Innovation pillar and 2) certain models or linear combinations of independent variables:

- $Model_1 = Inn_1 = B_1 hfp + B_2 crt + B_0$.
- $Model_2 = Inn_2 = B_1 alt + B_2 ase + B_0$.
- $Model_3 = Inn_3 = B_1 ftt + B_2 alt + B_0$.
- $Model_4 = Inn_4 = B_1 hfp + B_2 alt + B_0$.
- $Model_5 = Inn_5 = B_1 ftt + B_2 hpf + B_0$.
- $Model_6 = Inn_6 = B_1 alt + B_2 crt + B_0$.
- $Model_7 = Inn_7 = B_1 cat + B_2 alt + B_0$.
- $Model_8 = Inn_9 = B_1 ase + B_2 ftt + B_0$
- $Model_9 = Inn_9 = B_1 ftt + B_2 crt + B_0$
- $Model_{10} = Inn_{10} = B_1 crt + B_2 ase + B_0$

Table 5 shows the values of the Pearson coefficient of correlation between the independent variables in the analyzed models. On the basis of Table 5, we can conclude that the strongest link was realized within $Model_9$ or, more precisely, between FDI and technology transfer and country capacity to retrain talent.

Table 5 Results of the correlation analysis of selected indicators of competitiveness (Pearson correlation coefficient)

	hfp *Model$_1$*	*alt* *Model$_2$*	*Ftt* *Model$_3$*	*hpf* *Model$_4$*	*ftt* *Model$_5$*	*alt* *Model$_6$*	*cat* *Model$_7$*	*ase* *Model$_8$*	*ftt* *Model$_9$*	*crt* *Model$_{10}$*
crt *Model$_1$*	**-0.035**									
ase *Model$_2$*		-0.044								
alt *Model$_3$*			**0.452**							
alt *Model$_4$*				-0.444						
hpf *Model$_5$*					**0.324**					
crt *Model$_6$*						0.226				
alt *Model$_7$*							**0.285**			
ftt *Model $_8$*								0.434		
crt *Model $_9$*									0.**724**	
ase *Model$_{10}$*										0.325

Source: Calculation of authors in SPSS

The results of the multiple regression analysis of the model are shown in column *R square* in Table 6. The *R Square* column is the coefficient of determination that shows how much of the percentage of changes in the results of the global innovation index is explained or caused by changes in the model's results.

Table 6 Statistical indicators of multiple correlation

Models	*Model$_1$*	*Model$_2$*	*Model$_3$*	*Model$_4$*	*Model$_5$*	*Model$_6$*	*Model$_7$*	*Model$_8$*	*Model$_9$*	*Model$_{10}$*
B_1	0.137	0.538	0.287	0.146	0.443	0.487	0.473	-0.236	0.498	0.294
B_2	0.293	0.139	0.393	0.546	0.608	0.193	0.444	0.507	-0.067	-0.033
B_0	2.096	0.213	0.132	0.118	1.330	0.155	0.069	1.978	1.836	0.514
R^2	0.329	0.676	0.841	0.743	0.562	0.765	0.892	0.606	0.568	0.254
Adjusted R^2	0.105	0.568	0.789	0.657	0.416	0.678	0.842	0.475	0.424	0.006
Sig.	0.302	0.034	0.004	0.017	0.084	0.013	0.002	0.051	0.081	0.415

Source: Calculation of authors in SPSS

For example, the determination coefficient of *Model$_3$* is 78.9% (Table 6). This means that part of the changes in the results of the global innovation index, which appears

because of its connection with the combination of independent quantitative variables FDI and technology transfer and availability of the latest technologies, is 79%. The impressive degree of matching between $Model_3$ and the Innovation pillar indicates that the relationship between this pillar, on the one hand, FDI and technology transfer and availability of the latest technologies, on the other, can be illustrated with linear function.

$$Inn_3 = 0.538\ ftt + 0.139alt + 0.213$$

where: 0.538 - B_1, *ftt* - FDI and technology transfer, 0.139 - B_2, *alt* - availability of the latest technologies and 0.213 is B_0. The diagram of linear function shows more things (Figure 5).

First, the straight lines through the main bunch of points can be drawn, and another drawn line shows the trend upwards. Trend upwards indicates that this is the positive correlation that is the large values of the independent variables (FDI and technology transfer and availability of the latest technologies) correspond to the high values of the Innovation pillar (Figure 5).

The results of the regression analysis in Table 6 indicate that changes in values in $Model_2$, $Model_3$, $Model_4$, $Model_6$, $Model_7$, and $Model_8$ explain from 67% to 89% of the changes in the Innovation pillar and these results are statistically significant at the 5% significance level. Other regression models ($Model_1$, $Model_5$, $Model_9$, and $Model_{10}$) are not statistically significant. Based on Table and Figure 5, we conclude that the results of multiple regression analysis confirm the hypothesis H1.

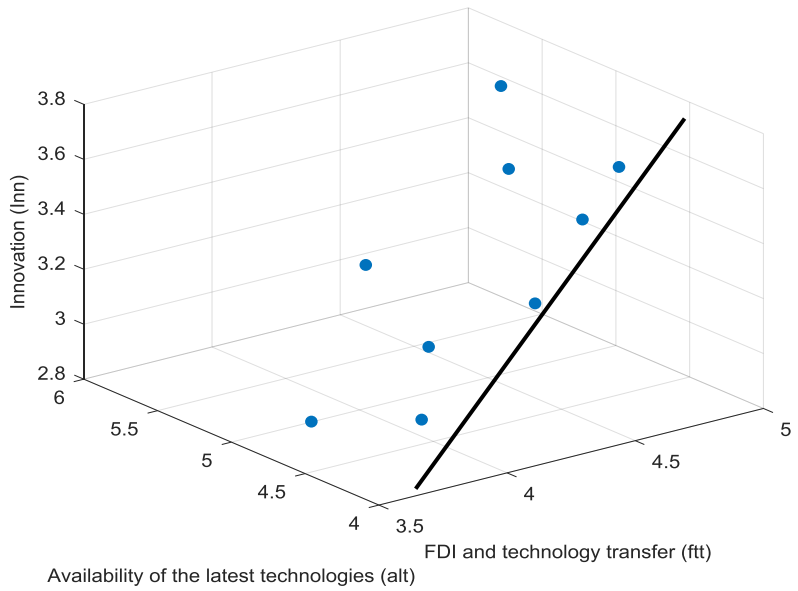


Fig. 5 $Inn_3 = 0.538\ ftt + 0.139alt + 0.213$
Sources: 3D Author's diagram in Matlab

Furthermore, the influence of individual independent variables in the observed models on the competitiveness of the state in the field of science, that is measured by the dynamics

of the results of the Innovation pillar, is examined (Table 7). This allows us to answer the following question: which independent variable in a given model helps predict the value of the dependent variable to a higher degree? We will find the answer to this question in the *Standardized Coefficients Beta* column. For example, in $Model_4$, only the variable availability of the latest technologies (*alt*) has statistically significant value (Sig. = 0.007< 0.05). This means that only this variable is useful for predicting the results of the dependent variable.

The country capacity to retain talent, the country capacity to attract talent, the availability of the latest technologies and the foreign direct investment and technology transfer have a major impact on the ability of the selected countries to create competitiveness science (Table 7). There is significant need for regulation of these areas. Having in mind the data in Table 7, we conclude that the results of the extensive linear regression analysis confirm the hypothesis H2.

Table 7 Standardized share for each variable in the model

Variables	Standardized Coefficients Beta	Sig.
$Model_1$		
Hfp	0.275	0.443
Crt	0.513	0.176
$Model_2$		
Alt	0.811	0.013
Ase	0.138	0.138
$Model_3$		
Ftt	0.481	0.539
Alt	0.038	0.017
$Model_4$		
Hfp	0.293	0.207
Alt	0.823	0.007
$Model_5$		
Ftt	0.744	0.040
Hpf	0.016	0.958
$Model_6$		
Alt	0.743	0.011
Crt	0.338	0.147
$Model_7$		
Cat	0.495	0.015
Alt	0.670	0.004
$Model_8$		
Ase	-0.235	0.441
Ftt	0.851	0.024
$Model_9$		
Ftt	0.836	0.082
Crt	-0.117	0.779
$Model_{10}$		
Crt	0.514	0.217
Ase	-0.033	0.933

Source: Calculation of authors in SPSS

CONCLUSION

In order to achieve a higher level of productivity in science, new activities are needed in terms of engaging in the necessary structural reforms and investments in order to improve productivity in the science sector, because only by raising the level of productivity of researches the sustainable growth of the society can be ensured in the long run.

Our recommendations for improving productivity of science in the analyzed countries are divided into 3 groups. The first group relates to the capacity of the state to employ young talents and retain good personnel in scientific activity. We propose designing an efficient and flexible system of material incentives that takes into account the complex, creative and intellectual nature of scientific activity. Policy makers should deal with the problem of low wages of researchers using the PRP schemes (performance-related pay schemes) (OECD, 2005). Also, the conclusion of employment contract for indefinite period according to the model of *tenure track* substantially removes the problem of highly educated and professional people leaving the country. We are committed to forming non-government funds that should be used to finance wages of the most productive researchers, as well as for other needs (procurement of materials, apparatus, samples, etc.).

The second set of proposals for increasing productivity in science in the analyzed countries relates to the improvement of technical infrastructure. The state should create the possibility that the creative spirit of domestic companies will revive by stimulating innovation through its procurement. An important recommendation to increase the competitiveness of science is to encourage multinational companies to invest in science, which should contribute to improving the technological capabilities of host countries, especially those lacking technological assets, knowledge and skills for dynamizing the tempo of economic growth (Schuch, 2014). The technology and innovative capacities, transferred through the investments of multinational companies, should enable the host country to organize the production of new products, to increase productivity and to develop new activities with high added value. Nonetheless, the research of knowledge transfers in the countries of Central Europe shows contradictory results (Biegelbauer et al., 2001). Although multinational companies in the 1990s invested in the science sector in the countries of Central Europe more than domestic companies, these investments did not significantly contribute to the development of research and development capacities. On the other hand, several scientific and technological projects carried out by multinational companies as a rule were not sufficiently connected with the local scientific database. One of the main reasons for this is the low level of development of human capital and the low level of infrastructure development in the host country.

The third group of measures to increase the productivity of research and researchers in selected countries relates to availability of scientists and engineers. If training cannot produce educated highly qualified staff of the world reputation in particular country, then it is necessary to seek support in foreign experience and resources (Medianik, 2017). In this case, an important role in improving the quality of human capital is the opening of departments of foreign universities in the observed countries. For the teaching activity, the best local and foreign experts will be engaged, and after the end of the training, students will receive two diplomas – diploma of foreign university and a degree from a joint university. It is also important to say that foreign universities such as *Lomonosov*, *MIT*, and *Stanford* are known for their natural and engineering sciences, and those areas of science are of strategic importance for analyzed countries from the point of view of building competitive economy.

Acknowledgement: *The paper is a part of the research done within the project 179066 funded by the Ministry of Education, Science and Technological Development of the Republic of Serbia.*

REFERENCES

Altbach P., Reisberg L., Yudkevich M., Androushchak G. & Pacheco I. (2012). *Paying the Professoriate. A Global Comparison of Compensation and* Contracts. New York: Routledge.

Auriol, L., Misu, M. & Freeman R. (2013). *Careers of Doctorate Holders: Analysis of Labour Market and Mobility Indicators*. Paris: OECD Publishing.

Biegelbauer P., Griessler E. & Leuthold M. (2001) *The Impact of Foreign Direct Investment on the Knowledge Base of Central and Eastern European Countries. Reihe Politikwissenschaft 77*. Vienna: Institute for Advanced Studies.

Bulgarian Ministry of Education and Science (2002). *Attracting Young Scientists — Strategies against Brain Drain*. Sofia: Bulgarian Ministry of Education and Science.

Đorđević, B. (2016). Ljudski resursi i njihovo upravljanje kao determinanta konkurentnosti preduzeća – stanje i perspektiva u preduzećima u Republici Srbiji [Human resources and their management as a determinant of competitiveness of enterprises - state and prospects in enterprises in the Republic of Serbia]. U: Krstic, B. (ed.). *Ključni aspekti unapređenja konkurentnosti Republike Srbije* (pp. 109-151). Niš: Ekonomski fakultet.

Gershman M. & Kuznetsova T. (2013). Efficient Contracting in the R&D Sector: Key Parameters. *Foresight-Russia*, 7 (3), 26-36.

Gershman M. & Kuznetsova T. (2011). Performance related Pay in the Russian R&D Sector. Foresight-Russia, 8 (3), 58-69.

Gokhberg L., Zaichenko S., Kitova G. & Kuznetsova T. (2011). Science Policy: A Global Context and Russian Practice. Moscow: HSE.

Green, S. & Salkind, N. (2014). *SPSS za Windows i Macintosh [SPSS for Windows and Macintosh]*, Beograd: Računarski fakultet.

Krstić, B. & Stanišić, T. (2014). Impact of the technological readiness on competitiveness of the Balkan countries. In: Krstic, B. & Darious, F. (Eds.). *Determinants of improving the competitiveness of national economies and enterprises* (pp. 85-102). Niš: Ekonomski fakultet.

Medianik, E. (2017). International Cooperation in Education – the Foundation for Future Wellbeing. *International Organisations Research Journal*, 12 (1), 7-22.

OECD (2005). *Performance-related Pay Policies for Government Employees*. Paris: OECD

OECD (2008). *Tertiary Education for the Knowledge Society*. Paris: OECD.

OECD (2010). *Skills for Innovation and Research, OECD Innovation Strategy*. Paris: OECD.

Pallant, J. (2011). *SPSS: priručnik za preživljavanje: postupni vodič kroz analizu podataka pomoću SPSS-a [SPSS: Survival Guide: A step-by-step guide to analyzing data using SPSS]*. Beograd: Mikro knjiga.

Porter, M.E. (2004). Building the Microeconomic Foundations of Prosperity: Findings from the Business Competitiveness Index. In WEF, M.E. Porter, K. Schwab, X. Sala-i-Martin, & A. Lopez-Carlos (Eds.), *The Global Competitiveness Report 2003-2004* (pp. 29-56). New York: Oxford University Press, Inc.

Schuch, K. (2014). Participation of the 'New' EU Member States in the European Research Programs — A Long Way to Go. Foresight-Russia, 8 (3), 6-17.

World Economic Forum. (2013, 2014, 2015, 2016, 2017). *The Global Competitiveness Report*. Geneva: World Economic Forum, Retrieved from: https://www.weforum.org/reports, Accessed on: 10 Nov 2018.

World Bank. (2014). *World Development Indicators*. New York: World Bank https://data.worldbank. org/indicator, Accessed on: 10 Nov 2018.

ZNAČAJ NAUKE ZA UNAPREĐENJE KONKURENTNOSTI NACIONALNE EKONOMIJE

Cilj rada je da se ispita međuzavisnost analiziranih indikatora Svetskog ekonomskog foruma (SEF) i stuba Inovativnost koji se koristi kao pokazatelj konkurentnosti nauke. Ovaj odnos je analiziran u uzorku od 9 zemalja. U analizi su korišćeni raspoloživi izvori informacija o kategorijama koje su predmet opservacije. Ključni doprinos ovog rada sastoji se u pružanju jasnijeg uvida u faktore u oblasti nauke koji smanjuju konkurentnost u odabranim zemalja i ukazivanju na prioritetne aktivnosti nadležnih državnih organa u cilju unapređenja i podizanja nivoa konkurentnosti nauke i privrede. Rezultati istraživanja mogu da posluže kreatorima javnih politika u formiranju strategije i politike unapređenja konkurentnosti i budućeg razvoja privrede u analiziranim zemljama.

Ključne reči: *konkurentnost, nauka, mladi talenti, visoko-obrazovani stručnjaci, inovativnost*

FACTA UNIVERSITATIS
Series: **Economics and Organization** Vol. 16, N° 1, 2019, pp. 31 - 47
https://doi.org/10.22190/FUEO1901031A

Original Scientific Paper

COMPENSATION MANAGEMENT AND EMPLOYEES' MOTIVATION IN THE INSURANCE SECTOR: EVIDENCE FROM NIGERIA

UDC 347.426.6:005

Abayomi Olarewaju Adeoye

Department of Business Administration, Lagos State University, Lagos, Nigeria

Abstract. *Reimbursement has been one of the frameworks adopted in organisations to attract, hire and keep competent employees that will strategically key in to the firm's vision, task and goals. Retaining skillful employees in officialdom is imperative for the progress and enrichment of general operation of a firm. Staff that is well motivated will strive to ensure that competitive advantage goal of the organisation is sustained and achieved over their competitors. The aim of this paper is to explore the association between compensation management and employees' motivation in the insurance sector of Nigeria. This study employed a non-experimental design using questionnaires as a measuring instrument to gather information. There were 250 questionnaires administered, 213 collected while 212 (84.4%) thereof were found to be usable. By employing the Pearson product moment correlation coefficient, it was discovered that association exists between reward administration and workers' motivation but a weak one. It was revealed that in Nigeria insurance industry, compensation management bears a minimal influence on the enthusiasm of workers'. It is hence recommended that remuneration package of employees' in the insurance industry in Nigeria should be given priority by carrying out periodic review of the salary and making it at par with other industries in the financial sector of Nigeria.*

Key words: *compensation management, employees, insurance industry, motivation, Nigeria*

JEL Classification: M52, M12

Received August 07, 2018 / Revised November 23, 2018 / Accepted January 15, 2019
Corresponding author: Adeoye Abayomi Olarewaju
Department of Business Administration, Lagos State University, Lagos, Nigeria
E-mail: abayomi.adeoye@lasu.edu.ng

INTRODUCTION

It is essential that organisations formulate plans that facilitate achievement that will lead to best management practice, workers' improvement; increasing the cutting edge of both the firm and staff is also imperative for the correlation of human resource management (HRM) and the outcome of the firm. Across core functional areas of human resource practices such as recruitment, task evaluations, staff enhancement, manpower designing, workers' engagement, in addition to reward dispensation, affinity of remuneration and effort is a subject of concern in extant literatures. It is assumed that adequate reward system can motivate individuals to perform and therefore contribute positively to the firms' outcome (Al-Shaiba & Koç, 2017; Tsai, 2005).

One of the functions of HRM is compensation management which entails benefits that individuals are receiving in exchange for the task performed within the establishment (Dessler, 2008; Khan, Aslam & Lodhi, 2011; Nazim-ud-Din, 2013; Van der Merwe, 2009). Compensation is the cost of doing business for many organisations (Hackett & McDermott, 1999; Ivancevich, 2004).

The issue of remuneration plays a vital role in decision making of new entrants and existing staff of the firm. It encourages organisations in implementing the style of the firm that enhances their aggressive gain against main rivals in the same line of operation (Heneman, Judge & Heinemann, 2000; Hyondong, 2006; Ivancevich, 2004; Rotea, Logofatu & Ploscaru, 2018). Additionally, pecuniary funds are spent in fashioning, systematising and managing recompense arrangements within the company. Despite its contributions toward the success and business enlargement, academics and specialists argued that the progress of research investigation of reward strategies has been slow (Heneman et al., 2000; Kersley & Forth, 2005). Recently, strategy of administering workers' emolument has taken a dramatic shift in nature. This is a demonstration of inducement factor on staff's outcome (Heneman et al., 2000; Purcell, Kinnie, & Hutchinson, 2003).

Motivation simply means encouragement to act in a certain way, which may be negative or positive. It is one of the interesting terms in management literature. Motivation is described as one of the fundamental functions of a manager who is responsible for ensuring that the goals of the organisation are accomplished by boosting morale of employees. The word motivation was coined out of Latin word '**movere'** signifying movement (Adeoye, 2014; Kreitner & Kinicki, 1998). Motivation denotes 'those psychological processes that cause stimulation, guidance and endurance of voluntary actions that are goal oriented' (Mitchell, 1982). Motivation is said to be the propelling force supporting individual's action that boost goal comportment in order to fulfil some needs or expectation (Ahlstrom & Bruton, 2010; Kelly, 2009; Seiler, Lent, Pinkowska, & Pinazza, 2011). Ramlall, (2004: 52), Walker, Greene and Mansell (2006) alluded that motivation is the inclination to put up effort to accomplish structural targets, conditioned by the different types of motivation, namely: - financial and non-financial motivation, intrinsic and extrinsic motivation.

This study aims to explore the association between reward administration and employees' motivation. We argue that compensation management influences employee's motivation through pay satisfaction, fair pay, overtime payment and adequate review of salary (Mckee-Ryan & Harvey, 2011; Khoreva, 2012; Aguinis, Joo & Gottfredson, 2013; Adeoye & Fields, 2014; Kalshoven & Boon, 2015; Kumar, Hossain & Nasrin, 2015).

1. LITERATURE REVIEW

A major function of compensation management is to modify the employee's behaviour and cause them to act in certain way. Though an organisation intends to encourage employees to stay within the organisation, it also strengthens employees' effort with adequate reward administration. Three major components in motivation are: what is crucial to the employee, trading it for something, then getting the needed behaviour (Milkovich & Newman, 1999; Tang, Luna-Arocas, Sutarso, & Tang., 2004). Hence, offer from the organisation influences an employee's behaviour through an exchange procedure.

1.1. Compensation management

Compensation management refers to the function of human resources management (HRM), which talks about the return individuals get for executing a task within the organisation. It is the cost of doing business for many organisations, that is, employees' trade labour and loyalty for financial and non- financial compensation related to wage, allowances, services, as well as recognition. It is also viewed as a propelling engine for employees' performance when institutions endeavour to make them better persons by adding to employees' satisfaction and development (Nzyoka & Orwa, 2016; Mabaso & Dlamini, 2017; Uwizeye & Muryungi, 2017). Reward system is put in place to achieve fairness that is acceptable to both the employer and employees (Mujataba & Shuaib, 2010; Agwu, 2013). The desired outcome of compensation management is to recruit employees who are enticed to work and encouraged to serve the employer, retain them, reduce labour turnover, absenteeism and thus reduce the potential for industrial conflict (Ivancevich, 2004; Nickels, McHugh, & McHugh, 1999; Nikonova, Uspenskaya, Nazarova & Voikina, 2018). The major function of HRM relating to compensation encompasses managing financial participation such as save-as-you-earn (SAYE) schemes, Share Incentive Plans (SIPs) and worker's retirement and salaries. It also involves employee engagement, fair pay, executive reward, etc. (Chartered Institute of Personnel Development (CIPD), 2005 & 2006).

Remuneration administration is strategic in nature especially in line with organisation's pursuit, vision and corporate goal, as well as supporting Human Resources Strategy (HRS) needs. Moreover, an organisation has numerous ways to connect its mission and values to a strategic business-driven payment philosophy. Compensation management is associated with better business performance and organisation should connect its mission and values to its compensation systems. There are different methods of determining workers' remuneration and these include job evaluation, merit pay, market surveys, the change in nature of pay as well as performance-based pay (Heneman, 2002).

1.2. Objectives of compensation management

The reimbursement function is aimed at grafting a system of incentives that is impartial and satisfactory to both parties in employment relationship. The consequential effect of reward is the attraction and encouragement of staff to provide a remarkable service for the employer. Nickels et al., (1999) and Ivancevich (2004) highlighted the objectives of compensation as follows:

- ***Draw*:** Drawing the right kind of people that are having the prerequisite qualification and know-how needed by the organisation and in sufficient numbers.
- ***Justifiable*:** fairness should be employed in fixing the amount paid in line with work, capabilities, talents and education attained.
- ***Impartial*:** Emolument, returns and recompense should be comprehensive in nature.
- ***Protection*:** Assuring personnel' financial security such as insurance and retirement scheme.
- ***Reduced Expenses*:** The wage should not be bogus and be within what the organisation can afford.
- ***Inducement Offering*:** The remuneration must offer enticements that will stimulate well, competently and fruitfully at work.
- ***Holding*:** The earnings should hold back valued employees and discourage them from joining competitors or starting similar firms.
- ***Competitive Position*:** The pay should maintain a competitive advantage in the marketplace by maintaining low charges through high productivity from a satisfied labour force.

1.3. Types of compensation

1.3.1. Financial compensation

Financial compensation is also known as compensation in monetary terms, which comprises of financial rewards and financial incentives. According to Armstrong (2003: 687), 'monetary compensations offer financial recognition for outstanding achievements or recording high above targets or reaching certain levels of competence or expertise while economic spurs aims at motivating people in achieving goals, performance enhancement or improve their proficiency or proficiencies by focusing on specific targets and priorities'. This is a cost to the employers which acts as an antidote to the motivation of an employee that invariably transforms the performance of the employees' which also translates to positive organizational outcome (Idris, Hamzah Sudiirman & Hamid, 2017, Mardiyanti, Utami & Prasetya, 2018).

1.3.2. Non- financial compensation

This is a kind of compensation that does not involve money directly and this reward is normally intrinsic to the job: e.g. accomplishment, sovereignty, appreciation, the span to apply for skill improvement, and tuition and vocational openings (Armstrong 2003). This is made up of rewards that boost the employee's morale and are not costly to the employer (Danish & Usman, 2010; Resurreccion, 2012; Whitehead & Phippen, 2015, Oburu & Atambo, 2016; Idris, Hamzah Sudiirman & Hamid, 2017, Mardiyanti, Utami & Prasetya, 2018).

1.4 Variables relating to compensation

The variables related to compensation are as follows: pay dissatisfaction, equitably underpaid, underpaid, overtime underpaid, inadequate review of salary and salary review not based on procedures.

1.4.1. Pay Dissatisfaction

This occurs when employees perceive that what they earn does not match-up with their expectations, that is, when they think that the value of what they earn does not reflect the effort they actually put into their jobs. Hence, there is no motivation to execute their duties the way they ought to (Rynes, Gerhart & Minette, 2004; Aguinis, Joo & Gottfredson, 2013; Darma & Supriyanto, 2017). Moreover, if there is a strong pay satisfaction, organisational commitment on the part of workers is increased and vice versa (Tang & Chiu, 2004; Ali & Panatik, 2015; Pepra-Mensah, Adjei & Agyei, 2017).

1.4.2. Equitably underpaid

This exists when individuals perceive there is a difference in their jobs and outcomes compared to what they perceive to be the inputs or outcome of others (Adams, 1963; Leete, 2000; Yao, Locke & Jamal, 2018). The relevant reference group is assumed to be other employees in the same occupation in the same firm, all employees in the same firm, workers in similar occupation in other firms, or other workers in other firms. The presence of the equitably underpaid will dampen the morale of employees' leading to dissatisfaction, hence, affecting the organisational performance and the performance of individual employees (Leete, 2000).

1.4.3. Underpaid

The concept of underpaid is when the employees perceive that their income and output do not match the perceived income and output of others. When there is underpayment, it results in greater pay dissatisfaction than when there is equity in compensation. Underpayment is perceived when there are discrepancies in pay despite the fact that employees put in the same effort (Sweeney, 1990; James & Kim, 2018). Similarly, Brown (2001) likened underpayment to inequity. When workers perceive inequity in their salary in relation to others, it has a negative consequence on their productivity and that of the organisation. In addition, Maynard, Joseph and Maynard (2006) argue that underpayment is as a result of underemployment, which has a direct linkage to poor job satisfaction. Hence, motivation of the employees is reduced and invariably leads to intention to quit the job on the part of the employees.

1.4.4. Overtime underpaid

The issue of overtime payment is one of the pertinent factors in determining employees' motivation. This is part of the cash-based compensation that is adopted by organisation to motivate employees. Overtime is the allowance paid for extra time spent over and above the normal working hours. Overtime pay has played an important role in workers' satisfaction (Chiu, Luk & Tang, 2002). The findings of this current study show that many insurance workers are dissatisfied because of the overtime underpayment by their organisation.

1.4.5. Inadequate review of salary

Review of salaries in organisations is one of the crucial factors used to motivate employees' towards the attainment of greater performance. Common practice is for the salary review to be anchored to promotion to the next level or cadre or an annual increment on the basic salary and may include other emoluments. The annual salary review is an ample opportunity to measure and quantify the performance and accomplishments of past effort

within an accounting period. The review also creates an avenue to draft the next line of action or the objectives for the following year. Serhan, Achy and Nicolas (2018) acceded that adequate and effective review of salary will lead to employees' motivation in the public sector thereby enhancing high productivity. However, every set objective should be measurable and the mode of measurement should be quantitative in nature. The management should set targets that should carry an assigned value or weighting. Specifically, yearly targets or goals should carry numerical weightings and this will enable the employees' to understand their tasks with the aim of accomplishing them within a reasonable time frame (Swartz, 2006). The current study shows that salary review is not often done in insurance firms in Nigeria and employees' are not motivated or geared toward greater performance and in some cases the salary review is done downwardly.

1.5. Motivation

This is one of the fundamental functions that a manager performs to ascertain that the goals of the organisation are accomplished by boosting employee morale. As already mentioned, the word ''motivation'' was gotten from a 'movere', tantamount to motion (Kreitner & Kinicki, 1998). Stimulus represents 'those emotional courses that triggers of deliberate engagements focused on a particular goal' (Herzberg, Mausner & Snyderman, 1959, Mitchell, 1982, Lin, 2007; Woźniak, 2017). Motivation is described as a propeller for individual's actions for putting up certain behaviour to accomplish a purpose (Kelly, 2009, Ahlstrom & Bruton, 2010; Olusadum & Anulika, 2018).

Osterloh, Frost and Frey (2002) and Kuranchie-Mensah and Amponsah-Tawiah (2016) say that motivation comprises two dimensions, these being extrinsic and intrinsic in nature. Extrinsic motivation is when employee's satisfy their needs indirectly, especially through monetary or financial remuneration, while intrinsic motivation occurs when an activity achieves the immediate satisfaction of a worker's needs. Egan, Yang and Bartlett (2004) viewed motivation as a means of knowledge transfer which they described as the intention of the trainee to adopt the knowledge and skills acquired to improve and uplift the job when they are adequately remunerated. Adeoye (2001, p. 46) alluded that ''motivation is a bait to stir the staff curiosity to accomplish a set up goal of an organisation''.

1.5.1. Pecuniary motivation

Pecuniary motivation is said to be straight or overt. Straight pecuniary motivation comprises reward of the employees like incomes, earnings, extras or commissions, while overt pecuniary motivation entails pecuniary motivation or booties that are not included in straight pecuniary motivation such as holiday, child welfare or senior citizen welfare care, various kinds of insurance, etc. (Ivancevich, 2004).

1.5.2. Non- pecuniary motivation

This non-pecuniary motivation has no monetary involvement, such as commendation, accountability, respect and appreciation that influences motivation and efficiency of staff (Ivancevich, 2004; Willis-Shattuk, Bidwell, Thomas, Wyness, Blaauw & Ditlop, 2008; Meta, Alib & Alic, 2015).

1.5.3. Intrinsic motivation

Intrinsic motivation is derived by an employee from doing a job well, which also provides immediate satisfaction or fulfils a need that is enhanced by commitment to the work. Osterloh (2005, p. 8) argued that 'intrinsic motivation is enhanced by dedication to duty, according to the saying that if you want to encourage people to do a good job, assign a good job to them'. Lin (2007, p. 137) described intrinsic motivation as something 'that connotes pursuit for its own sake, passion, or for leisure and fulfilment stemmed from the experience'; while Gagne & Deci (2005, p. 331) said 'intrinsic motivation enmeshes people engage in exploits because it is interesting and obtain unplanned gratification from the activity itself'. Osterloh and Frey (2000) looked at intrinsic motivation as carrying out a task for the provision of immediate needs and satisfaction. They concluded that the perfect incentive is embedded in the work making the staff satisfied and fulfilled.

1.5.4. Extrinsic motivation

This is how indirect wants are met, e.g. money as gratification for a well done task, e.g. salary adjustment, applause and advancement. As compensation, money is a means to an end, such as paying for a vacation or buying a car, and money is not an end in itself. For example, the job that one does is just a tool to satisfy one's needs using the salary paid for that job. Examples of extrinsic motivation as highlighted by Herzberg (1966) in his two-factor theory tagged hygiene factors are: salary, guardianship, social interactions, company policy and administration, working conditions and employment protection.

Osterloh and Frey (2000, p. 539) argued that ''extrinsically staff is inspired when their needs are realised through pecuniary compensation''. Income offers fulfilment that is free of the real pursuit (Calder & Staw, 1975, p. 599). Gagne and Deci (2005, p. 331) are of the opinion that ''extrinsic motivation involves relationship concerning the pursuit and distinguishable outcomes like visible or voiced recompenses which leads to contentment from the extrinsic corollaries to which the activity leads. Extrinsic incentive targets result in details like encouragements obtained in the cause of carrying out an activity (Lin, 2007). Individual behaviour is geared to the perceived values and benefits that are attached to an action. Organisational rewards are a useful instrument to encourage individuals to perform in a desired way and they can take the form of financial inducements like salary review and leave allowances and non-financial incentives like career advancement and occupation protection (Lin, 2007; Nell, 2015).

2. RESEARCH METHODS

Quantitative research design was used for this study by distributing questionnaires. A predetermined set of questions was administered to a sample population to gather data for research questions to be addressed (Asika, 2008; Terre Blanche, Durrheim & Painter, 2006; Saunders, Lewis & Thornhill, 2013). Through the engagement of survey enquiry approaches, scholars adopt methods of inferential statistical tools that are applicable to assemble records (Baruch & Holtom, 2008). From the population of this study, a selected sample was extricated. Quantitative survey design was engaged for the purpose of this study. Structured questionnaire was employed to elicit information from the respondents from a single insurance company. The data gathering from a single insurance company was due to many

reasons suggested by Byron (2005) as lack of consistency can mar the study outcome and the interpretation problematic.

The data were gathered using the staff of one insurance enterprise situated in south-western part of Nigeria. Human Resources section of the insurance firm assisted in the distribution of the instruments to the staff. The management encouraged the employees to partake in the exercise fully. The privacy of the employees ascertained and maintained as completed questionnaires were returned to the HR department anonymously. In the study, 250 questionnaires were distributed, 213 were returned and 212 found usable and satisfactory representing 84.4%. Two data collection instruments were employed for this study. Motivational Questionnaire published scale (MQS) by Mottaz (1985) was adapted, while the other one was self-developed.

Compensation management was rated employing a scale advanced by the researcher tagged Compensation Management Questionnaire Scale (CMQS) on a six-item measure to be responded to by the participants. The items used in this study include 'my salary is proportionate to my responsibility', 'my pay is greater than what parallel company pays' etc., and Likert's seven-point scale was used in measuring reactions of the respondents on 7 (strongly agree) to 1 (strongly disagree). In this study, the Cronbach's α was 0.87 which expresses internal consistency and reliability of the instrument.

The assessment of motivation was based on six-items imploring respondents to answer centred on Motivation Questionnaire Scale (MQS) Mottaz (1985), Brislin, Kabgting, Macnab, Zukies, and Worthly (2005), Mahaney and Lederer's (2006) and Altindis (2011). This is gauged on Likert five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). It is made up of 16 items and two dimensional scales; intrinsic motivation (IM) was appraised based on eight elements, illustrated by 'I do take responsibilities related to my work', while extrinsic motivation (EM) assessed engaging eight items, e.g. 'My promotional prospects are high'. For this study, IM Cronbach's α = .79, IM Cronbach's α = .54 and Motivation Cronbach's α = .90 which reveals the reliability of the scales (Altindis). In this study, Likert's seven-point scale was employed ranging from 7 (strongly agree) to 1 (strongly disagree). Current Cronbach's α coefficient is 0.81 depicting internal consistency and reliability of the instrument.

Test of data reliability and consistency was done by calculating Cronbach alpha. Cronbach alpha coefficients (α) of the study were α= .869 (for compensation management) and α= .813 for (motivation). The generally accepted cut off is that the alpha scores should be higher than 0.70 (George & Mallery, 2003). The entire Cronbach alpha depicts core stability and dependability of the data and questionnaire authenticity was done through experts in the field. The data collected could, therefore, be regarded as reliable and valid.

3. Results and Discussion

The data analysis was done using descriptive and inferential statistics. The data was coded and grouped before inputting the result using the computer. The data collected were analysed and this was accomplished with the aid of Statistical Package for Social Sciences (SPSS) version 21. The choice of the package was predicated on its convenience in analysing and interpreting data (Muijs, 2011; Parke, 2013). The demographic profiles of the participants were explained via descriptive statistics while the study preposition was tested using Pearson product moment correlation.

Table 1 Participant Biographical Characteristics

Variable	Characteristics	Frequency	Percentage
Sex	Men	122	57.5%
	Women	90	42.5%
Conjugal Category	Single	75	35.4%
	Married	120	56.6%
	Divorced	7	3.3%
	Widowed	5	2.4%
	Separated	3	1.4%
	Missing Item	1	0.9%
Age	20-30 years	59	27.8%
	31-40 years	92	43.4%
	41-50 years	45	21.2%
	51 years or more	15	7.1%
	Missing Item	1	0.5%
Education	School Certificate	8	3.8%
	OND/NCE	26	12.3%
	HND/BSC	109	51.4%
	Professional	13	6.1%
	Others	6	2.8%
Work Experience	1-3 years	51	24.1%
	4-5 years	59	27.8%
	6-9 years	52	24.5%
	10 years and above	49	23.1%
	Missing Item	1	0.5%

(n = 212)

Source: Field Survey, 2017

From the table, it is clear that there are more men than women that partook in the study, 122 men (57.5%) and 90 were women (42.5%). A total of 120 (56.6%) respondents are wedded. The chunks of the participants were between 31 and 40 years of age, and 51.4% had a first degree, 23.6% had a postgraduate degree and 6.1% had professional qualifications. In terms of working experience, 76.8% had between one and nine years.

Table 2 Descriptive Statistics and Pearson Correlation Coefficients

Variables	Mean	Standard Deviation	1	2	3	4	5	6
Employee's Motivation	25.59	5.592	-					
Pay dissatisfaction	3.97	2.015	.424	-				
Equitably underpaid	3.12	1.681	.406	.643	-			
Underpaid	3.50	1.802	.442	.715	.675	-		
Overtime underpaid	2.80	2.354	.492	.369	.392	.405	-	
Inadequate review of salary	3.28	1.766	.486	.644	.564	.669	.434	-
Salary review not based on procedures	3.18	1.757	.456	.521	.632	.506	.425	.545

Correlation is significant at 0.05 level (1-tailed), $p<0.05$

Source: Field Survey, 2017

Descriptive statistics are taking the nature of arithmetic means, that is, the average of what the respondents are saying in terms of their conformity to the statements and their perception about the issue. The computed Standard deviations for participants for overall employees' motivation as the dependent variable has 25.59 as weighted average and 5.592 standard deviation as presented in Table 2 above and this is to confirm that there may be a great dispersion from what the respondents are saying. Questionnaire assessment on compensation management items under Table 2 displays averages for pay dissatisfaction, equitably underpaid, underpaid, overtime underpaid, inadequate review of salary and salary review not based on procedures ranged from a low 2.80 to a high 3.97. The pay dissatisfaction, equitably underpaid, underpaid, overtime underpaid, inadequate review of salary and salary review not based on procedures are treated as the independent variable which is compensation.

This is an indication of poor motivation but value of overtime underpaid is the lowest which indicates that this is an area that workers are demoralised and discontented. Moreover, Table 2 portrays that the workers are inspired and happy beside equitably underpaid, salary review not based on procedures, inadequate review of salary, underpaid and pay dissatisfaction items but they are least motivated by the item overtime payment is underpaid. This is in line with Herzberg's (1966) two factor theory where he discussed hygiene elements.

Pearson's product moment correlation coefficient was run to establish association that exists between overall employees' motivation as dependent variable and items of compensation management as the independent variables. However, to explain the relation between the various items of reward administration and workers' enthusiasm, items that were correlated are presented under Table 3.

Table 3 Coefficients between compensation management and employees' motivation.

Variables	Employees' Motivation
Pay dissatisfaction	.424
Equitably underpaid	.406
Underpaid	.442
Overtime underpaid	.492
Inadequate review of salary	.486
Salary review not based on procedures	.456

Correlation is significant at 0.05 level (1-tailed), $p<0.05$

Source: Field Survey, 2017

All the variables above are significant but very low and the most significant one is overtime underpaid with .492 followed by inadequate review of salary with significance level of .486.

Table 3 reveals that statistically, weak association exists amongst all items of compensation management and total motivation. The correlations between overall employees' motivation and compensation management items show statistically at the 5% level: overall employees' motivation with overtime underpaid ($r=.492$, $p<.05$), overall employees' motivation with inadequate review of salary ($r=.486$, $p<.05$), overall employees' motivation with salary review not based on procedures ($r=.456$, $p<.05$), overall employees' motivation with underpaid

(r=.442, p<.05), overall employees' motivation with pay dissatisfaction (r=.424, p<.05), and overall employees' motivation with equitably underpaid (r=.406, p<.05). All these depict overall employee drive and all items under compensation management are significantly related but weak throughout. The result of this study corroborates the previous work done on compensation and employees' motivation by (Chiu, Luk, & Tang, 2002; Danish and Usman, 2010; Herpen, Praag, and Cools, 2005; Mawoli and Babandako, 2011; Solomon, Hashim, Mehdi and Ajagbe, 2012)

Table 4 Pearson correlation between reward administration and employees' motivation

	N	Mean	Std.D	R	P
Reward administration	208	3.9667	2.00334		
Employees motivation	208	5.7524	1.40433	.648	.000

Correlation is significant at the 0.05 level. p<0.05, reward administration and the staff motivation is significantly associated.

Source: Field Survey, 2017

Table 4 shows the relationship between reward administration and the staff motivation in an insurance firm in Nigeria. As indicated in table 4, correlation between reward administration and the employees' drive is 0.648. The p-value is 0.000 and is lower than .05 with correlation coefficient R=0.648. The correlation between reward administration and workers' motivation of the insurance firm in Nigeria is very strong because the correlation coefficient is 0.648 or 64.8%. This entails that a linear relationship exists amidst the variables which discloses a positive relationship. In other words, compensation management contributes significantly to motivation of staff in insurance industry in Nigeria. Still association between compensation management and employees' motivation is not very strong.

This study investigates association amid pay dissatisfaction, equitably underpaid, underpaid, over-time underpaid, inadequate review of salary, and salary review not based on procedures, which are compensation management items related to employees' motivation. The result is in accordance with the objectives of this study. Pearson product moment correlation coefficient was computed deliberately to determine relationship between various compensation management items and overall employees' motivation, the result found was quite revealing and interesting. Although the relationship is not strong enough, it still shows that employees' are not highly motivated in the insurance industry in Nigeria. The correlation between overall employee motivation and payment for overtime has the highest significant relationship of 0.492 or 49.2% to the lowest value of 0.406 between overall employees' motivation and equitable pay with other people in similar jobs. The weak values among the compensation management items are due to the fact that salary review and implementation in the Nigerian insurance industry is not often carried out by managements nor is it done periodically. The low employee motivation in the insurance industry in Nigeria is a common feature because of the disparity in payments within the industry and this is as a result of the ownership structure, that is, most insurance companies are owned by private individuals. One of the revelations of this study is that there is an outcry through the responses of the participants that there is pay dissatisfaction, equitably underpaid when compared with their counterparts in similar industry. It was also revealed that there is underpaid, overtime underpaid, inadequate review of salary and salary review not based on procedures which culminated to not being motivated

The result of this study is of immense value for both people at managerial level and decision- makers. Managers should make workers' salaries commensurate with tasks being carried out. Secondly, the management should ensure that the disparity between what the employee receives and what other people in similar jobs are receiving is not wide. Thirdly, the rate being paid for overtime should be improved upon to motivate employees when required to work extra hours. Fourthly, the salary review should be done fairly and not favour some employees at the expense of others. Lastly, the salary review should follow a laid down procedure and should be done periodically especially when the firm is making progress. If all these factors are considered in the insurance industry in Nigeria, there will be a reduction in labour intent, absenteeism, strikes and industrial disputes, and it will also lead to high productivity levels, high revenue generation and improved organisational performance.

For further studies, focus may be shifted to other industrial sectors of the economy like manufacturing industry, construction industry, and oil industry and could also include focusing on combining organisations within the same sector, for example, banking, and insurance and stockbrokerage industries.

The study outcomes have far reaching inferences for human resource administrators in Nigeria's insurance division. Specifically, inferences on employee motivation. The analysis revealed weak relationship amidst reward administration and worker motivation in the industry. HR practitioners are encouraged to improve on their compensation management strategies to be able to hire talented skilled people and retain them.

The research work further employed bivariate analytical method to test the relationship between the variables with the use of the Statistical Package for Social Sciences (SPSS) version 22.0 where the relationship is of a quantitative nature, and measured the prediction of the value of a variable based on the value of two variables, simple regression technique is applied (Mann & Lacke, 2010; Pallant, 2011).

In presenting the estimated model coefficients, the equation obtained from the linear function regression result is given as:

$$Y= a_0 + \beta_1 x_1$$

Where a_0= constant;
β = coefficient of independent variable
X_1= Compensation (independent variable)
Y= Motivation (dependent variable)

$$Y= 3.075a+ 0.359x_1$$

A simple regression was run to predict motivation of employees (dependent variable) from compensation (independent variable). Table 1 indicates that the independent variables yielded a coefficient of determination (R^2) of 0. .329 accounting for 32.9% of the proportion of variation in dependent variable that is explained by the independent variable. Table 2, then, shows that the analysis of variance for the simple regression data produced F-ratio value of 102.178 which is significant at 0.05 (.i.e. F (1, 210) = 102.178, $p < 0.05$). In table 3, the independent variable (i.e Compensation) contributed positively and statistically to motivation of employees at a low relationship. The result is in consistence with empirical findings of Idris et al. (2017) and Mardiyanti et al. (2018) who noted that compensation management acts as an antidote to the motivation of an employee that invariably transforms the performance of the employees' which also translates to positive organizational outcome.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.574[a]	.329	.326	.76005

Predictors: (Constant), Com_Mgt
Dependent Variable: Motivation

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	59.025	1	59.025	102.178	.000[b]
	Residual	120.155	208	.578		
	Total	179.180	209			

Dependent Variable: Motivation
Predictors: (Constant), Com_Mgt

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig
		B	Std. Error	Beta		
1	(Constant)	3.075	.129		23.869	.000
	Com_Mgt	.359	.036	.574	10.108	.000

a. Dependent Variable: Motivation

CONCLUSION

This study explores the impact of reward administration on employees' motivation. The analysis revealed weak link amid reward administration and workers' motivation in insurance industry in Nigeria, but overtime payment has shown low mean value and an insignificant relationship to overall employee motivation. The weak or insignificant relationship between compensation management and employee motivation can be improved upon by management through reviewing the pay packages of the employees, making sure that there is equitable pay structure in line with similar industries, and that overtime payment should be adequately worked on. Finally, the review of salary should be done in a fair manner, periodically and procedurally.

Though the contribution of this study is significant to academia and practitioners of HR, there are drawbacks that open up opportunities for future research. Firstly, this study covers only an industry from the insurance sector in Nigeria. Subsequently, researchers can endeavour to extend the study to cover other sectors in Nigeria.

REFERENCES

Adams, J.S. (1963). Toward an understanding of inequity. *Journal of Abnormal and Social Psychology*, 67, 422-436.

Adeoye, A.O. (2001). *Contemporary issues in human resources management and organisational behaviour*. Lagos: Pumark Publishers.

Adeoye, A.O. (2014). *An assessment of compensation management and motivation on organisational performance in the Insurance Industry in Nigeria*. An Unpublished Doctoral Dissertation, University of KwaZulu-Natal, Durban, South Africa.

Adeoye, A.O. & Fields, Z. (2014). Compensation management and employee job satisfaction: a case of Nigeria. *India Journal of Social Sciences*, 41 (3), 345-352.

Aguinis, H., Joo, H. & Gottfredson, R.K. (2013). What monetary rewards can and cannot do: how to show employees the money. *Business Horizon*, 56, 241-249. http://dx.doi.org/10.1016/j.bushor.2012.11.007

Agwu, M.O. (2013). Impact of fair reward system on employee's job performance in Nigerian Agip Oil Company Limited, Port Harcourt. *British Journal of Education, Society and Behavioural Science*, 3 (1), 47-64.

Ahlstrom, D. & Bruton, G.D. (2010). *International management: Strategy and culture in the emerging world*. Hampshire: South-Western, Cengage Learning, EMEA.

Ali, N.A.M. & Panatik, S.A. (2015). Work values and job satisfaction among academician in public and private university. *Jurnal Kemanusiaan*, 24 (2), 43-58.

Altindis, S. (2011). Job motivation and organisational commitment among the health professionals: a questionnaire survey. *African Journal of Business Management*, 5 (21), 8601-8609. http://dx.doi.org/10.5897/AJBM11.1086

Al-Shaiba, A.S. & Koç, M. (2017). Role of human resources function in successful organizational transformations for efficiency improvement. *European Journal of Multidisciplinary Studies*, 2 (7), 273-280.

Armstrong, M. (2003). *A handbook of human resource management practice*. 9th edition. Aberystwyth: Cambrian Printers.

Asika, N. (2008). *Research methodology: Process approach*. Lagos: Mukugamu Brothers.

Baruch, Y. & Hotlom, B.C. (2008). Survey response rate levels and trends in organisational research. *Human Relations*,61,1139-1160. http://dx.doi.org/10.1177/0018726708094863

Brislin, R.W., Kabgting, F., Macnab, B., Zukies, B. & Worthley, R. (2005). Evolving perceptions of Japanese workplace motivation. *International Journal of Cross Cultural Management*, 5 (1), 87-103. http://dx.doi.org/10.1177/1470595805050829

Brown, M. (2001). Unequal pay, unequal responses? Pay referents and their implications for pay level satisfaction. *Journal of Management Studies*, 38 (6), 879-896. http://dx.doi.org/10.1111/1467-6486.00263

Byron, K. (2005). A meta-analytic review of work-family conflicts and its antecedents. *Journal of Vocational Behaviour*, 67 (2), 169-198. http://dx.doi.org/10.1016/j.jvb.2004.08.009

Calder, B.J. & Staw, B.M. (1975). The self-perception of intrinsic and extrinsic motivation. *Journal of Personnel and Social Psychology*, 31, 599-605.

Chartered Institute of Personnel and Development, (2005). *Reward Management*. Survey report. London: CIPD.

Chartered Institute of Personnel and Development, (2006). *International reward and recognition guide*. London: CIPD.

Chiu, R.K., Luk, V.W. & Tang, T.L. (2002). Retaining and motivating employees: compensation preferences in Hong Kong and China, *Personnel Review*, 31 (4), 402-431. http://dx.doi.org/10.1108/00483480210430346

Danish, R.Q. & Usman, A. (2010). Impact of reward and recognition on job satisfaction and motivation: An empirical study from Pakistan. *International Journal of Business and Management*, 5 (2), 159-167.

Darma, P.S. & Supriyanto A.S. (2017). The effect of compensation on satisfaction and employees performance. *Management and Economic Journal*, 1 (1), 69-78. http://dx.doi.org/10.18860/mecj.v1.1.4524

Dessler, G. (2008). *Human resource management*. Upper Saddle River: Prentice Hall.

Egan, M., Yang, B. & Bartlett, K.R. (2004). The effects of organisational learning culture and job satisfaction on motivation to transfer learning and turnover intention. *Human Resources Development Quarterly*, 15 (3), 279-300. http://dx.doi.org/10.1002/hrdq.1104

Gagne, M. & Deci, E.L. (2005). Self-determination theory and work motivation. *Journal of Organisational Behaviour*, 26 (4), 331-362. http://dx.doi.org/10.1002/job.322

George, D. & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update* 4th edition. Boston: Allyn & Bacon.

Hackett, T.J. & McDermott, D.G. (1999). Integrating Compensation Strategies: A holistic approach to compensation design. *Compensation and Benefit Review*, 31 (5), 36-43. http://dx.doi.org/10.1177/088636879903100506

Heinemann, R.L. (2002). *Strategic Reward Management: Design, Implementation, and Evaluation*. Greenwich, CT: Information Age Publishers.

Heneman III, H.G., Judge, T.A. & Heinemann, R.L. (2000). *Staffing organisations.* New York: McGraw Hill/Irwin.

Herpen, M.V., Praag, M.V. & Cools, K. (2005). The effects of performance measurement and compensation on motivation: an empirical study. *De Economica*, 153 (3), 303-329. http://dx.doi.org/10.1007/s10645-005-1990-z

Herzberg, F. (1966). *Work and the nature of man.* Cleveland: World Publishing Company.

Herzberg, F., Mausner, B. & Snyderman, B. (1959). *The motivation to work.* New York: Wiley.

Hyondong, K. (2006). *Strategic impacts of compensation system on organisational outcomes: An empirical study of the conceptualisations of fit and flexibility in the compensation design.* (Unpublished doctoral dissertation). Graduate School of the Ohio State University, USA.

Idris, M.H., Hamzah, D., Sudirman, I. & Hamid, N. (2017). The relevance of financial and non-financial compensation on professionalism and lecturers performance: Evidence from Makassar Private Universities (Indonesia). *Journal of Asian Development*, 3 (2), 162-180.

Ivancevich, J.M. (2004). Human resource management. 9th edition. New York: McGraw Hill

James, P. & Kim, I. (2018). CEO compensation in the U.S.: Are CEOs underpaid or overpaid? *Accounting and Finance Research*, 7 (3), 78-101. http://dx.doi.org/10.5430/afr,v7n3p78

Johnson, C.R. (2005). Employee motivation: A comparison of tipped and non-tipped hourly restaurant employees. (Unpublished Masters dissertation). Rosen College of Hospitality Management, University of Central Florida, Orlando, Florida, USA.

Kalshoven, K. & Boon, C.T. (2015). Ethical leadership, employee well-being, and helping: the moderating role of human resource management. *Journal of Personnel Psychology*, 11 (1), 60-68.

Kelly, P. (2009). *International business and management.* Hampshire: South-Western, Cengage Learning, EMEA.

Kersley, B.A. & Forth, J. (2005). *Inside the workplace: First findings from 2004 Workplace Employment Relations Survey (WERS 2004).* London: Economic and Social Research Council.

Khan, R.I., Aslam, H.D. & Lodhi, I. (2011). Compensation management: A strategic conduit towards achieving employee retention and job satisfaction in banking sector of Pakistan. *International Journal of Human Resource Studies*, 1 (1), 89-97.

Khoreva, V. (2012). Gender inequality, gender pay gap, and pay inequity: perceptions and reactions in Finnish society and workplace,'' Unpublished Doctoral Dissertation, Hanken School of Economics, Department of Management and Organisation.

Kreitner, R. & Kinicki, A. (1998). *Organisational behaviour*. 4th edition. New York: McGraw Hill/Irwin.

Kumar, D., Hossain, M.Z. & Nasrin, M.S. (2015). Impact of non-financial rewards on employee motivation. *Asian Accounting and Auditing Advancement*, 5 (1), 18 -25.

Kuranchie-Mensah, E.B. & Amponsah-Tawiah, K. (2016). Employee motivation and work performance: A comparative study of mining companies in Ghana. *Journal of Industrial Engineering and Management*, 9 (2), 255-309. http://dx.doi.org/10.3926/jiem.1530

Leete, L. (2000). Wage equity and employees motivation in non-profit and for-profit organisations. *Journal of Economic Behaviour and Organisations*, 43 (4), 423-446. http://dx.doi.org/10.1016/S0167-2681(00)00129-3

Lin, H.F. (2007). Effects of extrinsic and intrinsic motivation on employee knowledge sharing intentions. Journal of Information Sciences, 33 (2), 135-149. http://dx.doi.org/10.1177/0165551506068174

Mabaso, C.M. & Dlamini, B.I. (2017). Impact of compensation and benefits on job satisfaction. *Research Journal of Business and Management*, 11 (2), 80-90. http://dx.doi.org/10.3923/rjbm.2017.80.90

Mahaney, C.R. & Lederer, A.L. (2006). The effect of intrinsic and extrinsic rewards for developers on information systems project success. *Production Management Journal*, 37 (4), 42-54.

Mann, P.S. & Lacke, C.J. (2010). *Introductory statistics.* 7th edn. USA: John Wiley & Sons, Inc.

Mardiyanti, O.A., Utami, H.N. & Prasetya, A. (2018). The effect of financial compensation and non-financial compensation on employees' performance through job satisfaction as an intervening variable: Study on permanent employees' of PT Citra Perdana Kendedes in Malang, East Java. *Jurnal Administrasi Bisnis*, 62 (1), 135-144.

Mawoli, M.A. & Babandako, A.Y. (2011). An evaluation of staff motivation, dissatisfaction and job performance in an academic setting,'' *Australian Journal of Business and Management Resources*, 1 (9), 1-13.

Maynard, D.C., Joseph, T.A. & Maynard, A.M. (2006). Underemployment, job attitudes and turnover intentions. *Journal of Organisational Behaviour*, 27 (4), 509-536. http://dx.doi.org/10.1002/job.389

Mckee-Ryan, F.M. & Harvey, J. (2011). I have a job, but----- A review of underemployment. *Journal of Management*, 37 (4), 962-996.

Meta, M., Alib, I. & Alic, J. (2015). Do monetary reward and job satisfaction influence employee performance: evidence from Malaysia. *Journal of Business and Social Sciences*, 3 (11), 184-200.

Mitchell, T.R. (1982). Motivation: New direction for theory, research, and practice. *Academy of Management Review*, 7 (1), 80-88.

Milkovich, G.T. & Newman, JM. (1999), *Compensation.* 6th edition. New York: McGraw Hill.

Mottaz, J.C. (1985). The relative importance of intrinsic and extrinsic rewards as determinants of work satisfaction,'' *The Sociological Quarterly*, 26 (3), 365-385. http://dx.doi.org/10.1111/j.1533-8525-1985.tb00233.x

Muijs, D. (2011). *Doing quantitative research in education with SPSS*. 2nd edition. London: Sage Publications.

Mujataba, B. & Shuaib, S. (2010). An equitable total rewards approach to pay for performance management.' *Journal of Management Policy and Practice*, 11 (4), 111-121.

Nazim-ud-Din, M. (2013). HR practices in insurance companies: A case study of Bangladesh. *Abasyn Journal of Social Sciences*, l6 (2), 77-90.

Nell, I.A. (2015). Preaching from the pews: a case study in vulnerable theological leadership. Verbum et Ecclesia 36 (1), Art #1376, 9 pages. http://dx.doi.org/10.4102/ve.v36i/o1376. (Accessed 5 May 2016).

Nickels, W.G., McHugh, J.M. & McHugh, S.M. (1999), *Understanding business*. 5th edition. New York: McGraw Hill/Irwin.

Nzyoka, C.M. & Orwa, B.H. (2016). The relationship between total compensation and employee performance in the insurance industry: Case of Mayfair Insurance Company Limited. *Psychology and Behavioral Sciences*, 5 (1), 20-36. http://dx.doi.org/10.11648/j.pbs.20160501.14

Nikonova, O.V., Uspenskaya, T.N., Nazarova, U.A. & Voikina, E.A. (2018). Features of remuneration of workers of social protection organizations in the Russian Federation: By the example of the City of Moscow. *The Turkish Online Journal of Design Art and Communication*. TOJDAC, September Special Edition; 2086-2093. http://dx.doi.org/10.7456/1080SSE/280

Oburu, L.N. & Atambo, W.N. (2016). The effect of compensation on employee performance of micro-finance institutions: A case of Wakenya Pamoja Sacco, Kisii County, Kenya. *Imperial Journal of Interdisciplinary Research*, 2 (6), 103-126.

Olusadum, N.J. & Anulika, N.T. (2018). Impact of motivation on employee performance: A study of Alvan Ikoku Federal College of Education. *Journal of Management and Strategy*, 9 (1), 53-65. http://dx.doi.org/10.5430/jms.v9n1p53

Osterloh, M. (2005). *Human resources management and knowledge creation*. Forthcoming in: I. Nonaka, & K. Ichijo (Eds.): Handbook of Knowledge Creation, Oxford University Press.

Osterloh, M. & Frey, B.S. (2000). Motivation, knowledge transfer, and organisation forms. Organisational Science, 11 (5), 538-550. http://dx.doi.org/10.1287/orsc.11.5.538.15204

Osterloh, M., Frost, J. & Frey, B.S. (2002). The dynamics of motivation in new organisational forms. *International Journal of Economy of Business*, 9 (1), 61-77. http://dx.doi.org/10.1080/13571510110102976

Pallant, J. (2011). *SPSS survival manual: step-by-step guide to data analysis using SPSS*. 4th edn. Australia: Allen & Unwin.

Parke, C.A. (2013). *Essential first steps to data analysis: Scenario-based examples using SPSS*. Los Angeles: SAGE.

Pepra-Mensah, J., Adjei, L.N. & Agyei, A. (2017). Effect of compensation on basic school teachers' job satisfaction in the northern zone: The case of Ghana. *Global Journal of Management and Business Research, G. Interdisciplinary*, 17 (3), 50-59.

Purcell, J., Kinnie, N. & Hutchinson, S. (2003). *Understanding the people and performance link: Unlocking the black box*. London: Chartered Institute of Personnel and Development.

Ramlall, S. (2004). A review of employee motivation theories and their implications for employee retention within organisations. *Journal America Academy of Business, Cambridge*, 5 (1&2), 52-63.

Resurrection, P.F. (2012). Performance management and compensation as drivers of organisational competitiveness: The Philippine perspective. *International Journal of Business and Social Sciences*, 3 (21), 20-30.

Rotea, C.S., Logofatu, M. & Ploscaru, C.C. (2018). Quantitative model for assessing the impact of reward system elements on hospital efficiency. International Journal of Academic Research in Business and Social Sciences, 8 (8), 231-241. http://dx.doi.org/10.6007/IJARBSS/v8-18/4461

Rynes, S.L., Gerhart, B. & Minette, K.A. (2004). The importance of pay in employees' motivation: Discrepancies between what people say and what they do. *Human Resource Management*, 43 (4), 381-394. http://dx.doi.org/10.1002/hrm.20031

Saunders, M.N., Lewis, P. & Thornhill, A. (2013). Research methods for business students. 5th edition. London: Pearson Education.

Seiler, S., Lent, B., Pinkowska, M. & Pinazza, M. (2012). An integrated model of factors influencing project managers' motivation-findings from a Swiss survey. *International Journal of Production Management*, 30 (1), 60-72.

Serhan, C., Achy, E.A. & Nicolas, E. (2018). Public sector employees' motivation: Causes and effects. *People: International Journal of Social Sciences*, 4 (2), 49-55. http://dx.doi.org/10.20319/pijss.2018.42.4955

Solomon, O., Hashim, H.N., Mehdi, Z.T. & Ajagbe, A.M. (2012). Employee motivation and organisational performance in Multinational Companies: A study of Cadbury Nigeria Plc. *International Journal of Resources in Management and Technology*, 2 (3), 303-312.

Swartz, G.E. (2006). Safety in the supervisor's salary review. *Professional Safety*, Sept, 54-58.

Sweeney, P.D. (1990). Distributive justice and pay satisfaction: A field test of an equity theory prediction. *Journal of Business and Psychology*, 4 (3), 329-341.

Tang, T.L. & Chiu, R.K. (2004). Income, money ethic, pay satisfaction, commitment, and unethical behaviour: Is the love of money root of all evil for Hong Kong employees?, *Journal of Business Ethics*, 46, 13-30.

Tang, T.L., Luna-Arocas, R., Sutarso, T. & Tang, D.S. (2004). Does the love of money moderate and mediate the income-pay satisfaction relationship?. *Journal of Managerial Psychology*, 19 (2), 111-135. http://dx.doi.org/10.1108/02683940410526091

Terre Blanche, M., Durrheim, K. & Painter, D. (2006). *Research in practice: Applied methods for the Social Sciences.* Cape Town: University of Cape Town Press.

Tsai, C. (2005). Reward Incentive Compensation and Organisational Performance: Evidence from the semi-conductor industry. *Performance and Reward Conference*, Manchester U.K., April

Uwizeye, H. & Muryungi, P. (2017). Influence of compensation practices on employee performance of tea companies in Rwanda: A case study of Rwanda Mountain Tea. *European Journal of Business and Social Sciences*, 6 (6), 160-167.

Van der Merwe, S.P. (2009). Determinants of family employee work performance and compensation in family business. *South African Journal of Business Management*, 40 (1), 51-63.

Walker, C.O., Greene, B.A. & Mansell, R.A. (2006). Identification with academics, intrinsic/extrinsic motivation, and self-efficacy as predictors of cognitive engagement. *Leadership and Individual Differences*, 16 (1), 1-12. http://dx.doi.org/10.1016/j.lindif.2005.06.004

Whitehead, O. & Phippen, A. (2015). An investigation into the ideas and effects of zero-hour contracts within the United Kingdom. *Journal of Research Studies in Business and Management*, 1 (1), 189-209.

Willis-Shattuck, M., Bidwell, P., Thomas, S., Wyness, L., Blaauw, D. & Ditlopo, P. (2008). Motivation and retention of health workers in developing countries: A systematic review. *BMC Health Service Resources*, 8, 247.

Woźniak, J. (2017). Some factors hindering acceptance of three gamification solutions in motivation systems in small and medium enterprises. *Management Dynamics in the Knowledge Economy*, 5 (4), 663-680. http://dx.doi.org/10.25019/MDKE/5.4.11

Yao, Y.H., Locke, E.A. & Jamal, M. (2018). On a combined theory of pay level satisfaction. *Journal of Organizational Behavior*, 39 (4), 448-461. http://dx.doi.org/10.1002/job.2243

UPRAVLJANJE NAKNADAMA I MOTIVACIJA ZAPOSLENIH U SEKTORU OSIGURANJA: SLUČAJ NIGERIJE

Nadoknada je jedan od ključnih alata koje organizacije primenjuju da bi privukle, zaposlile i zadržale kompetentne zaposlene koji će se strateški uključiti u viziju, zadatke i ciljeve kompanije. Zadržavanje sposobih zaposlenih unitar kompanije je ključno za njen napredak i poboljšanje opšteg poslovanja. Kadar koji je dobro motivisan će se truditi da osigura da se ostvari konkurentna prednost organizacije i da se ostvari prednost nad konkurencijom. Cilj ovog rada je da istraži vezu između upravljanja naknadama i motivacije zaposlenih u sektoru osiguranja u Nigeriji. Istraživanje je koristilo ne-eksperimentalnu shemu koristeći upitnike kao istrumetne merenja za prikupljanje informacija. Podeljeno je 250 upitnika, sakupljeno 213, od kojih je 212 (84.4%) bilo upotrebljivo. Korišćenjem Pearsonovog koeficijenta korelacije proizvoda, otkriveno je da postoji veza između raspodela nagrada i motivacije zaposlenih, ali da je ona slaba. Otkriveno je da u nigerijskoj industriji osiguranja, upravljanje naknadama ima minimalni uticaj na entuzijazam radnika. Stoga se preporučuje da paket naknada zaposlenima u industriji osiguranja u Nigeriji treba da dobije prioritet tako što će se periodično vršiti korekcija zarada i usklađivati sa drugim industrijama u finansijskom sektoru Nigerije.

Ključne reči: upravljanje naknadama, zaposleni, industrija osiguranja, motivacija, Nigerija

FACTA UNIVERSITATIS
Series: **Economics and Organization** Vol. 16, N° 1, 2019, pp. 49 - 58
https://doi.org/10.22190/FUEO1901049S

Preliminary Communication

THE ROLE OF HUMAN CAPITAL IN ENTREPRENEURIAL INNOVATIVENESS: EVIDENCE FROM SERBIA

UDC 005.961:005.914.3]:005.336.4(497.11)

Marijana Simić, Marko Slavković

University of Kragujevac, Faculty of Economics, Serbia

Abstract. *Many studies in previous years indicate that human capital is a key element in explaining economic activity. Human capital refers to the knowledge, skills and abilities of employees and it is the most important part of the intangible assets of a company. In fact, the phenomenon of human capital is insufficiently examined in the context of entrepreneurial venture. Therefore, the purpose of this paper is to determine the role of human capital in achieving entrepreneurial innovativeness, while the relevant determinants of human capital are formal and non-formal education, lifelong learning, previous experience, and entrepreneurial self-efficacy. So, the main goal of this paper is to reveal the existence and nature of relationship between human capital and innovativeness of entrepreneurial firms in the Republic of Serbia, not older than 5 years. The results of the conducted statistical analyzes indicate that the defined hypotheses are partially confirmed. Actually, some of the human capital's determinants have a statistically relevant influence on the innovativeness of the observed entrepreneurial firms. The relevance of these results is justified by the fact that the information obtained through research, can be used to implement a more efficient and effective human resources management system in entrepreneurial ventures.*

Key words: *human capital, start up, entrepreneur, entrepreneurial innovativeness, Serbia*

JEL Classification: M21, D22, O32

INTRODUCTION

In today's business environment, entrepreneurship appears as a significant lever of economic restructuring, its fundamental development resource, and entrepreneurs are classified as initiators and bearers of innovative changes (OECD, 1998). According to

Received November 22, 2018 / Revised February 06, 2019 / Accepted February 12, 2019
Corresponding author: Marijana Simić
Faculty of Economics Kragujevac, Liceja Kneževnine Srbije 3, 34000 Kragujevac, Serbia
E-mail: marijana.simic.2004@gmail.com

Schumpeter, entrepreneurs' primary task is creative destruction, as they constantly provoke the status quo in search of a potential business opportunity. The basis of identifying business opportunities, as the initial phase of the entrepreneurial process, is in the creation of changes, the emergence of new firms, products, or services. Accordingly, innovation is classified as a specific entrepreneurial tool, the means by which changes become a possibility for performing various production or service activities (Drucker, 1996).

Innovation is often associated with human capital, which is also the case in explaining the entrepreneurial process, the way of doing business, and the problem of survival of entrepreneurial firms. The entrepreneur faces a particular challenge of securing a superior position on the market in relation to large, established enterprises. In the sea of rivals, the primary condition of survival is the formulation and implementation of a strategy that will lead to superior or average business performance. It is certain that the necessary prerequisite for survival is the exploitation of intangible assets, that is, human capital, in order to generate a unique competitive advantage (Scarborough & Zimmerer, 2003). People and their resources, such as knowledge, skills, and abilities (Hayton, 2005), are an important source of innovation and strategic renewal (Bontis, 1998). Accordingly, entrepreneurs are expected to respond quickly, use their competences, creativity, and other intangible resources, and ensure the construction and implementation of simple, transparent, and certainly innovative solutions (Sanchez-Gutierrez et al., 2016), in order to create greater value for the customer.

The purpose of this paper is to identify the impact of human capital determinants on the innovativeness of entrepreneurial firms. The research was conducted to answer the following question: do entrepreneurs' education, previous experience and self-efficacy have a statistically significant impact on the innovativeness of new ventures in the Republic of Serbia? Therefore, the primary data was collected from owner/managers of entrepreneurial firms in the Republic of Serbia, not older than 5 years.

This article consists of several sections. After introductory remarks, the following section is devoted to a brief review of literature in two directions: first, it refers to a review of contemporary trends in entrepreneurship and entrepreneurial innovation, with particular reference to linking given phenomena to the human resources management system; second, it is devoted to explaining the phenomenon of human capital and its basic dimensions, which at the same time represent the basic criteria of the value of human capital. Thereafter, an insight into the research methodology is given, which includes a sample structure, as well as variables incorporated within a given research model. The next section is dedicated to presenting research results. Finally, a discussion of the results of statistical analysis was provided, as well as concluding observations.

1. LITERATURE REVIEW

1.1. Entrepreneurship and entrepreneurial innovativeness

Entrepreneurship, as a scientific area, is about the identification of ways in which to discover and exploit opportunities for creating future products and services (Shane & Venkataraman, 2000). The key to the success of modern entrepreneurs rests on their vigilance and readiness to identify the opportunity to secure market position. Innovation forms the basis of the perceived entrepreneurial opportunity and the entrepreneurial process itself (Covin & Miles, 1999; Schumpeter, 1942).

Research in the field of entrepreneurship emphasizes that the achievement motivation is often the main cause of the individual's determination to be excused in "entrepreneurial waters," which is at the same time one of the key indicators of the difference between entrepreneurs and non-entrepreneurs (Poon et al., 2016). In addition to identified uncertainties, entrepreneurs face wide range of threats and challenges such as: insufficient availability of financial resources, lack of managerial skills, insufficiently competent employees, lack of relevant knowledge and skills, outdated production technology, poor infrastructure, rigid tax system, lack of state support, and institutional ineffectiveness (Khalique et al., 2015).

The initial step in understanding the entrepreneurial process is recognizing the entrepreneur as the main actor of the entire process and his/her characteristics and behaviour as relevant factors of the new venture success. The basic characteristics that classify an individual as an entrepreneur are: motivation to discover, evaluate and exploit entrepreneurial opportunities; (2) readiness to show initiative and creativity; (3) readiness to organize and transform resources; (4) accepting risk and failure (Poon, et al., 2016). In addition, knowledge, skills and abilities are emphasized, whether they are born or acquired, because they represent halfway to the establishment of an entrepreneurial venture, which in the end can result in its success (Matricano, 2016).

The context in which there are new ventures can possibly be divided into two perspectives: the discovery and creation perspective (Jones and Barnir, 2019). In line with the challenges within the discovery perspective, entrepreneurs are required to know the resources they have and have them appropriately used in order to effectively exploit the identified opportunity. To overcome obstacles along the way, entrepreneurs are expected to find and employ human resources that possess the specific skills and abilities necessary for a new venture (Alvarez and Barney, 2007). On the other hand, within the perspective of creation, general knowledge is more relevant in relation to specific knowledge and skills of individuals. Namely, entrepreneurs are committed to invent and develop products and services that are not known to companies within the given industry. In this way they support the building of innovative capacities, and due to the growing degree of risk and uncertainty, the need for individuals with general knowledge and skills from different fields is realized (Jones and Barnir, 2019).

1.2. Human capital

Knowledge and skills result from investing in human capital (Becker, 1964), but also form part of the innovation process. In a broader sense, innovativeness means a system of organized and purposeful activities aimed at creating change, while the result of this process is innovation (Janošević & Dženopoljac, 2016). The essence of innovation is the implementation of changes, which is why entrepreneurs are expected to explore the sources of innovation, changes, and symptoms that signal a chance for the realization of successful innovation (Drucker, 1996). The importance of implementing the mentioned changes of existing activities through innovation is reflected in the fact that the entrepreneur in this way strives to achieve competitive advantage and improve business performance.

Plenty of evidence points to the importance of human capital, as personal entrepreneurial assets, when recognizing and developing a business opportunity (Davidsson & Honig, 2003; Shane, 2000; Shepherd & DeTienne, 2005). Based on theoretical assumptions, it can be concluded that individuals with more or higher quality human capital achieve better performance (Becker, 1964). In line with these findings, what follows below is the analysis of the forms of human capital as an important determinant of entrepreneurial activity, as well as an overview of previous research on their impact on the performance of entrepreneurial firms.

1.2.1. Education

Education includes the accumulation of explicit knowledge, skills, and values (Becker, 1964), or a wide range of cognitive and non-cognitive elements, which define the outcomes of entrepreneurial activity (Davidsson & Honig, 2003). The importance of acquiring knowledge, abilities, and skills is reflected in the context of the discovery and exploitation of business opportunities. Analytical skills, understanding of market conditions, and general and specific knowledge can contribute to the building of self-confidence and easier overcoming of problems in the early stage of development of new ventures, as well as more efficient entrepreneurial activity (Parker, 2009). Therefore, it is evident that a higher level of formal education positively affects the likelihood of starting an entrepreneurial venture (Cooper et al., 1994; Rotefoss & Kolvereid, 2005), and, thus, facilitates the process of performing entrepreneurial activity.

The results of the research carried out in this field (Peña, 2002) show that most firms that record growth in sales, employees, and profits have entrepreneurs with university education, who show particular interest in business education programs. From the perspective of general human capital, organizational performance of new ventures can be enhanced if the entrepreneur and key employees have a higher level of education. Approximately, the higher level of education implies the accumulation of relevant knowledge and skills, among which, above all, problem-solving skills, as well as the appropriate combination of commitment, motivation, and discipline stand out. The field of education defines the degree of innovativeness and flexibility, as the basic preconditions for the establishment and survival of entrepreneurial ventures. In accordance with the given theoretical assumptions, the following hypothesis is defined:

H1: Entrepreneurs' education has a statistically significant impact on the new venture innovativeness.

1.2.2. Previous experience

Experience as a way of informal acquisition of knowledge and skills can be an important determinant that increases the likelihood of starting entrepreneurial activity (Sena et al., 2012). Experience involves storing a large amount of information in the individual's memory, which can later be used to create something new. Each individual has a unique combination of available information, which is an essential reason why some ideas occur to some people, and to others do not. Consequently, more experience, which an individual has in a particular field, is more likely to identify a new business opportunity (Davidsson & Honig, 2003).

Empirical research provides some kind of evidence of the impact of experience on various aspects of entrepreneurial activity. Stuart and Abetti (1990) emphasize that previous experience is an important determinant of the initial success of new technical ventures. The analysis of success factors leads to the conclusion that not only the nature of the experience, but also its heterogeneity, including relevant knowledge and skills in different functional areas and past ownership experience, are relevant indicators of entrepreneurial success (Cooper et al., 1994). Moreover, experience in activities that are important for managing the venture, such as leadership experience, prolongs the market life of a firm (Rotefoss & Kolvereid, 2005). In addition, there is evidence that firms established by entrepreneurs with longer work experience have more employees (Bosma et al., 2004). In accordance with the given theoretical and empirical evidence, it is possible to formulate the following hypothesis:

H2: Entrepreneurs' previous experience has a statistically significant impact on the new venture innovativeness.

1.2.3. Entrepreneurial self-efficacy

Self-efficacy implies a subjective self-assessment of one's own abilities to achieve the set goals and a certain level of performance. This type of self-perception is based on the subjective experience of personal competencies in the realization of different goals, rather than on real knowledge and skills (Bandura, 1977). In the field of entrepreneurship, the concept of self-efficacy has a significant impact when deciding to set up a new venture. The perceived self-efficacy in performing a specific task is an important determinant in the analysis of career choice.

Individuals who have been successful in different situations in the past are more likely to positively perceive their own abilities, resulting in the so-called high general self-efficacy. Although there is no explicit evidence that the general self-efficacy of entrepreneurs affects new venture performance, it is suggested that self-efficacy significantly defines the entrepreneur's intentions and activities (Boyd & Vozikis, 1994). In addition, according to empirical results, it is possible to make the following conclusion: (1) self-efficacy is a relevant determinant in determining the difference between entrepreneurs and non-entrepreneurs (Chen et al., 1998), (2) there is a positive link between the perception of entrepreneurs' personal competencies and new venture performance (Chandler & Jansen, 1992), and (3) the level of self-efficacy also identifies the opportunities for new venture growth (Baum & Locke, 2004).

The evaluation of self-efficacy not only determines the choice of individual activities, but also the level of persistence and tendency for innovative behaviour. Where there are barriers on the path to achieving goals, individuals with a high level of self-efficacy make more efforts to overcome the perceived obstacles, rather than individuals with a low degree of self-efficacy. Consequently, the level of entrepreneurial self-efficacy determines their willingness to take the challenge of introducing new products and manage risky projects (Poon et al., 2016). Given the above, it is possible to set the following hypothesis:

H3: Entrepreneurial self-efficacy has a statistically significant impact on the new venture innovativeness.

2. RESEARCH METHODOLOGY

In order to examine a role of human capital determinants and their impact on the innovativeness of entrepreneurial firms, the original research was carried out. In this particular study, a convenience sample was applied. The sample consisted of entrepreneurs who have started their business in the previous 5 years. According to evidence of the Business Registers Agency 310 active entrepreneurial firms are identified. 121 respondents were willing to fulfil the questionnaire and this gives response rate of 39%.

As for the structure of the sample, the largest number of entrepreneurial firms belonged to the *service sector* (51%), followed by ventures in the *trade sector* (29%), and the rest was within the *production sector* (20%). The size of the business was determined by the number of employees in the entrepreneurial firm. Since the world economic literature describes entrepreneurial firm as an approximation to a new and small firm, the data collected during research fully corresponds to the above assumptions. In particular, out of the total number of firms included in the sample, as many as 89% had *2 to 9 employees*, and only 11% had 10 or more employees.

The collection of primary data relied on a questionnaire as the survey instrument. The questionnaire was composed of questions defined in the form of statements, which measure

the degree of respondents' agreement with the given statements (Table 1). To measure the agreement, a summarized 5-point Likert scale was used, ranging from 1 "I completely disagree" to 5 "I completely agree".

The education variable is measured by using 7 items. Example items are "Knowledge acquired through formal education is useful for daily work in your company.", "You have attended some kind of training that is relevant to performing your company's basic and other activities." and "Through formal and informal connections with experts outside the firm you acquire new knowledge and information important for your business."

Previous experience variable is measured by using the respondent's subjective perceptions. The respondents were asked to evaluate their previous experience by using 5 items. Example items are "You have previous ownership experience which contributes to your current business.", "You have previous managerial experience which contributes to your current business." and "You have previous experience in running a team (projects etc.) that contributes to the successful realization of work tasks."

Self-efficacy variable is measured as a human capital determinant by using 10 items. Example items are "You believe that you are able to develop a new product/service.", "You believe that you are ready to work in crisis situations." and "You are sure that you can achieve your goals."

Entrepreneurial innovativeness as a dependent variable is measured by using 10 items. Example items are "In the process of solving the problem, you are always ready to apply alternative solutions.", "Trying to view the identified problem from different angles." and "When performing work tasks, you often apply new, unusual and innovative solutions."

The measured determinants of human capital represented independent variables in the paper and can be classified as follows: education, previous experience, and self-efficacy. Part of the questionnaire relating to human capital determinants was compiled on the basis of a survey conducted by Davidsson, P. and Honig, B. (2003), Bosma, N., van Praag, M., Thurik, R. and de Wit, G. (2004) and Moon, Y. J. and Kym. H. G. (2006). The part of the questionnaire measuring the innovativeness of entrepreneurial firms was based on the work by Wach, D., Stephan, U. and Gorgievski, M. (2015), who analyzed business performance in 185 German entrepreneurial ventures, and the work by Dess, G. G., Lumpkin, G. T. and Covin, J. G. (1997), who analysed strategic aspects of the entrepreneurial venture, with a focus on business performance.

Statistical data processing was performed with the computer support of the Statistical Package for Social Sciences IBM SPSS Statistics, Version 23. In order to determine statistical significance, the confidence levels ά=0.01, ά=0.05 ά=0.1were used.

3. RESEARCH RESULTS

The reliability and consistency of the statements was measured using the Cronbach's alpha coefficient, where the values of this coefficient above 0.7 indicate high reliability and consistency (DeVellis, 2003). The value of Cronbach's alpha ranged from 0,800 to 0,923, indicating a very high level of internal consistency of statements.

In addition to the reliability analysis carried out, aggregate indicators, such as arithmetic mean and standard deviation, were calculated. The values of arithmetic mean indicate respondents' favourable attitudes regarding the observed determinants of human capital and the innovativeness of new ventures. Entrepreneurs best rated the *innovativeness* indicator (mean = 3.8545), and they considered that the most important determinant of human capital

was *self-efficacy* (mean = 4.2355), while the highest standard deviation from the arithmetic mean was recorded with variable *previous experience* (0.86048).

Table 1 Descriptive statistical analysis

Variables	Cronbach's alpha	Arithmetic mean	Standard deviation
Education	0.828	3.8477	0.78457
Previous experience	0.800	3.4595	0.86048
Self-efficacy	0.917	4.2355	0.64716
Innovativeness	0.923	3.8545	0.72641

Source: Authors' research

In order to test the hypotheses, a regression model was created, examining the nature and strength of the relationship between human capital determinants and innovativeness. If the characteristics of this regression model are observed, it is noted that the model is of good quality, since the value of R^2 is 0,663, meaning that changes in the values of innovativeness of new ventures are explained in 66.3% of cases by changes in the values of independent variables.

The presented results of the multiple regression analysis (Table 2) show that education and entrepreneurial self-efficacy have a significant impact on innovativeness. However, previous experience has no statistically relevant influence on the analyzed dependent variable. The variance inflation factor is, in this case, also greater than 5, which indicates that multicollinearity is not a problem.

Table 2 Results of multiple regression analysis (dependent variable: innovativeness)

Independent variables	β	t	sig.
Education	0.444	5.467	0.000^{***}
Previous experience	-0.040	-0.659	0.511
Self-efficacy	0.453	5.791	0.000^{***}

Note: *** The value is significant at $p < 0.01$. ** The value is significant at $p < 0.05$. * The value is significant at $p < 0.1$. $R^2 = 0{,}663$; $F = 76.682^{***}$ ($p < 0.01$).

Source: Authors' research

4. Discussion and Conclusion

Substantial changes that occurred during the scientific and technological revolution, that is, in the post-industrial society, metaphorically called "knowledge era", put emphasis on the evaluation of intangible resources, or human capital. Human capital, as the most important part of intangible assets of an enterprise, encompasses a wide range of intangible resources, such as knowledge, skills, abilities, and other personal attributes of the individual. The entrepreneur, as the main actor of the entrepreneurial process, has a kind of combination of intangible resources, accumulated knowledge, skills, and abilities. Since at the beginning of a new venture the entrepreneur usually faces the problem of the lack and limitation of financial and material resources, the main advantage over the existing rivals on the market lies in their human capital. By using available resources, the entrepreneur seeks to create innovation, in the form of better, more reliable, and more attractive products and services, which provide greater value for the customer.

In accordance with the above assumptions, there are three hypotheses in the paper. The first hypothesis seeks to point to the necessity of having a relevant level and degree of education in order to achieve a greater degree of innovativeness in the performance of entrepreneurial activity. The results of the conducted statistical analyses show that, in case of analyzed new ventures, the educational profile of the entrepreneur has a statistically significant positive influence on innovativeness. Accordingly, we fail to reject the first research hypothesis, as confirmed by Robson, P.J.A., Akuetteh, C.K., Westhead, P. & Wright, M. (2012).

The second hypothesis was set in order to determine the impact of the entrepreneur's previous experience on the innovativeness of the new venture. Despite the given theoretical indications, which clearly indicate the importance of previous experience for the establishment and survival of the entrepreneurial venture, research has shown that there is no statistically significant influence of the entrepreneur's experience on the level of innovativeness of the new venture. Therefore, the second hypothesis has been rejected. However, the third hypothesis, formulated in order to determine the influence of entrepreneurial self-efficacy on the innovativeness of the venture, failed to be rejected, so the results of the research indicate the existence of statistically relevant impact of the entrepreneurial self-efficacy on the innovativeness of the new venture, as confirmed by Poon, M.L., Ainuddin, R.A. & Haji Junit, S. (2016).

The general conclusion is that certain human capital determinants affect the innovativeness of the new venture. Education, as a human capital determinant, has an important statistical impact on innovativeness, which emphasizes the relevance of building an adequate education system, as an essential factor for tracing the path to the development of entrepreneurial activity.

Although the self-employment option is often referred to as the continuation of an individual's previous work, the research results suggest that previous experience gained has no statistically significant impact on innovativeness of the new venture. In fact, the reason for making an individual decision to delve into "entrepreneurial waters" is usually the need for independence and financial stability, and not the quantity and quality of previously acquired knowledge and information about the activity within which an individual wants to demonstrate their entrepreneurial abilities. Such a trend in our country results in a high rate of unsuccessful entrepreneurial firms, which is why it is important to apply a systematic approach when launching new ventures and implementing innovative solutions, primarily by encompassing previous experience as an important criterion for the selection of activity within which the venture is set up.

The last but not the least important determinant of human capital, entrepreneurial self-efficacy, implies subjective assessment of personal abilities and thus constitutes an important determinant of innovativeness of the new venture. This result is completely expected, since greater belief in one's own abilities defines not only the readiness of an individual to try an entrepreneurial activity, but also the overall tendency for innovative behaviour. Thus, the belief in one's own abilities is the key to entrepreneurial success, which generates additional energy for overcoming obstacles in the initial and later phases of the entrepreneurial process.

At the national economy level, the results emphasise the importance of developing an adequate education system, which through the development of human capital improves the innovation of individuals. Bearing in mind the fact that innovation is a key source for the creation of a new venture, the design of entrepreneurial-oriented education system at the macro level can affects the readiness of an individual to include in "entrepreneurial waters," which encourages the construction of an entrepreneurial culture. At the micro level, the implications of the obtained results are reflected in the fact that besides the level and field of education, it is important to invest

in different training programs, which stimulates the development of business skills, resulting in a greater degree of self-efficacy. Human resources management, through training policies and training programs, can influence the development of individuals by increasing their potential for innovation and entrepreneurial behaviour. Since self-efficacy is an important determinant of entrepreneurial activity, as well as the assumption of building innovative capacities within the entrepreneurial venture, this creates a precipitous ground for establishing future new ventures.

Acknowledgement: *This paper is part of an interdisciplinary research project (number 41010), financed by the Ministry of Education, Science and Technological Development of the Republic Serbia.*

REFERENCES

Alvarez, S.A., & Barney, J.B. (2007). Discovery and creation: Alternative theories of entrepreneurial action. *Strategic entrepreneurship journal*, 1 (1-2), 11-26.

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*, 84 (2), 191- 215.

Baum, J.R. & Locke, E.A. (2004). The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth. *Journal of applied Psychology*, 89 (4), 587- 598.

Becker, G.S. (1964). *Human capital: a theoretical analysis with special reference to education*, New York: Columbia University Press for NBER.

Bontis, N. (1998). Intellectual capital: an exploratory study that develops measures and models. *Management Decision*, 36 (2), 63-76.

Bosma, N., Van Praag, M., Thurik, R. & De Wit, G. (2004). The value of human and social capital investments for the business performance of startups. *Small Business Economics*, 23 (3), 227-236.

Boyd, N.G. & Vozikis, G.S. (1994). The influence of self-efficacy on the development of entrepreneurial intentions and actions. *Entrepreneurship theory and practice*, 18, 63-63.

Chandler, G.N. & Jansen, E. (1992). The founder's self-assessed competence and venture performance. *Journal of Business Venturing*, 7 (3), 223-236.

Chen, C., Greene, P. & Crick, A. (1998). Does entrepreneurial Self-efficacy Distinguish Entrepreneurs from Managers. *Journal of Business Venturing*, 13 (4), 295-316.

Cooper, A.C., Gimeno-Gascon, F.J. & Woo, C.Y. (1994). Initial human and financial capital as predictors of new venture performance. *Journal of business venturing*, 9 (5), 371-395.

Covin, J.O. & Miles, M.P. (1999). Corporate entrepreneurship and the pursuit of competitive advantage. *Entrepreneurship Theory and Practice*, 23 (3), 47–63.

Davidsson, P. & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, 18 (3), 301-331.

Dess, G.G., Lumpkin, G.T. & Covin, J.G. (1997). Entrepreneurial strategy making and firm performance: Tests of contingency and configurational models. *Strategic management journal*, 18 (9), 677-695.

DeVellis, R. F. (2003). *Scale Development: Theory and applications*, 2nd edn, Thousand Oaks, California: Sage Publications.

Drucker, P. (1996). *Inovacije i preduzetništvo [Innovation and Entrepreneurship]*. Beograd: Grmeč.

Hayton, J.C. (2005). Competing in the new economy: the effect of intellectual capital on corporate entrepreneurship in high-technology new ventures. *R&D Management*, 35 (2), 137-155.

Janošević, S. & Dženopoljac, V. (2016). Inovativnost kao komponenta intelektualnog kapitala [Innovation as a component of intellectual capital]. In: *Unapređenje konkurentnosti privrede Republike Srbije,* Kragujevac: Ekonomski fakultet u Kragujevcu, 171-186.

Jones, R.J. & Barnir, A. (2019). Properties of opportunity creation and discovery: Comparing variation in contexts of innovativeness. *Technovation, 79*, 1-10.

Marvel, M.R. & Lumpkin, G.T. (2007). Technology entrepreneurs' human capital and its effects on innovation radicalness. *Entrepreneurship Theory and Practice*, 3 (6), 807-828.

Moon, Y.J. & Kym. H.G. (2006). A Model for the Value of Intellectual Capital. *Canadian Journal of Administrative Sciences*, 23 (3), 253-269.

OECD (1998). *Fostering Entrepreneurship: A Thematic Review*. Paris: OECD.

Parker, S. (2009). *The Economics of Entrepreneurship*, Cambridge: Cambridge University Press.

Peña, I. (2002). Intellectual capital and business start-up success. *Journal of Intellectual Capital*, 3 (2), 180-198.
Poon, M.L., Ainuddin, R.A. & Haji Junit, S. (2016). Effects of Self-concept Traits and Entrepreneurial Orientation on Firm Performance. *International Small Business Journal*, 24 (1), 61-82.
Rotefoss, B. & Kolvereid, L. (2005). Aspiring, nascent and fledgling entrepreneurs: an investigation of the business start-up process. *Entrepreneurship & Regional Development*, 17 (2), 109-127.
Sanchez-Gutierrez, J., Mejia-Trejo, J., Vargas-Barraza, J.A. & Vazquez-Avila, G. (2016). Intellectual capital, impact factor on competitiveness: manufacturing industry SMEs in Mexico. *Measuring Business Excellence*, 20 (1), 1-11.
Scarborough, N. M. & Zimmerer, T. W. (2003). *Effective Small Business Management an Entrepreneurial Approach*, New Jersey: Pearson Education.
Schumpeter, J.A. (1942). *Capitalism, socialism, and democracy*, New York: Harper and Brothers.
Sena, V., Scott, J. & Roper, S. (2012). Gender, borrowing patterns and self-employment: some evidence for England. *Small Business Economics*, 38 (4), 467-480.
Shane, S. & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, (25), 217–226.
Shane, S. (2000). Prior knowledge and the discovery of entrepreneurial opportunities. *Organization Science*, 11 (4), 448–469.
Shepherd, D.A. & DeTienne, D.R. (2005). Prior knowledge, potential financial reward, and opportunity identification. *Entrepreneurship Theory and Practice*, 29 (1), 91–112.
Stuart, R.W. & Abetti, P.A. (1990). Impact of entrepreneurial and management experience on early performance. *Journal of business venturing*, 5 (3), 151-162.
Wach, D., Stephan, U. & Gorgievski, M. (2015). More than money: Developing an integrative multi-factorial measure of entrepreneurial success. *International Small Business Journal*, 34 (8), 1098-1121.

ULOGA LJUDSKOG KAPITALA U PREDUZETNIČKOJ INOVATIVNOSTI: EVIDENCIJA IZ SRBIJE

Brojni su dokazi koji ukazuju da je ljudski kapital ključni element u objašnjavanju ekonomske aktivnosti. Ljudski kapital se odnosi na znanje, veštine i sposobnosti zaposlenih i predstavlja najvažniji deo nematerijalne imovine preduzeća. Identifikovani jaz u prethodnim empirijskim studijama je osnovni cilj ovog rada. Naime, fenomen ljudskog kapitala nije dovoljno istraživan u kontekstu preduzetničkog poduhvata. Stoga je cilj ovog rada da utvrdi ulogu ljudskog kapitala u postizanju preduzetničke inovativnosti, pri čemu su relevantne komponente ljudskog kapitala formalno i neformalno obrazovanje, celoživotno učenje, prethodno iskustvo i preduzetnička samo-efikasnost. Dakle, glavni cilj je utvrđivanje uticaja komponenti ljudskog kapitala na inovativnost preduzetničkih firmi u Republici Srbiji, koje nisu starije od 5 godina. Rezultati sprovedenih statističkih analiza ukazuju da su hipoteze delimično potvrđene. Zapravo, neke od komponenti ljudskog kapitala imaju statistički značajan uticaj na inovativnost posmatranih preduzetničkih firmi. Relevantnost ovih rezultata opravdana je činjenicom da se informacije dobijene istraživanjima mogu koristiti za implementaciju efikasnijeg i efikasnijeg sistema upravljanja ljudskim resursima u preduzetničkim poduhvatima.

Ključne reči: *ljudski kapital, preduzetnički poduhvati, preduzetnik, preduzetnička inovativnost, Srbija*

FACTA UNIVERSITATIS
Series: **Economics and Organization** Vol. 16, N° 1, 2019, pp. 59 - 73
https://doi.org/10.22190/FUEO1901059G

Original Scientific Paper

CONTEMPORARY DATA ANALYSIS TECHNIQUES FOR ONLINE REPUTATION MANAGEMENT IN HOSPITALITY AND TOURISM

UDC 338.48:004.738.5

Olivera Grljević, Zita Bošnjak, Saša Bošnjak

University of Novi Sad, Faculty of Economics in Subotica, Serbia

Abstract. *Knowing what attracts or deters tourists to/from a tourist visit and what products to offer them and to pay special attention to is crucial for good economic results. Such knowledge can be obtained by analysis of online comments and reviews that tourists leave on travel websites (such as Booking, TripAdvisor, Trivago, etc.). This paper describes the value which information about opinions and emotions hidden in online reviews has for managers who receive it, especially the knowledge of (dis)satisfaction of users with certain aspects of the tourist offer. Uncovered knowledge from online reviews provides a chance to take advantage of the strong points, and correct the shortcomings through timely corrective measures and actions. Contemporary approaches and methods of analyzing online reviews and the opportunities for development they provide in the tourism industry are described through a case study conducted over a subset of 20491 hotel reviews from TripAdvisor. We have conducted sentiment analysis of reviews with the goal of building an automated model which will successfully distinguish positive from negative reviews. Logistic Regression classifier has the best performance, in 90% of reviews it has correctly classified positive reviews and in 83% negative. We have illustrated how association rules can help management to uncover relationships between concepts under discussion in negative and positive reviews.*

Key words: *online reputation management, e-word-of-mouth, online reviews, automated classification, sentiment analysis, association rules*

JEL Classification: C55, Z3 Z32

Received December 17, 2018 / Accepted February 18, 2019
Corresponding author: Olivera Grljević
Faculty of Economics Subotica, Segedinski put 9-11, 24000 Subotica, Serbia
E-mail: oliverag@ef.uns.ac.rs

1. INTRODUCTION

Serbian tourism potentials have not been sufficiently exploited, but with adequate professional effort and willingness to grab the opportunities, the Republic of Serbia can successfully break into the map of important world tourism destinations. The first and the fundamental step in the formation of the desired set of competitive tourism products is valorizing the market potential of existing tourism products. In order to find out which tourism products are the most competitive and which tourism offers are in line with the expectations and demands of potential users, it is necessary to know the preferences and opinions of the users. Nowadays we have numerous tourism websites, where users state their opinion in the form of text reviews and/or ratings. Subjects of reviews and ratings in the field of tourism and hospitality are entities related to travel, stay, and services provided. These freely given comments are sources of useful information about tourism entities for prospective users, who use them when deciding on a particular tourism destination, as well as for tourism organizations and hotels' management that can adapt their offer to the requirements and expectations of users (Hu, 2004; Tripp, 2011; Bing, 2016).

The number of reviewing websites and user generated contents grows every day. According to the Statista[1] portal, 600 million reviews and opinions were posted by 2017 only on TripAdvisor website, while marked increase from year to year amounts to approximately 135 million reviews. This amount of user generated content cannot be efficiently processed manually. The methods of semantic analysis and machine learning techniques for opinion mining and sentiment analysis can be used for automated classification of positive from negative reviews (i.e. for determining the sentiment polarity of a review) and for identifying dimensions through which tourists value an offer or a service (Pang, 2002; Dave, 2003; Pang, 2008; Medhat, 2014). Good reviews, conveying positive attitude, can attract new tourists, while bad ones, conveying negative emotions, can damage the reputation of the organization, so it is important that tourism organizations constantly monitor the online activities of their guests and promptly respond to expressed problems, concerns or dissatisfaction (Lei, 2015). Particular attention should be given to negative comments, as they can indicate the deficiencies in the service provision and users' expectations fulfillment (Racherla, 2013), so that tourism organizations can correct them and better position themselves by focusing on their users' needs and preferences, expressed in online comments.

The next chapter first describes the background on different approaches and levels of the analysis of sentiment of user generated contents. Secondly, an overview on sentiment analysis research in the hospitality and tourism industry was given. Chapter 3 sheds light on the relation between sentiment analysis and online reputation management in tourism and hospitality. Chapter 4 describes the case study of sentiment analysis over the dataset from TripAdvisor. Through series of experiments in which different methods of sentiment analysis were applied, we investigated how successfully these methods performed the classification of online reviews into the positive and the negative class. Also, generating association rules over positive and negative class of reviews we indicate their helpfulness for management, as well as their potential to uncover relationships between concepts under discussion in negative and positive reviews. In the conclusion, the results of the conducted study, the benefits of the proposed approach in the field of tourism and hotel management and the directions for further research are highlighted.

[1] https://www.statista.com/statistics/684862/tripadvisor-number-of-reviews/

2. RELATED WORK

Consumer behavior has changed significantly as offline sources of information about products and services are replaced by electronic word of mouth marketing (eWOM) (Gruen et al, 2006). As the authors of the paper (Litvin, 2008) define it, eWOM refers to all informal communication with consumers, particularly related to the usage or characteristics of goods and services, through Internet-based technology. Generally in e-commerce customers have shown to believe the opinion of other people more and to trust them more than promotional campaigns of a company (Pitt, 2002; Berthon et al, 2012), and they put equal trust in online reviews and personal recommendations of friends (Park, 2007; Gligorijevic, 2012). Similar behavior is observed within tourism and hospitality sector. Customers have more trust in websites with reviews than in professional guides and travel agencies and perceive social media as more credible and trustworthy than traditional marketing communications (Leung, et al, 2013). As pointed in (Dijkmans, et al., 2015), service companies are more susceptible to the influence of social media due to the nature of their products. Services are intangible, non-standardized and must be consumed in order to be evaluated, which increases the possibility of discrepancies between customer expectations, their perceptions and the services themselves, and consequently can lead to more frequent complaints on social media. To turn publicly available reviews into competitive advantage and a tool for online reputation management, a company, particularly in service industry, should apply techniques of sentiment analysis over such data.

Opinion expressed through reviews comprises entity, an aspect of entity, sentiment expression on particular aspect of entity, opinion holder, and time when opinion is expressed, (Liu, 2012). The author also defines sentiment as positive, negative, or neutral, which is expressed with different intensities (e.g., 1-5 stars mostly used on reviewing sites). Sentiment analysis studies such opinion which expresses or points to a positive or negative sentiment. Unlike facts, opinions and feelings are highly subjective. For this reason, it is necessary to analyze the set of opinions of different people instead of a single opinion that expresses the subjective view of the individual (Grljević, 2016). Thus sentiment analysis can aggregate the overall public opinion using summarization techniques, and characterize variations in affections over a certain period of time. In the following part of this section, we discuss approaches to sentiment analysis (Section 2.1) and applications of sentiment analysis in the tourism and hospitality sector (Section 2.2).

2.1. Approaches to sentiment analysis

Reviewing websites represent a major data source for sentiment analysis and opinion mining. These websites provide numerical ratings (star or Lickert type scale) and/or textual reviews. Analyses based on a numerical rating system cannot uncover nuanced opinions that are often expressed in textual content. Only text reviews provide the understanding of expressed consumers' opinions (Puri, 2017). In strict numerical ratings they are generally lost. However, numerical ratings can be used as indicators of sentiment (Pang et al, 2002; Racherla et al, 2013; Dave, 2003; Turney, 2002). There are two approaches to sentiment analysis of text reviews (Aye & Aung, 2018). The *lexicon-based approach* compares individual words from the sentences with the sentiment words listed in lexicons in order to determine whether the words used in a review convey any sentiment (positive or negative) or not. The authors in (Hu & Liu, 2004) regarded a

sentence as positive/negative if there was a majority of positive/negative opinion words in the review. In the case where there was the same number of positive and negative opinion words in the sentence, they predicted the orientation using the average orientation of the closest opinion words for a feature in an opinion sentence or the orientation of the previous opinion sentence. In (Turney, 2002), the semantic orientation of a phrase that contains adjectives or adverbs was calculated as "the mutual information between the given phrase and the word "excellent" minus the mutual information between the given phrase and the word "poor"".

The machine learning approach uses unsupervised or supervised learning. The first compares each word of the text with positively or negatively valued word selected for a cluster centre. The sentiment orientation of a review is then predicted by the average semantic orientation of the words in the review. Various supervised machine learning algorithms could be used for sentiment classification. In such a case, it is necessary to provide several thousand examples of labeled text for the training of the classification algorithm. The associated labels could be: "positive", "negative", or "neutral", but depending on the purpose of the analysis, some additional labels could be used, such as the sentiment target (Hu, 2004).

Sentiment analysis can be performed at the document level (Pang & Vaithyanathan, 2002; Dave et al, 2003; Bibi, 2017), sentence level (Dos Santos & Gatti, 2014) or word level (Kim & Hovy, 2004). The document-level classification takes into account the whole document (i.e. reviews), and starts from the premise that a document discusses only one topic. Having in mind that the feedback mechanism of online reviews provided after service consumption plays critical role in the online sale of the hospitality and tourism industry (Schuckert & Law, 2014), the document-level classification often does not provide enough detail about the prevailing consumer opinion on the various aspects of the entity being monitored (Medhat, 2014). Since each tourism product should be evaluated based on its own characteristics, for hospitality and tourism industry the aspect-oriented sentiment analysis is more suitable (Tjahyanto & Sisephaputra, 2017; Marrese-Taylor et al, 2013; Bucur, 2015).

An aspect-oriented analysis deals with the classification of sentiment at the sentence (Hu & Liu, 2004; Broß, 2013; Pontiki et al, 2016), or phrase level according to various aspects of the tourism product (Li et al, 2018). Aspects usually correspond to arbitrary topics considered important or representative of the text that is being analyzed. The third level of sentiment analysis involves classifying a word or phrase according to the polarity of the sentiment (Zhang et al, 2014; Agarwal et al, 2009; Ikeda et al, 2008). The polarity of sentiment, also referred to as sentiment orientation, points to positive or negative expression of sentiment.

Almost all previous work in sentiment analysis is based on single, positive/negative category or scale such as star ratings. Such a one-dimensional scale does not accurately reflect the complexity of human emotions and sentiments. Sentiment analysis is often performed on text labelled on more fine-grained sentiment scale, such as Ekman's six basic emotions joy, sadness, anger, fear, disgust, and surprise (Holzman & Pottenger, 2003; Alm et al, 2005; Strapparava & Mihalcea, 2007; Mohammad, 2012), Plutchik's scale which is based on Ekman's with addition of trust and anticipation (Brooks et al., 2013; Mohammad, 2012a; Suttles & Ide, 2013).

The bag-of-words representation that is often used in current baseline methods cannot properly capture more complex linguistic phenomena in sentiment analysis. The method

described in (Nakagawa et al, 2010) uses many manually constructed domain-specific resources (sentiment lexica, parsers, polarity-shifting rules), which, on one hand, increase precision of the model in the given domain, while, on the other hand, limit their applicability to a broader range of tasks and languages. In (Socher et al, 2011), authors introduce the model that, instead of using a bag-of-words representation, exploits the hierarchical structure and uses compositional semantics to understand sentiment. The system can be trained both on unlabeled domain data and on supervised sentiment data and does not require any language-specific sentiment lexica, parsers, etc. Rather than limiting sentiment to a positive/negative scale, the authors predicted a multidimensional distribution over several complex, interconnected sentiments.

Visual contents such as photos and videos, represent the next boundary to be explored with cutting-edge technological tools. Deep learning techniques recently developed in natural language processing and, especially, computer image processing appears to be an ideal tool for many of the problems related to user-generated contents on the Internet. Long and Short Term Memory networks, a popular module in deep learning architectures, provides an effective way of sequentially composing the semantic understandings in texts (Ma et al, 2018).

2.2 Research on sentiment analysis in tourism and hospitality sector and impact on a business

The positive relationship between customer rating and online sales of hotels is noted in (Öğüt & Onur, 2012). According to the findings, a 1% increase in online customer rating increased sales per room up to 2.68% in hotels in Paris and up to 2.62% in hotels in London. The authors also identified correlation between customer ratings and prices. Higher customer ratings also resulted in higher prices of the hotels and prices of high star hotels were more sensitive to online customer ratings.

Xie et al (2017) have shown that overall rating, and ratings of attributes such as purchase value, location and cleanliness, variation and volume of consumer reviews, and the number of management responses are significantly associated with hotel performance. This study showed that providing timely and lengthy responses enhances future financial performance, whereas providing responses by hotel executives and responses that simply repeat topics in the online review lowers future financial performance.

Lee and Song (2010) suggested that company responses that include an apology, compensation, or corrective action may help restore the company's positive image. The results showed that informational factors, such as *vividness*[2] and *consensus*[3], facilitated consumers' attribution to companies' responsibility for the negative events, and subsequently led to changing their evaluation of the company. In addition, the authors found that corporate response strategy to online complaints should be different from the conventional response strategies.

In (Sparks, 2016), an experimental approach to test the effect of providing or not providing a response to a negative online review is conducted. It was shown that four variables: the source of the response (Guest Service Agent or General Manager), the

[2] *Vividness* refers to information capacity to attract and hold attention to excite imagination.

[3] *When* people encounter negative information about products or services, they often consider other individuals' reactions to the information prior to judging themselves what the causes of the problem are.

communication style (professional or colloquial), the efficiency of the response (fast, moderate, or slow), and the action frame of the response (corrective action was taken in the past or is promised to be taken in the future), influences the potential customers' trust and concern regarding the hotel.

Previous eWOM tourism studies assume a direct relationship between online consumer content, online reviews and tourism performance with empirical studies adopting a bi-variate methodology. The study of Phillips (2015) used artificial neural networks, which went beyond linear and bi-variate investigations, and provided evidence to suggest that online reviews together with traditional hotel characteristics should be considered as salient determinants of hotel performance.

3. Reputation Management by Sentiment Analysis

Travel-related entities and services are the subject of online reviews and/or ratings provided by tourists after their travel experience. In order to study the textual content of the reviews and identify various dimensions on which consumers made an evaluation and to determine the polarity of expressed opinions or emotions, these reviews should be processed, and relevant information summarized for companies. Automated sentiment analysis requires either a dataset with clearly marked examples of positive and negative reviews or sentiment dictionaries, both provided in advance. These resources are unavailable or scares for under-researched languages, such as Serbian, or even for the English language in case of under-research domains. When datasets or sentiment dictionaries are unavailable, numerical ratings (star ratings, thumbs up, thumbs down) obtained from a reviewing website are a starting point in sentiment analysis, as they can be used to determine the sentiment orientation of a review (Pang et al, 2002; Racherla et al, 2013; Dave, 2003; Turney, 2002). In the paper (Grljević & Bošnjak, 2018) the authors described a method for determining the sentiment polarity of online reviews with assigned numerical rating of 3 on the one-to-five scale, as this category of review is identified as "mixed" category and the source of ambiguity of sentiment. The presented method implies similarity check in terms of vocabulary and writing style among this "mixed" category of reviews (reviews that convey both positive and negative sentiment and should not be mistaken for neutral reviews), and positive reviews (with numerical ranks 4 or 5), or negative reviews (with ranks 1 or 2).

Once a dataset with clearly marked learning examples of positive and negative reviews is prepared, the consecutive sentiment analysis could be conducted. As pointed out in (Grljević & Bošnjak, 2018) automated sentiment analysis models can aggregate overall satisfaction or dissatisfaction of customers by summarizing positive and negative online comments. Although both positive and negative reviews enhance consumer awareness of hotels, positive reviews tend to improve overall attitude towards the hotels, and this considerably affects lesser-known hotels (Öğüt & Onur, 2012).

The automated sentiment analysis can help hotel managers to improve their services. It provides summarized feedback on how their hotel is seen by customers, what services they liked or disliked (Bucur, 2015). They represent a useful tool for benchmark and analysis of public opinion towards the key competition through analysis of online reputation of competition, and public stance towards their key products, brands, or services. By implementing sentiment analysis models, any business can monitor variations in public opinion through time. Gaining a better understanding of the associations within

the various attributes of the properties, and traveler reviews in general, may lead to an improvement of the services provided and a decrease in the postings of negative reviews.

Another interesting behavior of consumers is revealed in the analysis of online reviews in (Racherla et al, 2013). Even when consumers have given very low ratings to a certain property, they have not completely given up on the property, so they are willing to return to it in the future. According to the authors' findings, among consumers who give low ratings to the property, approximately 9% are willing to give a second chance if service providers are willing to take the negative feedback into consideration and ensure that service delivery is significantly improved. Consequently, managers must develop strategies that improve consumers' perceptions of their responsiveness, i.e. willingness to take under consideration the reviews, both positive and negative, and enhance their service.

Appropriate company response strategies to online complaints are necessary to protect or improve the company's reputation. "No action" strategies may risk allowing negative information about the company to stand unchallenged, which in turn may damage the company's reputation (Davidow, 2003). Having employees dedicated to responding to online reviews requires substantial human and financial resources. Understanding how such investment leads to financial outcomes can provide strong justification for investment in offering management responses (Xie et al, 2017).

4. Case Study on Application of Sentiment Analysis in the Hospitality and Tourism Industry

Sentiment analysis is basically a classification task. User generated contents are classified acording to the expressed sentiment usually into the positive or the negative class (Grljević & Bošnjak, 2018). In the case study described in this section, the input set of 20491 reviews collected from the TripAdvisor website (Alam, 2016)[4] was used for the analysis. The input set was divided into the training and the test set, in 75:25 ratio. Besides the textual comments on hotels, the reviewers provided the numerical ratings on the one-to-five Likert type scale, which expressed their overall satisfaction. Rank 1 denoted the lower satisfaction, while rank 5 denoted the reviews with the largest degree of satisfaction. Since reviews in the dataset were not labelled with sentiment polarity, we used these numerical ratings to denote polarity of each review, as explained in details in (Gljević & Bošnjak, 2018). Reviews ranked by marks 1 and 2 were labeled as examples of hotel reviews with negative sentiment. Reviews ranked by marks 4 and 5 were labeled as examples of hotel reviews with positive sentiment. Labeling of reviews ranked by mark 3 was calculated based on sentiment score. The sentiment score of a review was calculated as the sum of z-scores for similarities of words in the review with the frequent single words, bigrams and trigrams observed in the positive or negative category of reviews (Gljević & Bošnjak, 2018).

We experimented with different supervised classification algorithms with the goal of building a model that will successfully distinguish positive from negative reviews. As suggested in the papers (Jurafsky, 2018; Yang, 2018; Medhat, 2014), we used well established algorithms for sentiment analysis: *Logistic Regression* (LR), *Naïve Bayes* (NB), *Support Vector Machines* (SVM), *Random Forest* (RF), and *Xtreme Gradiant Boosting* (XGB). The performance of classifiers was measured over test data using *Accuracy*

[4] Accessible at://zenodo.org/record/1219899/#.W9CbtXszapp

(indicator of overall success rate), *Precision* (the ratio of correctly classified reviews into the positive class and the total number of entities of this class), and *Recall* (percentage of positive reviews correctly classified as positive) as basic measures, and *F1*-measure (harmonic mean of Precision and Recall) and *Precision-Recall curve* (*PR* - tradeoff between precision and recall for different threshold) as compound measures. Evaluation measures are presented in more detail in papers (Ballabio et al, 2017; Berrar, 2019; Visa & Salembier, 2014). Figure 1 illustrates performance measures (Precision, Recall, and F-measure) for each classifier.

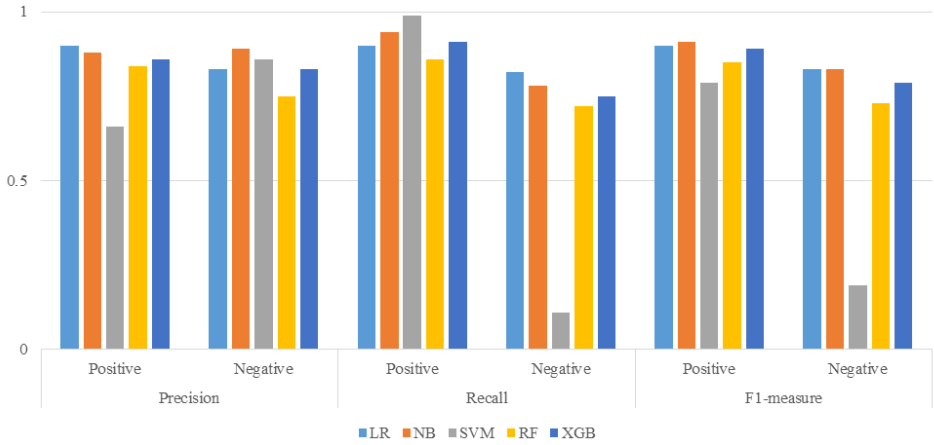


Fig. 1 Evaluation of classifiers

The results indicate that the SVM classifier, with 66.52% correctly classified positive reviews is the least appropriate for classification of collected reviews. Furthermore, the SVM algorithm successfully classified only 11% of negative reviews. NB achieved the best accuracy (88.54%). The F1-measures have shown that NB and LR resulted in best classification models, as they had, at the levels of 91% and 90% respectively, correctly classified positive reviews, and with somewhat lower levels, but over 83%, had correctly classified the negative reviews. The use of PR curve is particularly advised in case of largely skewed class distribution, which is the case with our dataset, as positive reviews are more frequent in the dataset than negative ones (80.61% of positive reviews and 19.39% of negative reviews). The analysis of PR curve indicate that LR model has the overall best performance. Experiments and results are presented in more detail in (Grljević & Bošnjak, 2018).

When a satisfactory classification model is built, a model which successfully distinguishes positive from negative reviews, different visualization and summarization techniques can be applied over the results. These techniques facilitate the decision making process and identification of the favorable and bottleneck aspects of the business and, consequently, help management to undertake corrective actions. Also, sentiment analysis model can be combined with other machine learning techniques to uncover additional knowledge. In this paper we illustrate application of association rules to generate a network showing the relationships between terms which occur in the positive and negative category of reviews. Visualization of resulting associations could help managers to

understand relationships between concepts under discussion in negative and positive reviews. Associative rules represent a data mining technique that is successfully used in determining consumer behavior by identifying rules that indicate frequent data, correlations, and data dependencies. The evaluation of the resulting association rules is based on the following parameters: *support* (the significance of the rules), *confidence* (the reliability of the rules or degree of confidence), *gain* (the difference between confidence and the support of consequent), *lift* (or interest measures the degree of dependence between the item sets), and *conviction* (both the support of the antecedent and the support of the consequent of the rule are taken into account) (Jimenez et al, 2010). We used RapidMiner[5] tool to conduct association rule mining over a set of positive reviews and a set of negative reviews. Each association is labelled with name (Rule 1, Rule 2, etc.) and values of support and confidence are associated to each rule, respectively.

Association rules over positive category of reviews are presented in Figure 2. We have generated 147 association rules. Due to a large amount of data, we have visualized only rules with higher values for lift measure, i.e. more interesting rules. Concepts discussed in positive reviews revolve around hotel, room, staff, or location. Based on presented relationships in Figure 2, we can see that people evaluate positively mostly expected aspects, such as great location, great service, friendly or helpful staff, or clean rooms.

Fig. 2 Relationships between terms which occur in positive reviews

[5] RapidMiner https://rapidminer.com/

Since negative reviews convey sources of dissatisfaction of consumers we look more closely to the resulting association rules over negative category of reviews. We have generated 89 association rules with a 55% confidence. Based on the results, some concepts which travelers discuss in negative reviews differ from the concepts in positive reviews. Mostly these concepts revolve around the overall stay in the hotel and the food, while the hotel and room are discussed in a different manner in negative compared to positive reviews. Figure 3 illustrates rules with mentions of room and hotel. While in positive reviews travelers put emphasis on the *hotel*, in negative review the emphasis is on *room*. The presented results point to the following sources of dissatisfaction among travelers: unclean bathroom, check-in process, problems with staff or room-service, no water, cleanliness, or the fact that the room was not ready upon traveler arrival (to obtain this conclusion we have inspected in more detail reviews containing the word *told*, in most cases travelers were told upon arrival that the room was not ready). A positive evaluation of food stretches through negative reviews (with support 0.189 and confidence level of 58.3%). Among the analyzed reviews, if travelers mention *beach*, they will also mention *food*. This rule has confidence of 70.5%. If we observe this vice versa, if a review contains a mention of *food*, we can say with 59.3% confidence that there will be a mention of *beach* as well.

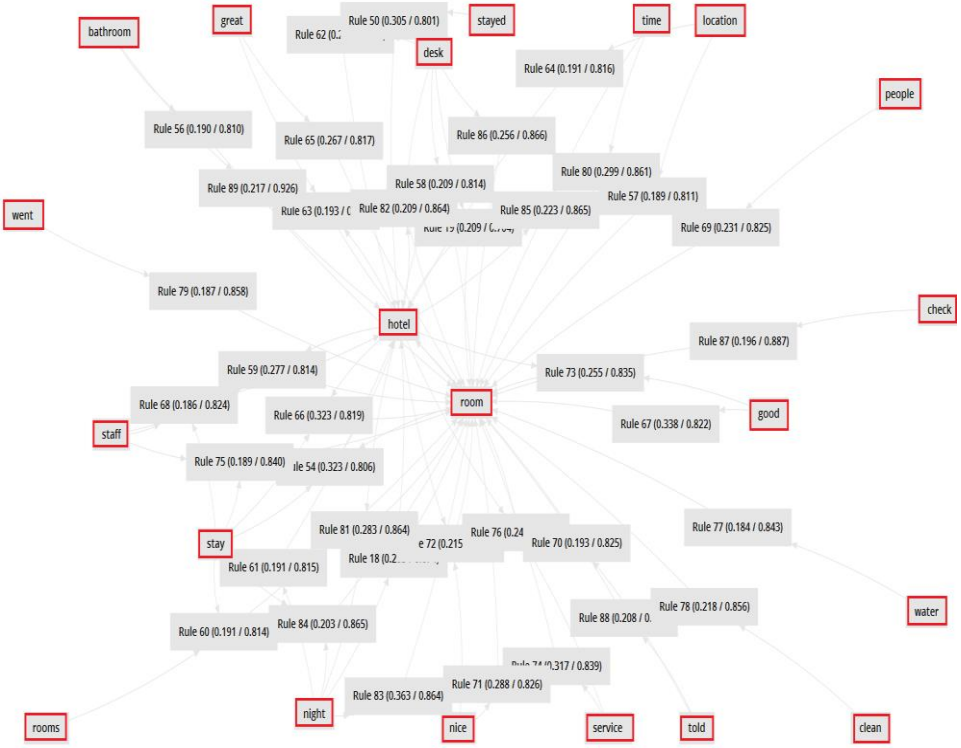


Fig. 3 Relationships between terms which occur in negative reviews

The results of experiments led to the conclusion that all selected algorithms, except the SVM, are adequate for sentiment analysis of collected reviews in the hospitality and tourism sector. However, they have also highlighted that on the same data it is possible to obtain different results and therefore good analytic skills are necessary in order to conduct a large number of experiments with diversified classification algorithms, model parameters, and performance measures. Although we have not conducted aspect-based sentiment analysis, the application of association rules over positive and negative category of reviews and their visualization revealed useful insights regarding the preferences of travelers.

5. CONCLUSION

User-generated contents on the Web, in the form of reviews and/or ratings, convey consumers' opinions and feelings towards products, services or other entities. Prospective online customers use this freely provided data in their decision making process. With expansion of reviewing websites, online reviews are the third influencing factor on purchase decisions after coupons and discounts (Yang et al, 2015). Textual comments provide fine-grained information about the service provider's reputation that is likely to engender a buyer's trust in the service provider's competence and credibility. Consequently, companies should monitor the online activities and sentiment of their customers and promptly respond to customer comments and problems. This is even more emphasized in the hospitality and tourism industry that provides subjective services, heterogeneous in nature, where no "try before you buy" or "return if not satisfied" features exist so the perceived risk for the consumers is even higher. With such a strong impact on purchasing decisions online reviews affect online sales as well, and they should be treated as a strategic tool in hospitality and tourism management, particularly in promotion, online sales, and management of online reputation (Schuckert & Law, 2014).

Due to the constant growth of the number of websites with tourists' reviews and the sheer amount of feedback information on their expectations, preferences, (dis)satisfaction, etc., automated techniques are needed to process all the reviews in order to gain full insight in tourists' sentiment. Opinion mining and sentiment analysis enable tourism organizations to assess the influence of aggregated good or bad comments on the accommodation choices, to acquire the information on guests' perception of the tourism and the business related entities (such as the staff, comfort of rooms, intensity of noise, quality of food or other aspects of the tourism offer). Such insights are vital for leveraging the services and the organization of the business.

The case study we have conducted has shown that not all methods that we have at our disposal are suitable for sentiment analysis, while some of the developed automated approaches are more adequate than others. Skillful analysts could, by means of classification algorithms (LR, NB, RF, XGB, SVM) and association rules, reveal emotions, criticism, (dis)satisfaction in user generated reviews and present them to the management, who could act accordingly for online reputation improvement.

In the past several years, our understanding of the impacts of online reviews has developed to a great extent, due to technical advancements in our capacity to process and analyze new forms of data in increasingly large quantities. Analytical methods for textual data (such as reviews) processing have evolved to more sophisticated machine learning

tools such as sentiment analysis and topic modelling, to extract deep meanings from large quantities of texts. As social media websites continue to evolve and user-generated contents become more diverse and richer in terms of both content and format, our ability to understand managerial problems will likely be defined by technical tools to process, analyze, and interpret these new data.

REFERENCES

Agarwal, A., Biadsy, F. & Mckeown, K.R. (2009). *Contextual phrase-level polarity analysis using lexical affect scoring and syntactic n-grams*. In Proceedings of the 12th Conference of the European Chapter of the Association for Computational Linguistics, Association for Computational Linguistics, 24-32.

Alam, M.H., Ryu, W.-J. & Lee, S. (2016). Joint multi-grain topic sentiment: modeling semantic aspects for online reviews. *Information Sciences*, 339, 206–223.

Alm, C.O., Roth, D. & Sproat, R. (2005). *Emotions from text: Machine learning for text-based emotion prediction*. In Proceedings of the Joint Conference on HLT–EMNLP, Vancouver, Canada.

Aye, Y.M. & Aung, S.S. (2018). Senti-Lexicon and Analysis for Restaurant Reviews of Myanmar Text. *International Journal of Advanced Engineering, Management and Science (IJAEMS)*, 4 (5).

Ballabio, D., Grisoni, F. & Todeschini, R. (2018). Multivariate comparison of classification performance measures. *Chemometrics and Intelligent Laboratory Systems*, 174, 33-44. doi: doi.org/10.1016/j.chemolab.2017.12.004

Berrar, D. (2019). Performance Measures for Binary Classification. *Encyclopedia of Bioinformatics and Computational Biology*, 1, 546-560. doi: doi.org/10.1016/B978-0-12-809633-8.20351-8

Berthon, P.R., Pitt, L.F., Plangger, K. & Shapiro, D. (2012). Marketing meets Web 2.0, social media, and creative consumers: Implications for international marketing strategy. *Business Horizons*, 55 (3), 261-271.

Bibi, M. (2017). *Sentiment Analysis at Document Level.* Retrieved from https://www.researchgate.net/publication/320729882_Sentiment_Analysis_at_Document_Level, uploaded on 31 October 2017.

Bing, P. & Yang, Y. (2016). *Monitoring and Forecasting Tourist Activities with Big Data*. In: *Management Science in Hospitality and Tourism. Theory, Practice, and Applications*, New York, Apple Academic Press.

Broß, J. (2013). *Aspect-Oriented Sentiment Analysis of Customer Reviews Using Distant Supervision Techniques*, Dissertation at Freie Universität Berlin, Berlin.

Brooks, M., Kuksenok, K., Torkildson, M.K., Perry, D., Robinson, J.J., Scott, T.J., Anicello, O., Zukowski, A., Harris, P. & Aragon, C.R. (2013). *Statistical affect detection in collaborative chat*. In Proceedings of the 2013 conference on Computer supported cooperative work, pp. 317–328. ACM.

Bucur, C. (2015). *Using Opinion Mining Techniques in Tourism*, 2nd Global Conference on Business, Economics, Management and Tourism, Prague, Czech Republic. *Procedia Economics and Finance*, 23, 1666-1673.

Dave, K., Lawrence, S. & Pennock, D.M. (2003). *Mining the Peanut Gallery: Opinion Extraction and Semantic Classification of Product Reviews*. In WWW '03 Proceedings of the 12th international conference on World Wide Web. ACM New York, 519-528.

Davidow, M. (2003). Organizational responses to customer complaints: What works and what doesn't. *Journal of Service Research*, 5, 225-250.

Dos Santos, C.N. & Gatti, M. (2014). *Deep convolutional neural networks for sentiment analysis of short texts.* In COLING, 69–78.

Gligorijevic, B. & Luck, E. (2012). *Engaging Social Customers – Influencing New Marketing Strategies for Social Media Information Sources*. In Contemporary Research on E-business Technology and Strategy, 25-40. Springer Berlin Heidelberg.

Grljević, O. (2016). *Sentiment u sadržajima sa društvenih mreža kao instrument unapređenja poslovanja visokoškolskih institucija*. Univerzitet u Novom Sadu, Ekonomski fakultet u Subotici, doktorska disertacija.

Grljević, O. & Bošnjak, Z. (2018). Sentiment analysis of customer data. *International Journal of Strategic Management and Decision Support Systems in Strategic Management*, 23(3), 38-49.

Grljević, O. & Bošnjak, Z. (2018). Evaluating customer satisfaction through online reviews and ratings. In V. Bevanda & S. Štetić (Eds.) *3rd International Thematic Monograph – Thematic Proceedings: Modern Management Tools and Economy of Tourism Sector in Present Era. Belgrade*. Belgrade, Serbia: Association of Economists and Managers of the Balkans in cooperation with the Faculty of Tourism and Hospitality, Ohrid, Macedonia. ISBN: 978-86-80194-14-1

Gruen, T.W., Osmonbekov, T. & Czaplewski, A.J. (2006). eWOM: The impact of customer-to-customer online know-how exchange on customer value and loyalty. *Journal of Business Research*, 59 (4), 449-456.

Holzman, L.E. & Pottenger, W.M. (2003). *Classification of emotions in internet chat: An application of machine learning using speech phonemes*. Tech. rep., Leigh University.

Hu, M. & Liu, B. (2004). Mining Opinion Features in Customer Reviews. *Proceedings of the 19th International Conference on Artificial Intelligence AAAI'04*, 755-760.

Ikeda, D., Takamura, H., Ratinov, L.-A. & Okumura, M. (2008). Learning to Shift the Polarity of Words for Sentiment Classification. *Transactions of the Japanese Society for Artificial Intelligence*, 25 (1), 50-57.

Jimenez, A., Berzal, F. & Cubero, J.C. (2010). *Interestingness Measures for Association Rules within Groups*. In E. Hullermeier, R. Kruse, and F. Hoffmann (Eds.): IPMU 2010, Part I, CCIS 80, pp. 298–307. Available at: https://pdfs.semanticscholar.org/40f9/fd7259b15bd09f6dc0552c4e54cebfbe92fb.pdf

Jurafsky, D. & Martin, J.H. (2018). *Speech and Language Processing*. An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition. Draft of September 23, 2018.

Kim, S.M. & Hovy, E. (2004). *Determining the Sentiment of Opinions*. In COLING '04 Proceedings of the 20th international conference on Computational Linguistic.

Lee, Y.L. & Song, S. (2010). An empirical investigation of electronic word-of-mouth: Informational motive and corporate response strategy. *Computers in Human Behavior*, 26 (5), 1073-1080.

Lei, S. & Law, R. (2015). Content Analysis of TripAdvisor Reviews on Restaurants: A Case Study of Macau. *Journal of tourism*, 16 (1), 17-28.

Leung, D., Law, R., van Hoof, H. & Buhalis, D. (2013). Social media in tourism and hospitality: A literature review. *Journal of Travel and Tourism Marketing*, 30 (1-2), 3–22.

Li, X., Bing, L., Li, P., Lam, W. & Yang, Z. (2018). *Aspect Term Extraction with History Attention and Selective Transformation*. IJCAI 2018, Computation and Language, arXiv:1805.00760

Litvin, S., Goldsmith, R.E., Pan, B. (2008). Electronic word-of-mouth in hospitality and tourism management. *Tourism Management*, 29 (2008), 458–468.

Ma, Y., Xiang, Z., Du, Q. & Fan, W. (2018). Effects of user-provided photos on hotel review helpfulness: An analytical approach with deep leaning. *International Journal of Hospitality Management*, 71, 120-131.

Marrese-Taylor, E., Velásquez, J.D., Bravo-Marquez, F. & Matsuo, Y. (2013). Identifying Customer Preferences about Tourism Products using an Aspect-Based Opinion Mining Approach, *Procedia Computer Science* 22, 182-191, 17th International Conference in Knowledge Based and Intelligent Information and Engineering Systems - KES2013.

Medhat, W., Hassan, A. & Korashy, H. (2014). Sentiment analysis algorithms and applications: A survey. *Ain Shams Engineering Journal*, 5, 1093-1113.

Mohammad, S. (2012). *Portable features for classifying emotional text*. In Proceedings of the 2012 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies, pp. 587–591, Montreal, Canada.

Mohammad, S.M. (2012a). *#emotional tweets*. In Proceedings of the First Joint Conference on Lexical and Computational Semantics - Volume 1: Proceedings of the main conference and the shared task, and Volume 2: Proceedings of the Sixth International Workshop on Semantic Evaluation, SemEval '12, pp. 246–255, Stroudsburg, PA.

Nakagawa, K. Inui. & S. Kurohashi. (2010). Dependency tree-based sentiment classification using CRFs with hidden variables. In *NAACL*, HLT

Öğüt, H. & Onur, T.B.K. (2012). The influence of internet customer reviews on the online sales and prices in hotel industry. *The Service Industries Journal*, 32 (2), 197 – 214.

Pang, B. & Lee, L. (2008). Opinion Mining and Sentiment Analysis. *Foundations and Trends in Information Retrieval*, 2 (1-2), 1-135.

Pang, B., Lee, L. & Vaithyanathan, S. (2002). *Thumbs up?: sentiment classification using machine learning techniques*. In Proceedings of the ACL-02 conference on Empirical methods in natural language processing, Volume 10. Association for Computational Linguistics, 79–86.

Park, D.-H., Lee, J. & Han, I. (2007). The Effect of On-Line Consumer Reviews on Consumer Purchasing Intention: The Moderating Role of Involvement. *International Journal of Electronic Commerce*, 11 (4), 125-148.

Phillips, P., Zigan, K., Santos Silva, M.M. & Schegg, R. (2015). The interactive effects of online reviews on the determinants of Swiss hotel performance: A neural network analysis. *Tourism Management*, 50, 130-141

Pitt, L.F., Berthon, P.R., Watson, R.T. & Zinkhan, G.M. (2002). The Internet and the birth of real consumer power. *Business Horizons*, 45 (4), 7-14.

Pontiki, M., Galanis, D., Papageorgiou, H., Androutsopoulos, I., Manandhar, S., Mohammad, A. S. & Hoste, V. (2016). SemEval-2016 task 5: Aspect based sentiment analysis. In Proceedings of the 10th international workshop on semantic evaluation (SemEval-2016), 19-30.

Puri, C.A., Kush, G., Kumar, N. (2017) Opinion Ensembling for Improving Economic Growth through Tourism. *Procedia Computer Science* 122, 237-244.

Racherla, P., Connolly, D.J. & Christodoulidou, N. (2013). What Determines Consumers' Ratings of Service Providers? An Exploratory Study of Online Traveler Reviews. *Journal of Hospitality Marketing and Management*, 22 (2), 135-161, doi: 10.1080/19368623.2011.645187

Socher, R., Pennington, J., Huang, E.H., Andrew Y. Ng & Manning, C.D. (2011). *Semi-Supervised Recursive Autoencoders for Predicting Sentiment Distributions*, Proceedings of the 2011 Conference on Empirical Methods in Natural Language Processing, Edinburgh, Scotland, UK, July 27–31, 151–161, http://www.aclweb.org/anthology/D11-1014

Schuckert, M.L. & Law, X.R. (2014): Hospitality and tourism online reviews: Recent trends and future directions. *Journal of Travel and Tourism Marketing*, 32 (5), 608-621, doi:10.1080/10548408.2014.933154

Sparks, B.A., FungSo, K.K. & Bradley, G.L. (2016). Responding to negative online reviews: The effects of hotel responses on customer inferences of trust and concern. *Tourism Management*, 53, 74-85.

Strapparava, C. & Mihalcea, R. (2007). *Semeval-2007 task 14: Affective text*. In Proceedings of SemEval-2007, pp. 70–74, Prague, Czech Republic.

Suttles, J. & Ide, N. (2013). *Distant supervision for emotion classification with discrete binary values*. In Computational Linguistics and Intelligent Text Processing, pp. 121– 136. Springer.

Tjahyanto, A. & Sisephaputra, B. (2017). The Utilization of Filter on Object-Based Opinion Mining in Tourism Product Reviews. *Procedia Computer Science*, 124, 38-45.

Tripp, T. M. & Grégoire, Y. (2011). When Unhappy Customers Strike Back on the Internet. *MIT Sloan Management Review*, 52 (3), 37-44.

Turney, P.D. (2002). *Thumbs up or thumbs down?: semantic orientation applied to unsupervised classification of reviews.* In proceedings of the 40th annual meeting on association for Computational Linguistics (ACL'02), Philadelphia, Pennsylvania, USA.

Visa, G.P. & Salembier, P. (2014). *Precision-Recall-Classification Evaluation Framework: Application to Depth Estimation on Single Images*. In D. Fleet et al. (Eds.): ECCV 2014, Part I, LNCS 8689, pp. 648–662. Available at: https://imatge.upc.edu/web/sites/default/files/pub/cPalou14_0.pdf

Xie, K.L., Kam Fung So, K. & Wang, W. (2017). Joint effects of management responses and online reviews on hotel financial performance: A data-analytics approach. *International Journal of Hospitality Management*, 62, 101-110.

Yang, C.-S., Chen, C.-H. & Chang, P.-C. (2015). Harnessing consumer reviews for marketing intelligence: a domain-adapted sentiment classification approach. *Information Systems and e-Business Management*, 13 (3), 403-419.

Yang, Y. & Loog, M. (2018). A benchmark and comparison of active learning for logistic regression. *Pattern Recognition*, 83, 401-415.

Zhang, Y., Lai, G., Zhang, M., Zhang, Y., Liu, Y. & Ma, S. (2014). *Explicit factor models for explainable recommendation based on phrase-level sentiment analysis*. In Proceedings of the 37th international ACM SIGIR conference on Research & development in information retrieval, 83-92.

SAVREMENE TEHNIKE ANALIZE PODATAKA ZA MENADŽMENT ONLAJN REPUTACIJE U HOTELIJERSTVU I TURIZMU

Saznanja o tome šta privlači a šta odvraća turiste od turističke posete i na koje proizvode obratiti posebnu pažnju, te koje proizvode ponuditi je od presudne važnosti za ostvarivanje dobrih ekonomskih rezultata. Do saznanja ove vrste možemo doći analizom onlajn komentara i recenzija koje savremeni turisti ostavljaju nakon turističkog iskustva na veb sajtovima (kao što su Booking.com, TripAdvisor, Trivago, i dr.). U radu je opisan značaj onlajn recenzija za menadžment, koji putem njih dobija informaciju o mišljenjima i emocijama korisnika njihovih turističkih usluga, a pogotovu o (ne)zadovoljstvu određenim aspektima ponude, te se pruža mogućnost da iskoriste uočene prednosti, a

isprave nedostatke preduzimanjem pravovremenih korektivnih mera i akcija. Kroz studiju slučaja nad 20491 recenzijom sa TripAdvisor-a su opisani savremeni pristupi i metode za analizu korisnički generisanog sadržaja i mogućnosti za unapređenje koje one donose u domenu hotelijerstva i turizma. Realizovana je sentiment analiza nad prikupljenim onlajn recenzijama sa ciljem izgradnje automatizovanog modela koji uspešno pravi razliku između pozitivnih i negativnih recenzija. Klasifikacioni model zasnovan na logističkoj regresiji ispoljava najbolje performanse. U 90% slučajeva uspešno klasifikuje pozitivne recenzije, dok u 83% slučajeva uspešno klasifikuje negativne. Pored primene sentiment analize, ilustrovana je upotreba asocijativnih pravila kao pomoć menadžmentu u otkrivanju relacija između koncepata o kojima posetioci diskutuju unutar pozitivnih, odnosno negativnih recenzija.

Ključne reči: *menadžment onlajn reputacijom, e-marketing "od usta do usta", onlajn recenzije, automatizovana klasifiacija, sentiment analiza, asocijativna pravila*

FACTA UNIVERSITATIS
Series: **Economics and Organization** Vol. 16, N° 1, 2019, pp. 75 - 88
https://doi.org/10.22190/FUEO1901075P

Review Paper

ECONOMIC THOUGHT OF FRIEDRICH LIST, GUNNAR MYRDAL AND JOHN MAYNARD KEYNES, AND ITS APPLICABILITY IN TRANSITION ECONOMIES

UDC 330.1:330.342

Jadranka Petrović*

Faculty of Economics, University of Banja Luka, Republic of Srpska,
Bosnia and Herzegovina

Abstract. *The neo-liberal policies of privatization, trade and capital markets liberalization, deregulation and minimizing the role of the state have led in transition Balkan countries to deindustrialization, GDP stagnation and high unemployment, having for its consequence a dramatic depopulation. This refers us to the need for searching for different, successful development policies in the past. The aim of the paper is to explore the economic thought of three great economists, the critics of classical and neoclassical economics, who have had an important influence on economic theory and policy in the past: German economist and politician Friedrich List, the founder of German Historical School, who was considered to be the main ideologist of capitalist development of Germany; Swedish Nobel prize winner Gunnar Myrdal, who had a major role in the creation of the Swedish model of welfare state; and famous British economist John Maynard Keynes who greatly influenced the prosperity of Western economies in the decades after the Second World War. The research results show that current problems of transition economies could find many solutions in the ideas of List, Myrdal and Keynes.*

Key words: *economic development, economic policies, transition economies, Friedrich List, Gunnar Myrdal, John Maynard Keynes*

JEL Classification: B31, O10

Received October 01, 2018 / Revised November 12, 2018 / Accepted November 23, 2018
Corresponding author: Jadranka Petrović
* PhD candidate at University of Banja Luka, Faculty of Economics
University of Banja Luka, Faculty of Economics, Majke Jugovića 4, 78000 Banja Luka, Republic of Srpska, Bosnia and Herzegovina
E-mail: jpetrovic.bl@gmail.com

INTRODUCTION

The neo-liberal policies of privatization, trade and capital markets liberalization, deregulation and minimization of the role of the state have led in transition countries to the collapse of large economic systems, a number of bankruptcies and liquidations of enterprises and, consequently, to deindustrialization, leading to a high unemployment rate and a decline in the population standard of living. Deindustrialization, GDP stagnation and high unemployment have for its consequence a dramatic depopulation, by negative natural increase as well as by the emigration into industrially developed countries. Such consequences indicate to the need for searching for different, successful development policies and models.

The subject of this research is the economic thought of three influential economists, the critics of the classical and neoclassical economics, who played an important role in economic theory and practice in the past: German economist and politician Friedrich List (1789-1846), the founder of German Historical School, who was considered to be the main ideologist of capitalist development of Germany; Swedish Nobel prize winner Karl Gunnar Myrdal (1898-1987), who had a major role in the creation of the Swedish model of welfare state, and famous British economist John Maynard Keynes (1883-1946), who greatly influenced the prosperity of Western economies in the decades after the Second World War.

The hypothesis of this research is that the economic thought and ideas of List, Myrdal and Keynes could give the solutions to some of the problems of Balkan transition countries.

Research methods used in the research are the analysis of empirical macroeconomic data, as well as the historical method of exploring development theories in the past, in order to broaden perspective and to escape the pressure of dominant interests, prejudices and ideologies (Myrdal, 1973).

The research paper is structured as follows. After the introduction, an overview of the consequences of neoliberal policies in Bosnia and Herzegovina and the Republic of Srpska was provided. In the next part the economic thought of Friedrich List, Karl Gunnar Myrdal and John Maynard Keynes has been explored, with the emphasis on their views on the role of the state in economic development. The conclusions are presented at the end of the paper.

1. THE CONSEQUENCES OF NEOLIBERAL POLICIES IN TRANSITION COUNTRIES - AN EXAMPLE OF BOSNIA AND HERZEGOVINA

The transition model introduced in Bosnia and Herzegovina (BiH) after the civil war (1992-1995) was based on the so-called Washington Consensus (Zupčević & Čaušević, 2009), and the key imperatives of neoliberalism: privatization, trade and capital liberalization, deregulation and minimization of the state role.

The result of the neoliberal policies in BiH is visible through the trend of some basic macroeconomic indicators presented in the following figures.

Figure 1 shows the trend of the real GDP growth rate in Bosnia and Herzegovina in the period from 2004 to 2016.

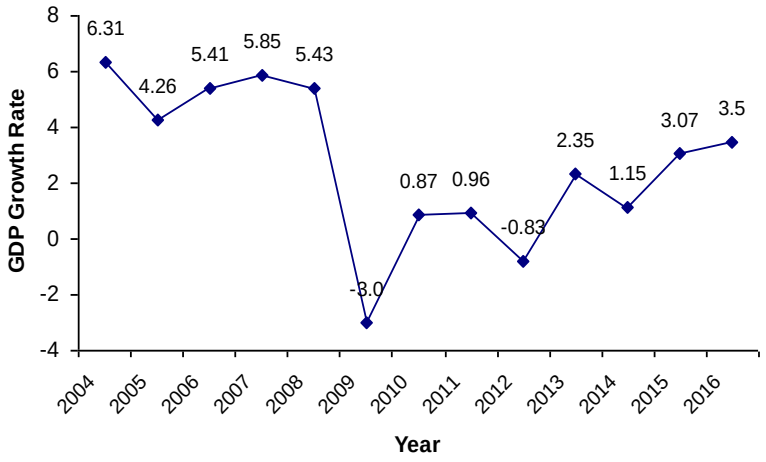


Fig. 1 Real GDP growth rates in Bosnia and Herzegovina
Source: Author, based on BiH Agency for Statistics data

Figure 2 shows the trend of inflation (deflation) rate in Bosnia and Herzegovina in the period from 2004 to 2016.

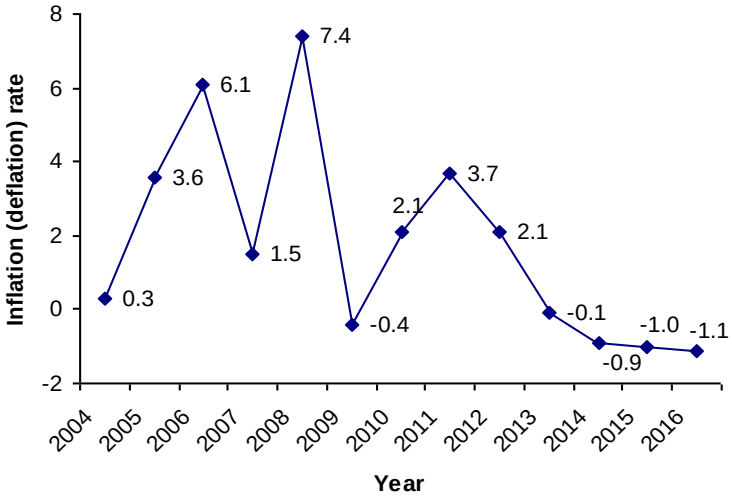


Fig. 2 Inflation (deflation) rates in Bosnia and Herzegovina
Source: Author, based on BiH Agency for Statistics data

The average real GDP growth rate in the period 2004-2008 was 5.5%, while the average annual inflation rate was 3.78%. After 2008, the average annual real GDP growth rate significantly dropped to only 1.1% in the period 2009-2016, while the average annual inflation rate was 0.55% per annum. The price stability was followed by the stagnation of

economic activities. In the last four years of the observed period (2013-2016), there was a deflation, ranging from -0.1% in 2013 to -1.1% in 2016.

According to Bosnia and Herzegovina Central Bank (2016), one of the main causes of deflation, measured by the consumer price index, was the pressure of low import prices of agricultural and other food products, given the high trade deficit of these categories.

At the same time, domestic arable land is largely unused. For example, in the Republic of Srpska, there has been a visible trend in the reduction of sown areas since 2008, which reached its minimum in years 2014 and 2015. These two years, excluding 1996 as the first postwar period, represent the minimum of the 20-year period (1996-2015), with 51.9% and 53.1% sown areas of the total arable land. The export-import ratio of agricultural products in 2015 amounted to only 25.7%, despite exceptionally favorable natural conditions for the development of agriculture (Statistical Yearbook of the Republic of Srpska, 2016).

Industrial production in Bosnia and Herzegovina stagnates. Average growth of industrial production in the period 2009-2015 was only 1.03% per year (BiH Central Bank, 2016).

Figure 3 shows that unemployment in Bosnia and Herzegovina is extremely high and it stagnated at the level 27.5%-28% in the period 2011-2015.

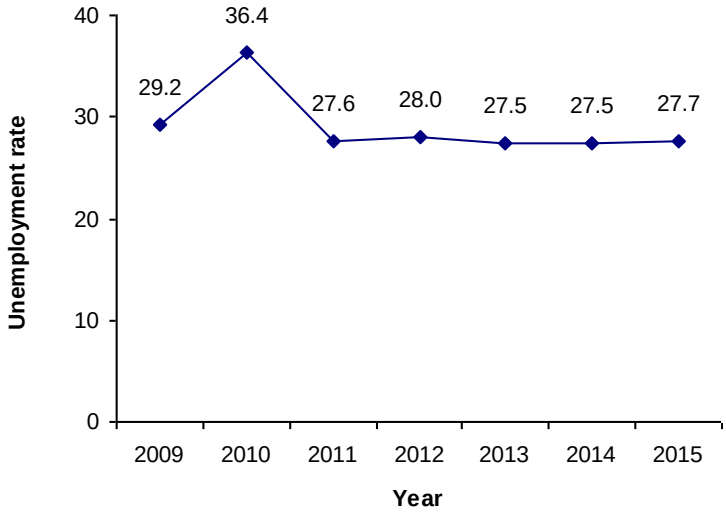


Fig 3 Unemployment rate in Bosnia and Herzegovina
Source: Author, based on BiH Agency for Statistics data

Figure 4 demonstrates that Bosnia and Herzegovina external debt grew in the observed period from 3,96 billion KM in 2007 to 8,36 billion KM in 2016, which means that it more than doubled in the observed period.

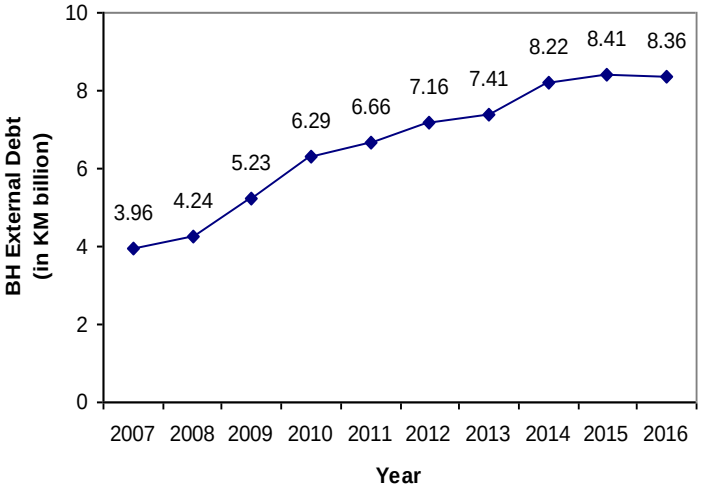


Fig 4. External debt of Bosnia and Herzegovina
Source: Author, based on BiH Ministry of Finance and Treasury data

The number of inhabitants in Bosnia and Herzegovina is constantly decreasing. A particularly alarming situation is in the Republic of Srpska, where, based on the negative natural increase of the population, 53,295 inhabitants were lost in the period 2002-2016, representing 4.6% of the estimated population in the Republic of Srpska in 2016, as shown in Figure 5.

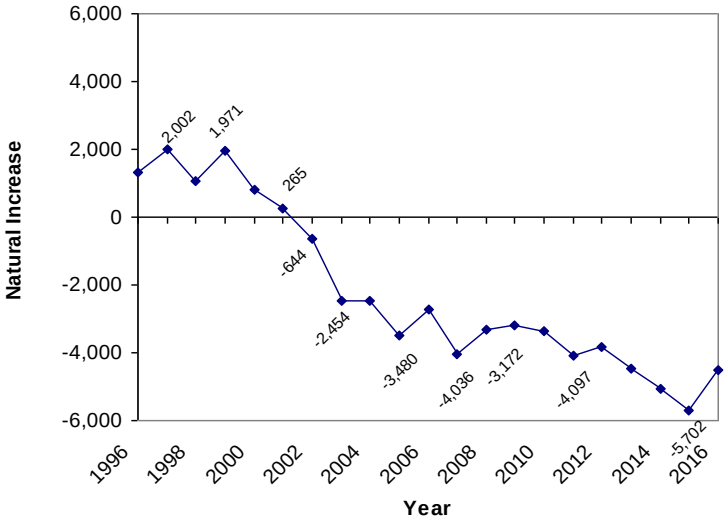


Fig. 5 Natural increase of population in the Republic of Srpska
Source: Author, based on the Republic of Srpska Agency for Statistics data

Also, the emigration from the Republic of Srpska is dramatic. In the period 2009-2015 the Statistical Office of the Republic of Srpska estimated the population at approximately 1.42-1.43 million inhabitants. For example, the estimation for 2013 was 1,425,549 inhabitants. However, the results of the Population Census in BiH conducted in October 2013 showed that in the Republic of Srpska in 2013 there were 1,171,179 inhabitants, i.e. 254,370 or 18% less than estimated.

The official data on demographic changes of statistical agencies in Bosnia and Herzegovina do not include external but only internal migrations. However, it is clear that economic stagnation, high unemployment, especially of young people, and low standard of living, contribute to the rapid trend of emigration, which contributes to the reduction of the population in BiH (BiH Central Bank Annual Report, 2016). Republic of Serbia faces similar dramatic demographic and economic situation, as shown in the research of Mitrović & Bošković (2017).

Described negative consequences of implemented policies refer us to the need for searching for different, successful development theories and policies. In the following sections we will explore the economic thought of three influential economists, who played an important role in economic theory and practice in the past: Friedrich List, Karl Gunnar Myrdal and John Maynard Keynes, with the aim to find some ideas and policies that could be applicable to current situation and problems of Balkan transition countries.

2. FRIEDRICH LIST (1789-1846) AND GERMAN HISTORICAL SCHOOL

German economist and politician Friedrich List is considered to be the main ideologist of capitalist development in Germany (Šoškić, 1986). His ideas have been implemented in the policy of German Chancellor Otto von Bismarck (1815 - 1898) (Chang, 2003). Given the later development and success of German economy, it is worth paying attention to his views.

In the first half of the 19th century, Germany was divided into 39 different states, economically and politically isolated from one another. At the same time, however, British surpluses of products (as the most developed economy of that time), found a way to the German markets at extremely low prices, which jeopardized the interests of German manufacturers and traders. In 1819, Friedrich List became the leader of the General Association of German Manufacturers and Traders and the soul of the movement for economic unity and uniform customs of German states (Ekelund & Hébert, 1997).

List's main work, published in 1841, is called the "National System of Political Economy". According to List, the ultimate goal of economic activity should be national development and strengthening of economic power, that is, the industrial development of Germany.

In his analysis of national systems of political economy, List applied a method that examines the historical stages of the economic development, i.e., the idea that the economy must go through several stages before reaching a mature state: "the savage state, the pastoral state, the agricultural state, the agricultural and manufacturing state, and finally, the agricultural, manufacturing, and commercial state" (List, 1856, p. 72).

List considered that only the economies in the fourth stage, i.e. "agricultural-manufacturing", need economic protection, until they reach the final stage. According to List, Germany and the United States of that time were at that stage of economic development. However, after arriving at the final stage, free trade again becomes justified, because "…a

nation having reached a manufacturing supremacy can keep her manufacturers and tradesmen from inaction, recoil and idleness, only by the free importation of food and raw materials, and by the competition of foreign industry" (List, 1856, p. 276). According to List's classification and its evidence, only Great Britain at that time reached the final stage of economic development. While the nations of Europe and America struggled to reach this peak, cheap imports of British goods hampered the development of domestic production. List considered that there can be no equal international competition as long as all nations do not reach the final stage in their development (Ekelund & Hébert, 1997).

According to List, in order to become an equal partner to England and to develop its industry, Germany needs a single customs area and protective duties to foreign countries: "Each country should at once take possession of its own markets for its own industry, at least, as to the objects of general consumption...." (List, 1856, p. 280).

His writings are rich in examples from history and experience that show that economic protection is the only way to strengthen the emerging nation. Dedicating the first part of his book to the overview of the economic development of individual nations (Italy, the Netherlands, England, Spain, Portugal, France, Germany, Russia, the United States), List points out that England also developed its industry due to protective measures of its economic policy, import prohibitions or high customs, that protected the English industry and maritime navigation from foreign competition (List, 1856, p. 110-129).

List criticizes the classical economists and their derivation of the principles they assume are valid for all nations and all time, and in unrecognizing of the diversity of conditions that exist in different countries, and so in Germany of that time (Ekelund & Hébert, 1997).

According to List, the classical school has three essential defects: 1) cosmopolitism, which does not take into account national interests; 2) materialism, which regards only the exchangeable value of things, taking account neither of the moral nor of the political interests of the nation, and 3) unorganized individualism (List, 1856, p. 262).

For List, the economy is subordinated to politics. Thus, it is not enough for a statesman to know that free exchange of goods will increase wealth, as it has been shown by classical economists, but he must know the consequences of such activity for his own country. According to List, the economic liberalism in the international field, advocated by British classics, can be useful only between two nations that are at the same level of industrial development (Šoškić, 1986). List, therefore, claimed that the free trade that expels either domestic industry, or its population is undesirable and says: "…nations have even lost their independence, and their political existence, because their commercial policy had not aided the development and the consolidation of their nationality" (List, 1856, p. 61).

List considered that the theory of free trade had the role of a Trojan horse in economy: "… to create fears lets our nationality be in danger of perishing by an error of theory, like a sick man, who by conforming to a printed prescription died of an error of the prescription: to arouse suspicion that this boasted theory has attained its large growth only for the Trojan-Horse purpose of concealing arms and soldiers, and inducing us to take down, with our own hands, the walls which protect us" (List, 1856, p. 62).

Contrary to the free trade theory, List considered the system of import customs as a tool to help the economic development of the nation regulating its foreign trade, but the nation must constantly follow the principle of industrial education of the country, i.e. of industrial progress (List, 1856). List believed that the American experience of that era confirmed his views on protectionism. American protectionists, especially Alexander Hamilton and Henry Carey, supported him (Ekelund & Hébert, 1997).

List considered the industry to be a social force that creates and improves capital and labor, i.e. gives current production, but also gives momentum and direction to future production. That is why List recommended the introduction of the industry into underdeveloped countries *even at the cost of temporary loss in the present.* According to List, it is important for every nation to develop both agriculture and industry, as well as trade, because the nation that is engaged only in agriculture, in free trade with production and trade nations will lose a significant part of its production power and natural resources, which must remain unused and unemployed. Also, its intellectual and political culture, as well as its means of defense, will thus be limited (List, 1856).

List's originality in economic theory and methods consists of its systemic use of historical comparison as a means of proving the validity of economic assumptions. He expanded the dynamic structure of the classical concept of economic growth, representing economic development as a sequence of historical stages. Thus, List provided a methodological gathering point for the economists of the German Historical School. List is considered to be the predecessor of this school, whose representatives are Wilhelm Roscher, Karl Knies, Bruno Hildebrand, and Gustav Schmoller.

3. KARL GUNNAR MYRDAL (1898-1987)

Swedish economist Karl Gunnar Myrdal, winner of the Nobel Memorial Prize for Economics in 1934 for his early work in monetary theory, made a major contribution in the field of macroeconomic theory, development economics, international economics, economic methodology as well as social and economic policy. Gunnar Myrdal and his wife, Alva Myrdal, who won the Nobel Peace Prize in 1982, played a major role in the creation of the Swedish welfare state model through their research, ideas and political engagement.

Gunnar Myrdal was a critic of the ruling neoclassical economy and the advocate of the so-called institutional approach. In his work entitled "The Political Element in the Development of Economic Theory" of 1930, Myrdal criticized the logical consistency of neoclassical theory, stating that it was based on unsatisfactory assumptions that relate to individual preferences based on utilitarian moral philosophy and rationalistic psychology, which were abandoned at the beginning of the 20th century in other social sciences. Myrdal also criticized the neoclassical theory of equilibrium and, contrary to it, he considered that, in the normal case, there was no such tendency towards automatic self-stabilization in the social system (Panico & Rizza, 2009).

Myrdal also points out to the presence of ideological elements in the formation of economic analysis and in the formulation of theoretical interpretations. For the most significant factor affecting the objectivity of economics as a science, Myrdal considers the forces in society that put pressure on economists to so direct their work that they come to conclusions in line with dominant interests and prejudices (Myrdal, 1973).

Myrdal advocates state intervention, that is, policies that will be able to integrate the interests of different groups and regions, and generate a harmony of individual interests. According to him, the market forces, if left to themselves, would have led to disharmony, and not to the harmony of natural law and economic equilibrium, as neoclassicists considered (Panico & Rizza, 2009).

By giving the institutions a central role in his analysis, Myrdal's approach emphasized the role and significance of non-economic factors in development. He has understood the

interdependence between economic and non-economic factors, and he criticized the neglect of non-economic factors by most economists (Ibid).

Myrdal advocated an attitude of economics as a social theory. According to him, economic theory will have to deal with all the relevant factors if it wants to be realistic. That means that general economic analysis will have to become social theory (Panico & Riza, 2009). In that sense, social and political factors such as national cohesion, religions and ideologies, health and education, economic, social and political leadership can contribute in an important way to the development process and the growth of the economy. What is important is that intense relations and connections are established among the individuals and the institutions to make it possible to identify common problems and formulate strategies for their solution. The economies are seen as 'social organisms' that, through experience, can acquire a greater ability to solve increasingly complex collective problems (Ibid).

Noting the problem of the downward trend in population in Sweden in the 1930s, Gunnar Myrdal and his wife, Alva Myrdal, in 1934 wrote a book titled the "Crisis in the Population Question", in which they discussed declining birth rates in Sweden, the problems it brings, and suggest the possible solutions. The book was very influential in the debate that led to the reform of income redistribution aimed at the welfare of families with children, in the field of housing, nutrition, health and education, in order to stop the decline in the number of inhabitants, which was the main motive for the social democratic reforms in Sweden (Myrdal, 1973).

It has been recognized that the declining trend in population in Sweden will lead to a slowdown in economic development, as it will mean a tendency towards a depressed state of production, employment, and, consequently, consumption. The idea was to design a population policy, where "…a large part of the economic burden of bringing up children must be passed on from the individual family to society as a whole; i.e., the burdens must be borne by the citizens as taxpayers regardless of their having children or not" (Myrdal, 1938, p. 207). Thus, the general method of population policy was the transfer of income from individuals and families without children to families with children. The goal was a considerable relief of the economic burdens of raising children, and thus to reduce the economic motive for childlessness (Myrdal, 1938).

Myrdal considers these measures as "investing" in the human capital of the nation: "…we say that we are just as much and even more interested in the physical, intellectual, and moral quality of the population than in its quantity... a very great increase in the quality of the future generation could be secured if we only could provide families having children with better housing, nutrition, health care, education, and similar aids to sound development" (Myrdal, 1938, p. 208)

In 1935, the government appointed the Royal Commission on the Swedish population problem which elaborated plans for a number of social reforms that were primarily aimed at raising the standard of the care and welfare of children. Myrdal considered these reforms of income redistribution aimed at the well-being of families with children as an investment in economic development, that is, as laying the foundations for a more stable and faster economic growth.

Myrdal advocated the implementation of the welfare state concept, where the state plays a key role in protecting and promoting the economic and social well-being of the population. According to Myrdal in the most advanced welfare states the stress is on the "socialization of consumption", i.e. on interventions in distribution, unlike the old socialist policy for socialization of large-scale industry and finance (Myrdal,1973).

Another issue of Myrdal's divergence with the neoclassical theory is the theory of free international trade. Myrdal believes that the theory of free international trade is inadequate, and that a free international trade can only exist between equal partners. In contrast to the established economic theory, Myrdal is of the opinion that unhampered international trade and capital movements will generally tend to create inequality, and will do so the more strongly when great inequalities are already established, as long as matters are left to the free unfolding of the market forces (Ibid). For Myrdal, the inherited theory of international trade has never succeeded in explaining the reality of underdevelopment and the need for development in poor countries: „While international inequality has been steadily increasing for a century or more, this imposing structure of abstract reasoning was directed rather toward showing that international trade initiates a tendency toward a gradual equalization of factor returns among different countries. This tendency, however, can operate only under assumptions that are grossly unrealistic" (Myrdal 1973, p. 124). Myrdal believes that, in addition to inadequate theory, the commercial policies of developed countries generally discriminate against the export interests of underdeveloped countries in many different ways (Ibid).

The works and ideas of Myrdal, besides their great influence on the Swedish model of welfare state, had a strong influence on other countries, such as South Korea and its president, general Park Chung Hee, under whose leadership in the period 1961-1979 South Korea experienced remarkable development and transformed itself from "a patient of Asia" into a strong economy (Brazinsky, 2005).

4. JOHN MAYNARD KEYNES (1883-1946) AND KEYNESIANISM

John Maynard Keynes, a British economist, politician and mathematician, is one of the most important economists of the 20th century. Keynes' work "The General Theory of Employment, Interest and Money" published in 1936 is considered to be a turning point in the development of the economic thought, which is referred to as a "Keynesian Revolution".

In his famous work, Keynes proves that the free market mechanism does not spontaneously establish an economic equilibrium, and that it does not lead to full employment of the factors of production, but, on the contrary, it leads to disequilibrium that is manifested in high unemployment, in crises and economic cycles. Keynes argues that the cause is the disturbed relationship between savings and investment. According to him, in conditions of an unregulated market, savings tend to grow, and investment tends to fall (Milaković, 2013). Keynes concludes that the problem of insufficient investment can be solved by the state investment. Keynes considered that the state should use its power of progressive taxation and spending, as a direct injection of public investment, in order to influence the business cycle. The state must be ready to ensure the conditions of full employment (Ekelund & Hébert, 1997).

Keynes disputes the ideas of a classical economy that the market mechanism ensures full employment of production factors, and advocates state intervention. He himself says that his "General Theory" is a transition away from English classical tradition (Keynes, 1936, p. 6).

According to Keynes, the classical economy is an idealized model (Ekelund and Hébert, 1997). He believes that classical economists neglected what was valuable in their predecessors, i.e. mercantilists, who reached the fragments of practical wisdom, which "the unrealistic abstractions of Ricardo first forgot and then obliterated. There was wisdom in their intense preoccupation with keeping down the rate of interest by means of

usury laws…, by maintaining the domestic stock of money and by discouraging rises in the wage-unit; and in their readiness in the last resort to restore the stock of money by devaluation, if it had become plainly deficient through an unavoidable foreign drain, a rise in the wage-unit, or any other cause" (Keynes, 1936, p. 211-212).

Keynes, therefore, finds his role models in mercantilists. He states that in the first quarter of the 20th century there was no economist who would argue that the protection of domestic markets might increase domestic employment. Keynes quotes his own words from 1923 when, as a faithful pupil of the classical school, he had no doubt what he was taught: "If there is one thing that Protection can *not* do, it is to cure Unemployment… the claim to cure Unemployment involves the Protectionist fallacy in its grossest and crudest form" (Keynes, 1923 cited in Keynes, 1936, p. 208). He states that the students of that time were brought up to believe that the mercantilist theory was little better than nonsense, and that the domination of the classical school was absolutely overwhelming and complete (Keynes, 1936).

Keynes, therefore, considers the theoretical foundations of free trade as inadequate: "Thus, the weight of my criticism is directed against the inadequacy of the theoretical foundations of the laissez-faire doctrine upon which I was brought up and which for many years I taught;—against the notion that the rate of interest and the volume of investment are self-adjusting at the optimum level, so that preoccupation with the balance of trade is a waste of time. For we, the faculty of economists, prove to have been guilty of presumptuous error in treating as a puerile obsession what for centuries has been a prime object of practical statecraft" (Keynes, 1936, p. 211). Keynes is of the opinion that the interest rate and volume of investments are not self-adjusting at the optimum level. On the contrary, he considers state interventions as necessary, in the form of the autonomous interest rate policy and the national investment program that are directed to an optimum level of domestic employment. It was just the implementation of these policies in Western economies after the Second World War, in the 1950s and 1960s, which have led to significant economic growth in this period, also called the "golden age of capitalism".

Keynes considered that the central controls necessary to ensure full employment should involve a large extension of the traditional functions of government (Keynes, 1936).

Keynes and Keynesianism performed a real revolution, both in economic theory and in economic policy. For the 25 years after World War II (1945-1970), Keynesianism constituted the dominant paradigm for understanding the economy. This was the era in which modern tools of monetary policy (control of interest rates) and fiscal policy (control of government spending and taxes) were developed. It was also a period of strong unions and the development of institutions of social protection (Palley, 2004).

During the 1970s, the influence of Keynesianism as the ruling economic theory and policy began to decline, and the so-called "neoliberalism" emerged. The decline of Keynesianism is explained in different ways. It is believed that one of the causes was the problem with the inflation in the USA, linked to the Vietnam War (ended in 1975), which the United States financed mainly through deficit, which led to high rates of increase in quantity of money (Ekelund & Hébert, 1997). Also, it is considered that the oil crisis of the 1970s and a large increase in oil prices have caused stagflation, i.e. the simultaneous occurrence of inflation and stagnation in the United States and other developed economies and there appears a suspicion in the effectiveness of Keynesianism, which was rapidly abandoned in the practice of some of the most developed Western countries (Reaganomics in the US and Thatcherism in the United Kingdom) (Milaković, 2013). The abandonment of

Keynesianism is also explained by the ideological reasons, by the emergence of the Cold War and by the liberal theories as the Cold War weapons: “The Cold War, therefore, provided fertile ground for popularizing an economic rhetoric that spoke of “natural” free markets independent of governments and in which government regulation reduces well-being” (Palley, 2004, p. 3). According to Milaković (2013, p. 9): "Since then, the factors of the crisis that are shaking the world today are beginning to accumulate. All that time, the economic theory was dominated by ideology over science".

The outbreak of the global financial crisis 2007-2008 caused a re-rise of Keynes' thought (Giles at al., 2008).

CONCLUSION

The failure of neo-liberal economic policies in the Balkan transition countries indicates to the need for searching for different, successful development policies and models. The aim of this paper was to explore the economic thought of three great economists, who played an important role in economic theory and practice: Friedrich List, Karl Gunnar Myrdal and John Maynard Keynes, and try to find the ideas and policies that could be applicable in transition economies.

All three of these influential economists were critics of the classical and neo-classical economics. They considered as unsatisfactory the assumptions on which they relied, and thus, also, the derived theory from those assumptions.

List, Myrdal and Keynes look on the economy from the point of view of the nation and of the national development and they consider the role of the state in the economy as very important, contrary to cosmopolitism and minimization of the role of the state of classical and neo-classical school.

Keynes and Myrdal criticize the theory of equilibrium, and believe that the free market mechanism does not spontaneously establish economic equilibrium, but instead it leads to imbalances in the economy and the whole society. They advocate the state interventionism, i.e. the central controls that will, unlike individual interests, have for its goal the interest of the society as a system, and to correct imbalances by conscious interventions.

Contrary to belief that free trade is the key to global prosperity, which is considered central in the neo-liberal discourse of globalization (Chang, 2003), List, Myrdal and Keynes consider the theoretical basis of the free trade doctrine on the international level as inadequate. According to List and Myrdal, economic liberalism at international level can only be beneficial between the economies of the equal level of development. According to List, the free trade between unequal economies squeezes out domestic industry and domestic population of less developed partner (Ekelund & Hébert, 1997). Myrdal also considers that free international trade and capital movements tend to create inequalities and if there are already inequalities in the development of countries, free trade will make these inequalities even greater (Myrdal, 1973). Also, contrary to the classical economy, Keynes considers that the interest rate and the volume of investments are not self-adjusting at the optimal level, so that the intervention in the form of the interest rate policy and the policy of a national investment program aimed at the optimal level of domestic employment is necessary. He also points to the importance of a positive trade balance (Keynes, 1936, p. 211, 217). List and Keynes emphasize the importance of

economic protection, i.e. foreign trade policy aimed at protecting domestic production, hence domestic employment.

The research showed that, contrary to neo-liberal economic policy, List, Myrdal and Keynes considered the role of the state in economic development as very important. List puts emphasis on economic protection, i.e. the united national customs area and protective customs barriers, with the goal to develop domestic production. Facing the population problem in Sweden of that time, and having in mind the importance of human factor for functioning and development of economy and society, Myrdal puts emphasis on the state policies of redistributing income in favor of families with children, in order to create human potential and to improve health and education of the population, as an investment in human capital of the nation, as laying the foundations for a more stable and faster economic growth. Facing the problem of large unemployment in the 1930s, Keynes puts the emphasis on state policies that will increase domestic investment and, consequently, domestic employment.

Today Balkan transition economies face similar problems of weak and insufficient domestic production, enormous unemployment (of all available resources: human resources, land and capital) and dramatic depopulation.

The research confirmed the hypothesis that the economic thought and ideas of List, Myrdal and Keynes can offer solutions to some of the current problems of Balkan transition countries. Some of their ideas and policies that could be applicable in transition economies include: Myrdal's active state population policy of redistributing income in favor of families with children, in order to stop and reverse dramatic depopulation, Keynes' government intervention in the form of the interest rate policy and the policy of a national investment program aimed at the optimal level of domestic employment, as well as List's and Keynes' foreign trade policies of temporary economic protection of strategic economic sectors in order to increase weak and insufficient domestic production and domestic employment.

Successful implementation of List's, Myrdal's and Keynes' economic thought and ideas in the past, having for their result a positive impact on lives of millions of people, refers us to the need of deeper research of their works and ideas.

REFERENCES

Agency for Statistics of Bosnia and Herzegovina (2017), *BiH Gross domestic product 2005-2015 (ESA 2010)*, Sarajevo

Brazinsky, G. (2005). From Pupil to Model: South Korea and American Development Policy during the Early Park Chung Hee Era. *Diplomatic History*, 29 (1), 83-115.

Centralna banka Bosne i Hercegovine (2016). *Godišnji izvještaj za 2015. godinu[BiH Central Bank Annual Report for 2015]*, Sarajevo

Chang, H. J. (2003). *Kicking Away the Ladder: The "Real" History of Free Trade.* Foreign Policy in Focus, Silver City, NM, Interhemispheric Resource Center. Retrieved from: http://www.fpif.org/papers/03trade/index.html

Ekelund, B. R., & Hébert, F. R. (1997). *Povijest ekonomske teorije i metode [History of economic theory and method]*, Mate, Zagreb

Giles, C., Atkins, R., & Guha., K. (2008). The undeniable shift to Keynes. *Financial Times*. 29 December 2008, http://www.ft.com/cms/s/0/8a3d8122-d5da-11dd-a9cc-000077b07658.html#axzz3qcFtntHT

Keynes, J.M. (1936). *The General Theory of Employment, Interest, and Money*. Retrieved from: http://etext.library.adelaide.edu.au/k/k44g/k44g.htmlhttp://etext.library.adelaide.edu.au/k/k44g/k44g.html

List, F. (1856). *National System of Political Economy*, Philadelphia, J.B. Lippincott & Co. Retrieved from: https://ia800303.us.archive.org/34/items/nationalsystemof00list/nationalsystemof00list.pdf

Milaković, N. (2013). Finansijsko-ekonomska kriza zahtijeva temeljno preispitivanje ekonomije i kao nauke i kao prakse [Financial-economic crises requires questioning the economics as a science as well as a practice]. *Financing*, 01/2013.

Ministarstvo finansija i trezora BiH (2016). *Informacija o stanju javne zaduženosti BiH na dan 30.06.2016. godine [Information on BiH public debt on June 30, 2016]*, Sarajevo

Mitrović, P. & Bošković, G. (2017). Economic Crisis and Current Problems of Serbian Family. *Facta Universitatis. Series: Economics and Organization*, 14 (1), 57 – 69.

Myrdal, G. (1938). Population Problems and Policies**.** *The Annals of the American Academy of Political and Social Science*, pp 200-215.

Myrdal, G. (1973). *Against the Stream - Critical Essays on Economics*, Palgrave Macmillan

Palley, T. (2004). *From Keynesianism to Neoliberalism: Shifting Paradigms in Economics*. Retrieved from: http://www.thomaspalley.com/docs/articles/selected/Neo-liberalism%20-%20chapter.pdf

Panico, C. & Rizza, M. O. (2009). Myrdal, growth processes and equilibrium theories. In *Geography, structural change and economic development: theory and empirics.* Cheltenham, Elgar, 183-202.

Republički zavod za statistiku Republike Srpske (2016). *Statistički godišnjak Republike Srpske 2016 [Statistical Yearbook of the Republic of Srpska 2016], Banja Luka*

Šoškić, B. (1986). *Razvoj i osnove savremene ekonomske misli [Development of contemporary economic thought]*, Savremena administracija i Institut za ekonomska istraživanja, Beograd

Zupčević, M., & Čaušević, F. (2009). *Case Study: Bosnia and Herzegovina*, Centre for Developing Area Studies – McGill University and the World Bank, Sarajevo

EKONOMSKA MISAO FRIDRIHA LISTA, GUNARA MIRDALA I DŽONA MEJNARDA KEJNZA I NJENA PRIMJENLJIVOST NA ZEMLJE U TRANZICIJI

Neoliberalne politike privatizacije, liberalizacije trgovine i tržišta kapitala, deregulacije i minimalizovanja uloge države dovele su u zemljama u tranziciji do deindustrijalizacije, opadanja ili stagnacije BDP-a i visoke nezaposlenosti, koji za posljedicu imaju dramatičnu depopulaciju, što navodi na potrebu traganja za drugačijim, uspješnim razvojnim politikama u prošlosti. Cilj rada je istražiti ekonomsku misao tri velikana ekonomske misli, kritičara klasične i neoklasične škole, koji su imali veliku ulogu u ekonomskoj teoriji i praksi: njemačkog ekonomiste i političara Fridriha Lista, začetnika Njemačke istorijske škole u ekonomiji, koji se smatra glavnim ideologom kapitalističkog razvitka Njemačke; švedskog nobelovca Gunara Mirdala, koji je imao značajnu ulogu u stvaranju švedskog modela države blagostanja, i poznatog britanskog ekonomiste Džona Mejnarda Kejnza, koji je svojim idejama i političkim angažmanom umnogome uticao na prosperitet zapadnih ekonomija u decenijama nakon Drugog svjetskog rata. Rezultati istraživanja su pokazali da današnji problemi tranzicionih ekonomija mogu naći mnoga rješenja u idejama Lista, Mirdala i Kejnza.

Ključne reči: *ekonomski razvoj, ekonomske politike, tranzicione ekonomije, Fridrih List, Gunar Mirdal, Džon Mejnard Kejnz*

FACTA UNIVERSITATIS
Series: **Economics and Organization** Vol. 16, N° 1, 2019, pp. 89 - 101
https://doi.org/10.22190/FUEO1901089J

Review Paper

THE ROLE OF AUDIT AND CREDIT RATING AGENCIES IN THE ASSESSMENT OF COMPANY CREDITWORTHINESS WITH SPECIAL FOCUS ON BANKS

UDC 657.6:347.734

Mirjana Jemović, Milica Đorđević, Jelena Radojičić

Unversity of Niš, Faculty of Economics, Niš, Serbia

Abstract. *Audit and credit rating agencies have a significant responsibility in assessing company creditworthiness and giving opinions on the client's ability to continue business in the future, most often the next fiscal year. Responsibility is even greater when it comes to banks and their creditworthiness. The financial crisis of 2007 and the bankruptcy of a number of banks and other financial institutions imposed a need to seek accountability for the "delayed" reaction of regulatory bodies and significant fiscal consequences of the crisis. The aim of the paper is to evaluate the efficiency of credit rating agencies and external audit in assessing the creditworthiness of companies and banks, not for the purpose of finding their individual responsibilities, but to look at possible coordinated and joint actions to prevent future crisis events.*

Key words: *credit rating agencies, external audit, creditworthiness, financial crisis*

JEL Classification: G21, G24, G28, M42, M48

INTRODUCTION

Investors make investment decisions based on information they have about company creditworthiness. For these reasons, companies listed on the stock market are obliged to report on their operations by publishing their financial statements. In order to reduce information asymmetry between issuers of securities and investors, numerous bodies and agencies assess company creditworthiness. A special emphasis in this paper is given to the role and importance of external audit and credit rating agencies in assessing possible company bankruptcy. The auditor's task is, among other things, to assess whether there is a realistic prospect that the company will continue its business in the following period, at least in the

Received September 10, 2018 / Revised January 16, 2019 / Accepted January 28, 2019
Corresponding author: Mirjana Jemović
Faculty of Economics Niš, Trg kralja Aleksandra 11, 18000 Niš, Serbia
E-mail: mirjana.jemovic@eknfak.ni.ac.rs

next fiscal year, and present the so-called *going concern opinion (GCO)*. At the same time, credit rating agencies give opinions on the company ability to settle its liabilities to creditors in a timely and complete manner. The financial crisis of 2008 raised the issue of the responsibility of auditors and credit rating agencies for initiating and spreading the crisis by giving optimistic estimates of company creditworthiness immediately before their bankruptcy. In this regard, the paper aims to assess the role of audit and credit rating agencies in assessing company creditworthiness, with special focus on banks. The structure of the paper, in addition to introduction and conclusion, consists of four parts. The first part presents alternative approaches to the assessment of company and bank creditworthiness. The second and third sections consider the role of audit and credit rating agencies in anticipating bankruptcy of companies and banks, while the final part of the paper analyzes the impact of the global financial crisis on the redefining role of credit rating agencies and audit in assessing the company creditworthiness, with the aim of their cooperation, rather than isolated activities in the future.

1. Approaches to the Assessment of Company and Bank Creditworthiness

Assessing creditworthiness of companies in general, and banks in particular, is a very sensitive task. Basically, it implies assessing the ability of a particular entity to continuously perform the activities for which it was founded. As such, it involves an analysis of various aspects of company operations, taking into account its liquidity, efficiency, and solvency. Among them, the most important aspect of the analysis when deciding on the continuity of business activities is the assessment of company solvency.

Solvency is especially important with banks, given that these are institutions that finance most of their activities (80%-90%) using other people's resources. In addition to being a condition for bank establishment, solvency also represents the criterion for intervention in the banking sector. As this involves bank restructuring measures or its exit from the market through bankruptcy/liquidation procedure, the following question arises: What are the threshold conditions, as the basis for intervention of the relevant regulatory body?

Solvency can be determined in different ways. Thus, we distinguish "liquidity test", based on the cash flow test, according to which the company is insolvent in a situation when it is unable to settle its due liabilities (equity insolvency), and balance sheet insolvency, according to which the company is insolvent when its liabilities exceed assets, i.e. in case of negative net value. The first test rather corresponds to what is commonly called "illiquidity" and it is not relevant to banks since they can quickly overcome the short-term deficit of funds, while the second test entails a delayed reaction by the regulatory authority and implies the initiation of a bankruptcy or liquidation procedure. As the supervisory authorities are in charge of controlling and monitoring bank operations, it is their duty, in a situation when they see the tendency of bank capital reduction, on the one hand, and the deterioration of the quality of assets, on the other hand, to propose appropriate bank restructuring measures. Therefore, the bank is insolvent when the supervisor says it is insolvent (Hupkes, 2005). Here we are talking about the so-called regulatory insolvency, which allows the intervention of the regulatory authority much before the net value of the bank's assets reaches a negative value (Čihak & Nier, 2012).

Previous arguments indicate that the supervisor is responsible for identifying the optimal moment for bank intervention. The question is what is the point, i.e. threshold to

be crossed, which requires the restructuring of the institution? This threshold should be set so that the position of the institution is significantly compromised, but that it is still solvent, i.e. that it has a positive net value. This is extremely important given that postponing bank restructuring may result in narrowing the choice of effective options for restructuring the institution, which ultimately increases the costs of this process.

Depending on how the intervention "threshold" is defined, we distinguish a hard and soft approach, the first being based on a predefined rule for intervention, and the second implying a greater degree of discretion. The first approach generally involves quantitative determination of the intervention threshold. Thus, the US Federal Deposit Insurance Corporation (FDIC) defines intervention threshold by determining the lower limit of capital adequacy ratio of 2%. The second approach, however, implies a qualitative determination of the intervention threshold (e.g. violation of laws, failure to comply with prudential or regulatory thresholds, supervisory orders, etc.), and is based on the regulatory authority's assessment of the bank's ability to further perform the activities for which it was licensed (Čihak & Nier, 2012). Such an approach is applied in the UK.

When choosing an appropriate approach, it should be kept in mind that a rule-based approach reduces the possibility of regulatory hesitation and increases transparency, while discretionary approach provides an opportunity to see banking failures from a broader perspective and provides a more complete assessment of the institution's situation. Discretion is particularly suitable for quick action in a situation where the financial institution's state of affairs is rapidly deteriorating, for example, for losing access to key market segments of the source of funds, which in quantitative thresholds may not be adequately valued. For these reasons, these approaches are often combined.

Bank closure, although sometimes the only solution, leaves many negative consequences. Specifically, the reduced supply of banking services within a national economy ultimately has a negative impact on the overall economic development of the country. For these reasons, the competent regulatory authority should at any time assess whether a better solution is the restructuring of a financial institution in order to keep it going (going concern), or its closure through liquidation/bankruptcy (gone concern). In giving such assessments, external audit and credit rating agencies play an important role, which will be discussed below.

2. The Role of Audit in Predicting Company Bankruptcy

Financial statements that show the financial and income position of the company are at the same time one of the ways of expressing the management responsibility (Farhana, et al., 2017, p.33). With this in mind, the use of creative accounting techniques to project a good company image, all with the aim of attracting new investment, is not a novelty in accounting practice. Therefore, audit of financial statements, aimed at assessing whether financial statements are, in all essential matters, drawn up in accordance with the identified financial reporting framework, is of particular importance, as it affects the decision on whether to rely on them in the analysis. By reducing the information asymmetry between agents that supply and demand for capital, audit improves investors' awareness about the risk of investing in a specific company (Kondić & Poljašljević, 2015), and it is not uncommon to hear that auditors stand for significant truth creators whose objective communication of the company situation enables the making of rational investment decisions (Sikka, 2009).

Certainly, audit contribution to the successful capital market is conditioned by the adequacy of the audit process itself (George-Silviu, Melinda-Timea, 2015). In addition to a detailed and independent review of financial statements, one of the most relevant judgments of auditors that can influence the capital market (Blay, et al., 2011) is auditor's assessment and expression of an opinion on the client's ability to continue their business in the foreseeable future (in practice defined as the next fiscal year). First, auditors need to evaluate whether managers prepared financial statements based on the principle which all accounting standards rely on – the principle of *business continuity*, and then to obtain audit evidence in order to conclude that there are material uncertainties about the entity's capability to continue business on a principle of continuity. The auditor's opinion in which the client's business continuity is endangered can be considered a very serious warning that the company will experience bankruptcy.

Within the scope of the audit process, assessing the client's business continuity assumption is a very complex, difficult, and two-phase process. First, the auditor needs to identify possible problems related to the client's business continuity (which reflects their competence), and then report on this problem (which is a reflection of their independence). The auditor's ability to identify problems is conditioned by the possession of an adequate experience, a significant focus on the assessment of business continuity, increased public pressure, focus on future events, ownership of resources, etc. Regarding the issue of disclosure of identified problems, the auditor will report if they face a high level of independence, if they want to avoid possible litigation and have an aversion to reputational risk. Bearing in mind these factors, but also the fact that they cannot anticipate future events with certainty, the auditor can make two types of errors:

- Type I error – when the auditor doubts the company business continuity, and the company continues to operate, and
- Type II error – when the auditor issues an unmodified opinion without drawing attention to the matter, and the client goes bankrupt or faces liquidation next year.

The consequences of auditors' errors are significant. In the case of a Type I error, the auditor is at risk of losing further cooperation with the client, while the company may be harmed in terms of declining reputation on the capital market, losing investors, etc. On the other hand, the Type II error consequences are reflected in the loss of auditor reputation and the client's decision to file a lawsuit. Nevertheless, Lai (2009) argues that the consequences of the Type II error are much more serious and far-reaching. This is supported by the fact that auditors issued an unmodified opinion on the financial statements of companies that were at the center of financial scandals[1]. This aroused considerable big suspicion about auditing profession because many thought that the collapse of those companies could have been avoided if auditors had not been wrong and had given warnings about the bad state of the companies that later went bankrupt. In addition to these scandals, auditors were also criticized in 2008 for failing to warn of the upcoming bank collapse that marked the onset of the financial crisis. In this sense, financial scandals and then the crisis suggested the existence of "possible problems in achieving greater independence of auditors and the need to improve audit procedures, especially with regard to auditing the business continuity assumption" (Socol1, 2010, p. 291). Therefore, the International Auditing and Assurance

[1] Examples of large audit failures relate to Enron and World Com. As a result of accounting frauds, these companies were bankrupt, while Arthur Andersen audit firm previously issued a positive opinion on the financial statements.

Standards Board (IAASB) carried out several revisions of the 570 Standard – The Business Continuity Principle (the last revision was carried out in 2015), and issued reports that paid more attention to and gave a new description of the responsibilities of auditors and management in relation to this assumption. In this regard, the company management is obliged to evaluate the company ability to continue its operations based on the business continuity principle (IAS 1), while the auditor should evaluate the management's assessment of the company ability to continue its business. In the course of this evaluation, the auditor should include the same period that the management has observed and consider whether the management's assessment covers all the relevant information that the auditor has come to during the audit. In addition, the auditor's objectives are to (ISA 570, par. 9):

- Obtain sufficient and adequate audit evidence and make conclusion on the appropriateness of applying the accounting principle of business continuity,
- Make conclusion as to the material uncertainty in relation to events or conditions that may cast significant doubt on the ability of the entity to continue its business, and
- Make a report in accordance with the conclusion.

In assessing the company's ability to continue its business, auditors use different techniques. The most common are the so-called accounting-based valuation models that use statistical methods to predict company bankruptcy, mostly relying on data contained in the client's financial statements, i.e. the analysis of traditional financial statements. Thus, during the 1970sand 1980s, Altman's model, the Ohlson model, and the Zmijewski model were developed. Later, information technology enabled the development of advanced techniques such as data mining, intelligent modelling techniques, and neural networks.

Factors that affect the auditor's opinion to draw attention to the threat of business continuity are numerous. Carson et al. (2013) summarize the results of numerous studies, and, apart from auditor characteristics (independence from the client, professional relationship with the client, high judgment ability, etc.), all the factors on the client's side are divided into the following:

- *Business difficulties that are evident from financial statements*: low profitability, high leverage, low liquidity, high level of indebtedness, and drawing attention to business continuity in previous audits,
- *Business difficulties identified on the basis of (1) market variables* (lower industry-adjusted returns and higher return volatility); and (2) *management plans* to issue equity and plans to borrow,
- *Large negative accruals reflecting the weak financial conditions in the company*,
- *High quality of corporate governance*: a higher level of independence of the audit committee and higher expertise in corporate governance also imply greater auditor protection from the cancellation of further engagement after doubts as to business continuity,
- *The carrying amounts of assets in financial statements are high relative to their expected realizable values in the event of bankruptcy*.

Depending on the evaluation of the management's assessment of the company's ability to continue business, as well as the established facts and circumstances in the company, the auditor issues an appropriate opinion (Table 1).

Table 1 The connection between going concern assumption and the auditor's opinion

The management's uses of going concern assumption	Material uncertainty (whether the events or conditions constitute a material uncertainty)	The adequacy of related disclosures in the financial statements	Auditors' opinion
Appropriate	Does not exist	Adequate	Unmodified opinion
Appropriate	Exists	Adequate	Unmodified opinion (but have to include an Emphasis of Matter paragraph in the auditor's report)
Appropriate	Exists	Disclosures are not made	Qualified opinion or Adverse opinion
Inappropriate	Exists	Unimportant	Adverse opinion
Inappropriate	Material uncertainties are significant to the financial statements as a whole	Unimportant	Disclaimer of opinion

Source: Adapted after ISA 570

Investors and other users believe in the credibility of the audit opinion. However, the fact is that giving opinions about business continuity is very challenging for auditors because it involves the prior implementation of very complex activities while preserving independence. In that sense, the research subject by numerous authors is the prediction ability of audit opinions regarding the client's business continuity. Kondić and Poljašević (2015) summarize the results of these studies and conclude that the prediction role of the audit opinion is relatively limited, but still with a significant positive effect on the financial stability of the company and its position on the capital market. More specifically, the inclusion of an Emphasis of Matter paragraph on business continuity provides valuable information to investors on the risks that they may encounter in investing in a particular company. In order to get the audit opinion that is reliable and with greater predictive power, the place and role of credit rating agencies are increasingly analyzed in this process. More specifically, auditors and credit rating agencies focus on the same task, assessing the company's creditworthiness, so it is very important to note possible ways of their cooperation.

3. THE ROLE OF CREDIT RATING AGENCIES IN THE ASSESSMENT OF COMPANY AND BANK CREDITWORTHINESS

The main role of credit rating agencies is to give an opinion on the ability of a specific entity (company, state, local self-government) to timely and fully settle its obligations towards creditors. In a word, the rating agency's task is to give an opinion on the legal entity's overall credit risk (issuer credit rating), assessing the ability and willingness of a particular public or private entity to settle its obligations, or regarding a financial instrument (issue credit rating), assessing the credit risk of a particular security. In the second case, the rating agency first assigns a rating to a company that issues securities, and then rates a particular security. Here, the sovereign credit rating is especially

important, bearing in mind that government securities are a benchmark in determining the return on securities of other entities. The assigned credit rating can be changed over time, in case certain factors from internal and external environment in which the borrower operates are not looked at during the initial credit rating analysis, and may affect its ability to settle its obligations.

The basis for the existence of these institutions lies in the information asymmetry that exists between issuers of securities, on the one hand, and investors, on the other. This problem was initially not so apparent as there were state and local government bonds on the market. However, the offer of an increasing number and types of securities, primarily private ones, imposed the need for investors to base their decisions on agencies' ratings. This information has become an indispensable element in making investment decisions, primarily of smaller investors who were not able to come to information about the company creditworthiness in some other way.

Credit rating agencies are relatively young institutions that first appeared on the US market at the beginning of the 20th century, when there was an increased need to finance the railway construction. In the short term, by the end of the 20th century, rating agencies experienced explosive growth, given the growing number of ratings assigned. Among them, three credit rating agencies took the highest market share (as much as 95%), S & P, Moody's, and Fitch, respectively. In addition, the US Securities and Exchange Commission (SEC) began the practice of Nationally Recognized Statistical Rating Organizations (NRSROs), which further concentrated the rating agency market.

The widespread use of agency ratings also came out of simplicity of interpreting the ratings, where one symbol sublimates the total entity or security credit risk (Kožul, 2012). The first four letters of the alphabet (A-D) are used to denote the credit rating of a particular security, where the classification is done according to the degree of risk in two grades: investment and speculative (Table 2). Within the defined grades, ratings are hierarchically set, from the highest to the lowest.

Table 2 S & P, Fitch and Moody's ratings

Rating	S&P/Fitch	Moody's
Investment grade	AAA	Aaa
	AA	Aa
	A	A
	BBB	Baa
Speculative grade	BB	Ba
	B	B
	CCC	Caa
	CC	Ca
	C	C
	D	

Source: Standard&Poor's, 2018 (www.spratings.com); Moody's, 2018 (https://www.moodys.com/Pages/amr002002.aspx); Fitch, 2018 (https://www.fitchratings.com/site/definitions)

Regulatory authorities at the international and national level strengthened the position of credit rating agencies, by adopting regulations that limit the investment activity of certain financial institutions exclusively to securities with high credit ratings. For

example, contractual savings institutions (insurance companies and pension funds) have a strictly defined investment policy characterized by elements of prudence and security of investment, which means investing in securities with small but secure return, i.e. in securities with high credit rating (Jovanović, 2013, p. 255). Similar rules are embedded in banking laws, in the sense that banks can invest exclusively in securities with investment rating. Ratings have significant implications on the stock market, in the sense that stock prices rise in conditions of credit rating growth, and vice versa in the event of a downturn. The significance of credit rating agencies and their ratings was especially evident with the securitization of mortgage loans and the emergence of derivative securities.

In recent years, ratings have also been used as an instrument for the supervision and regulation of entities and institutions operating on the financial market (Pavković & Vedriš, 2011). The rating agencies themselves are, on the other hand, poorly regulated. In order to facilitate issuers' access to the capital market and allow for more favorable indebtedness, rating agencies made "settlements" with issuers, which resulted in higher rating of their securities. As compensation, credit rating agency received a fee from the issuer higher than that paid by investors (Issuer Pays vs. Subscriber Pays). This type of compensation was especially apparent with the appearance of structural products, i.e. securities issued in the process of securitization of mortgage loans. The situation in which the rated firms actually pay for rating raised suspicion as to the independence of rating agencies and the objectivity of the ratings given. In addition, market globalization brought higher ratings to global companies compared to the sovereign, which put pressure on the rating agency to give sovereigns a more favorable rating (Kožul, 2012). Providing advisory services by rating agencies is another reason for questioning the independence of rating agencies.

A system in which investors as primary rating users are in a more unfavorable situation than issuers, and where issuers actually "order and buy" ratings, has created the basis for numerous abuses by credit rating agencies. The first case of such abuse was recorded with ENRON, which was assigned investment rating immediately before its bankruptcy. A similar situation took place during the financial crisis of 2008, in the case of Lehman Brothers. Specifically, the rating agency assigned this institution an investment rating, and as an argument for such a rating stated the open willingness of the FED to provide liquidity support to this institution. Although the investment bank does not have the exclusive right to use a discount counter or any other financial safety net, such an intervention is often considered justifiable in the case of too big or too systemic to fail institution. In addition, errors were made in the rating of structural products (derivative mortgage securities) of this investment bank. The existence of insurance and external and internal guarantees, in particular the presence of numerous participants in the process of securitization of mortgage loans, concealed the risk that investors may be exposed to by purchasing such securities. Bankruptcy of this investment bank only a few months after the favourable rating has given opened polemics about the accuracy and reliability of ratings. Investors that invested considerable amounts into securitized securities of this investment bank found themselves in the position of impossibility to sell these securities. Bearing in mind that audit companies made a mistake in giving GCO to ENRON, a question arose as to who was responsible for not seeing bankruptcy on time in the latest financial crisis: credit rating agencies or audit firms.

4. Global Financial Crisis and Reviewing the Role of Credit Rating Agencies and Audit in the Assessment of Company Creditworthiness

The relationship between credit rating agencies and audit was particularly pronounced with the recent financial crisis, which led to the constant search for a "culprit" for the untimely signalling of the bankruptcy of a number of companies in the financial sector. Bearing in mind that credit rating agencies and auditors, based on the information they possess, try to assess the company's ability to continue operations, their approaches are quite different.

Credit rating agencies focus primarily on credit risk, while auditors focus on assessing the reliability and accuracy of financial statements as a whole. In addition, all companies listed on the stock market are by law subject to audit, while such an obligation does not exist in the case of credit rating agencies. Nevertheless, investors appreciate agency ratings much more than a set of accounting variables (Cha, et al., 2016). Bearing in mind that credit rating agencies do not aim to evaluate the viability of a particular investment, but the ability of a particular entity to settle the debt, such an assessment could be a significant input to the auditor in giving the GCO. On the other hand, prior to assessing the company creditworthiness, rating agencies most often state as a condition that the company has been subject to audit in the previous three years. This is because financial statements are more and more difficult to understand and often contain incorrect and unreliable data (Mrvić, et al., 2016).

Despite numerous criticism of credit rating agencies, they were not subject to special regulations until the recent financial crisis. The pressure of investment public on the SEC in 2003 and 2006 resulted in only a slight increase in the number of NRSROs[2]. The more conservative auditor approach in relation to credit rating agencies, as well as the huge dissatisfaction of investment public with the work of these agencies, led in 2010 to the new law that puts special emphasis on the protection of users of financial services, which, in the domain of rating agencies, means protection of investors. The emphasis is not only on the establishment of an adequate supervision and regulation system of rating agencies, but also mechanisms of their self-regulation, greater transparency of the rating process, and the methodologies they use in assessing the creditworthiness of securities and issuers (Pavković & Vedriš, 2011). A special body for the regulation and supervision of credit rating agencies (European Securities and Markets Authority) has even been established in Europe.

In spite of numerous efforts to increase transparency and better regulate the work of rating agencies, the ratings they give should be taken only as a reference point, rather than as a direction for a future investment decision. In the context of improving the efficiency of credit rating agencies and auditors in assessing the company creditworthiness, there are more and more proposals towards the development of cooperation between rating agencies and auditors. Integration of ratings into the audit review system would give an objective assessment of company creditworthiness, especially those that are approaching bankruptcy.

Credit rating agencies and auditors provide important information to investors and potentially function as substitutes (Lammers, 2013). However, in addition to high informative potential, they are also characterized by imprecision in predicting future. For example, inadequate credit ratings played a significant role in the development of the global financial crisis (Mulligan, 2009; Ozerturk, 2014). While the assumption about the safety of

[2] Since 2008, there are 10 NRSROs.

banks was based on public sector guarantees, assumption about the safety of unregulated financial institutions relied on guarantees provided by the private sector in the form of a credit rating (Adrian & Ashcraft, 2012). The obligations of these institutions were secured with high liquid assets with an AAA rating. The task of rating agencies was to guarantee objective credit rating of banks and financial instruments, but they were in conflict of interest because issuers paid for credit ratings (De Grauwe, 2009). Rating agencies increased profits on the basis of the growth of the securities market in the process of securitization of sub-prime mortgage loans. At the same time, they encouraged the growth of this market by giving high ratings to these instruments, for which investors perceived them as low-risk investment (Adrian & Ashcraft, 2012). The agencies based their ratings on the assumption that securities generated in the process of securitization were low-risk due to diversification achieved by grouping loans from different regions, protection coming from subordinate tranches, and credit enhancements by additional guarantees of their recovery (Wilmarth, 2009). Resecuritization led to the emergence of an additional market for securities from securitization, thus increasing the complexity of financial instruments. This process was followed by credit rating inflation (Blundell-Wignall, et al., 2012). For example, investors rated mezzanine tranches of financial instruments created on the basis of subprime mortgages as too risky in relation to the yield they brought, and resecuritization transformed them into instruments that received the AAA rating (Wilmarth, 2009). The advent of the financial crisis created a problem of non-performance of securities with high credit rating created in the process of securitization of bad mortgage loans.

Another criticism related to credit rating agencies refers to their sensitivity with credit rating revision. The timeliness of credit rating change and credit rating stability are two opposing goals, the balance of which is a challenge for rating agencies. Changes in the credit rating may indicate a possible company bankruptcy in the future, but agencies are sometimes characterized by a delay in understanding the right situation in terms of changing the creditworthiness of companies. The reasons behind the lag in adjusting the rating to change in the company's financial position may be different: the rating agencies' inability to get timely information, inadequate methodology, periodicity of rating change, etc. Rating agencies can also conduct a policy of issuing stable ratings to focus on the long-term perspective of companies' creditworthiness rather than on temporary and transient changes in credit risk (Altman & Rijken, 2004). One of the reasons for the delay in rating revision is the rating agencies' efforts to meet clients' expectations regarding rating stability, as rating changes require frequent and costly adjustments in their portfolios (Loffler, 2005). This would require investors to trade in securities often, which would expose them to higher transaction costs. On the other hand, in times of crisis, the timely credit rating adjustment to changes in companies' credit risk is gaining importance for investors.

The problem of delays in the credit rating revision was confirmed during the global financial crisis. The rating agencies assigned high credit ratings to AIG and Lehman Brothers just before their collapse.

Despite the criticism of rating agencies, the problems that put them at the heart of the global financial crisis, such as investor over-reliance on credit ratings, insufficient supervision, lack of accountability and inadequate methodology used by rating agencies, continue to be present in the post-crisis period (Partnoy, 2017).

The global financial crisis has led to the review of audit practice so that criticism did not go past auditors. Some criticism relates to the impossibility of signaling financial

risks and the lack of GCO disclosure in the case of banks (Harris, 2011). Also, the financial crisis has shown that some banks were in trouble and had to be saved or went bankrupt in the short term after receiving an unqualified audit report. This was the case, for example, with Lehman Brothers (date of audit report 28th January 2008), Bear Stearns (date of audit report 28th January 2008), Barclays (date of audit report 7th March 2008), Royal Bank of Scotland (27th February 2008), UBS (date of audit report 6th March 2008), and others (Sikka, 2009). This raises the question of the role, objectivity, and independence of the auditor's opinion for the financial institutions sector.

From the point of view of information about the anticipation of company bankruptcy, one can also observe the relationship between the auditor's opinion and credit rating. Comparing credit ratings and auditor's opinions available before company bankruptcy gives the opportunity to investigate who has greater success in predicting and signaling bankruptcy. There is a small number of studies in literature dealing with this issue.

Empirical research carried out by Cha, Hwang and Yeo (2016) in 100 Korean companies in the period from 2007 to 2014 shows that the audit system is more conservative, and, therefore, more successful in signaling bankruptcy, while rating agencies are characterized by excessive optimism due to less responsibility to issue corporate ratings. Since1990s , auditors have been facing tightening regulations and greater responsibility when doing business. The possibility of initiating a lawsuit against the auditor for damages in providing audit services to third parties such as investors brought high lawsuit costs to largest audit firms (about 15% of revenue) in 2007 (Center for Audit Quality, 2008). Efforts to improve the quality of audit were particularly intensified after the accounting scandal with Enron and subprime mortgage crisis. Feldmann and Read (2013) find that the GCO disclosure is related to the company's credit rating, and that, after the GCO disclosure, credit rating falls. This indicates a higher informative value of the auditor's opinion than the rating agency.

Notwithstanding the criticisms made to auditors and rating agencies, credit ratings as well as auditor's opinions play an important role in preserving the efficiency of capital markets (Dodd-Frank Act, 2010, Section 931, par. 1). Credit ratings, as the assessment of companies' creditworthiness, affect their costs and their financial structure (Baber, 2014). Auditors do not give opinion on credit ratings, but report on the company ability to continue to operate, which may have a negative impact on stock returns (Kausar, et al., 2009). That is why, during the post-crisis period, proposals appeared to decrease the difference between credit rating agencies and auditors in such a way that rating agencies include the auditor's opinion in the credit rating revision, while the auditor's opinion would include a credit rating. Hu (2011) even explores the potential benefits of the convergence of rating agencies and auditors and the merging of their functions into one activity or a strategic alliance (GC rating or audit rating).

CONCLUSION

The assessment of company creditworthiness in general, and banks in particular, is a very complex task and requires an analysis of different business aspects. What are the real prospects for the company to continue its business, most often in the next fiscal year, is the subject of evaluation by numerous agencies, institutions, and bodies. The paper analyzes in particular the role of external audit and rating agencies in making such an assessment.

The task of an auditor is to give an opinion on the client's business continuity based on the evaluation of the management's assessment of the company's ability to continue its operations, as well as the established facts and circumstances regarding the company. Credit rating agency, on the other hand, gives an opinion on the credit risk of a legal entity or a financial instrument. The auditors and rating agencies' focus on company creditworthiness makes room for their cooperation, which would give the audit opinion more reliability and greater predictive power, and ratings would be more realistic. Integration of ratings into the audit system would bring an objective assessment of companies' creditworthiness, especially those that are approaching bankruptcy.

The relationship between credit rating agencies and audit was particularly pronounced during the recent financial crisis, during which auditors stepped forward with a more conservative approach than was the case with rating agencies. For these reasons, in the following period, special attention should be paid to the establishment of an adequate system of supervision and regulation of credit rating agencies, as well as the development of their self-regulation mechanisms, greater transparency of the rating process, and the methodology they use when rating securities and issuers. Additionally, in the post-crisis period, there are more and more proposals for convergence of rating agencies and auditors and the merging of their functions into one activity or a strategic alliance.

REFERENCES

Adrian, T. & Ashcraft, A.B. (2012). Shadow Banking Regulation. *Staff Report No. 559*. Federal Reserve Bank of New York.

Altman, E. & Rijken, H. (2004). How Rating Agencies Achieve Rating Stability. *Journal of Banking and Finance*, 28, 2679-2714.

Baber, G. (2014). The role and responsibility of credit rating agencies in promoting soundness and integrity. *Journal of Money Laundering Control*, *17* (1), 34-49.

Blay, A.D., Geiger, M.A. & North, D.S. (2011). The Auditor's Going-Concern Opinion as a Communication of Risk. *Auditing: A Journal of Practice & Theory*: May 2011, 30 (2), 77-102.

Blundell-Wignall, A., Atkinson, P. E. & Roulet, C. (2012). The Business Models of Large Interconnected Banks and the Lessons of the Financial Crisis. *National Institute Economic Review*, 221, 31-43.

Carson, E., Fargher, N.E., Geiger, M.A., Lennox, C.S., Raghunandan, K. & Willekens, M. (2013). Audit Reporting for Going-Concern Uncertainty: A Research Synthesis. *Auditing: A Journal of Practice & Theory*, 32 (1), 353-384.

Center for Audit Quality (2008). Report of the major public company audit firms to the department of the Treasury Advisory Committee on the auditing profession, Washington, DC.

Cha, M., Hwang, K., & Yeo, Y. (2016). Relationship between Audit Opinion and Credit Rating: Evidence from Korea. *The Journal of Applied Business Research*, 32 (2), 621-634.

Čihak, M., & Nier, E. (2012). The need for special resolution regimes for financial institutions - The case of the European Union. *Harvard Business Law Review*, 2, 396-434.

De Grauwe, P. (2009). Lessons from the banking crisis, a return to narrow banking. *CESifo DICE Report*, 7 (2), 19-23.

Dodd-Frank Wall Street Reform and Consumer Protection Act, Public Law Number 111-203 (2010). Government Printing Office, Washington, DC*3, H.R. 4173.*

Farhana, I., Rahmawaty & Basri, H. (2017). The Determinants of Going Concern Audit Opinion (An Empirical Study on Non-Bank Financial Institutions Listed in Indonesian Stock Exchange 2008-2014). *Journal of Accounting, Finance and Auditing Studies*, 3 (4), 32-51.

Feldmann, D., & Read, W. J. (2013). Going-concern Audit Opinions for Bankrupt Companies – Impact of Credit Rating. *Managerial Auditing Journal*, 28 (4), 345-363.

George-Silviu, C. & Melinda-Timea, F. (2015). New audit reporting challenges: auditing the going concern basis of accounting. *Procedia Economics and Finance*, 32, 216-224.

Gutierrez, E., F., Krupa, J., Minutti-Meza, M. & Vulcheva, M. (2016). How Useful Are Auditors' Going Concern Opinions as Predictors of Default? SSRN Electronic Journal, https://www1.warrington.ufl.edu/accounting/docs/2016_Paper7.pdf

Harris, S.B. (2011). Concept release on possible revisions to PCAOB standards related to reports on audited financial statements, June 21, available at: http://pcaobus.org/News/Speech/06212011_ HarrisStaement. aspx.

Hu, S. (2011). Convergence of audit and credit rating practices: Going concern ratings. *International Journal of Disclosure & Governance, 8* (4), 323-338.

Hupkes, E. (2005). Insolvency: why a special regime for banks?. *Current developments in monetary and financial law*, 3, 471-514.

International Standard on Auditing (ISA) 570 (Revised), Going Concern

Jovanović, M. (2013). Slabosti i nedostaci rejting agencija na savremenim finansijskim tržištima [Weaknesses and shortcomings of rating agencies in modern financial markets]. *Ekonomika*, 59 (4), 53-262.

Kausar, A., R. Taffler & C. Tan (2009). The going-concern market anomaly. *Journal of Accounting Research*, 47 (1), 213–239.

Kondić, N. & Poljašević, J. (2015). Auditing predictability of companies bankruptcy, Conference: *Corporate governance in BiH* At: Dubrovnik, Croatia, 69-85.

Kožul, N. (2012). Metodologija kreditnog rejtinga za suverene i korporacije [Credit Rating Methodology for Sovereigns and Corporations]. *Bankarstvo*, 1, 37-54.

Lai, K.W. (2009). Audit opinion and disclosure of audit fees. *Journal of Accounting Auditing and Finance*, 24 (1), 91-114.

Lammers, E.J. (2013). Early warning for business failure, *Kredit & Rating Praxis*, 2013/3, June 24, OK-Score Institute.

Loffler, G. (2005). Avoiding the Rating Bounce: Why Rating Agencies Are Slow to React to New Information. *Journal of Economic Behavior & Organization*, 56, 365-381.

Masyitoh, Oni C. & Adhariani, D. (2010). The Analysis of Determinants of Going Concern Audit Report. *Journal of Modern Accounting and Auditing*, 6 (4), 26-37.

Mrvić, T., Rička, Ž. & Mahmutović, H. (2016). Metodologija kreiranja rejting ocjena kreditnih rejting agencija i njihova ograničenja [Methodology for creating rating ratings for credit rating agencies and their limitations]. *Tranzicija*, 18 (38), 65-83.

Mulligan, C. M. (2009). From AAA to F: How the Credit Rating Agencies Failed America and What Can Be Done to Protect Investors. *Boston College Law Review*, 50 (4), 1275-1305.

Ozerturk, S. (2014). Ratings as regulatory stamps. *Journal of Economic Behavior & Organization, 105*, 17-29.

Partnoy, F. (2017). What's Still Wrong with Credit Ratings? *Washington Law Review*, 92, 1407-1472.

Pavković, A., & Vedriš, D. (2011). Redefiniranje uloge agencija za kreditni rejting u suvremenom financijskom sustavu [Redefining the role of credit rating agencies in the modern financial system]. *Ekonomska misao i praksa*, 20 (1), 225-250.

Sikka, P. (2009). Financial crisis and the silence of the auditors. *Accounting, Organizations and Society*, 34 (6-7), 868-873.

Socol, A., (2010). Significant doubt about the going concern assumption in audit. *Annales Universitatis Apulensis Series Oeconomica*, 12 (1), 291-299.

Wilmarth, A. E. (2009). The Dark Side of Universal Banking: Financial Conglomerates and the Origins of the Subprime Financial Crisis. *Connecticut Law Review*, 41 (4), 963-1050.

ULOGA REVIZIJE I REJTING AGENCIJA U OCENI BONITETA KOMPANIJA UZ POSEBAN OSVRT NA BANKE

Revizija i rejting agencije imaju značajnu odgovornost pri oceni boniteta kompanija i davanju mišljenja po pitanju sposobnosti klijenta da nastavi svoje poslovanje u budućem periodu, najčešće narednoj poslovnoj godini. Odgovornost je utoliko veća kada su u pitanju banke i njihov bonitet. Finansijska kriza iz 2007. godine i bankrotstvo brojnih banaka i drugih finansijskih institucija nametnula je potrebu traženja odgovornosti za "zakasnelu" reakciju regulatornih organa i značajne fiskalne posledice krize. Rad ima za cilj da oceni efikasnost rada rejting agencija i eksterne revizije u oceni boniteta kompanija i banaka, ne u cilju pronalaženja njihove pojedinačne odgovornosti, već sagledavanja moguće koordinirane i zajedničke akcije u sprečavanju budućih kriznih događaja.

Ključne reči: *rejting agencije, eksterna revizija, bonitet, finansijska kriza*

FACTA UNIVERSITATIS
Series: **Economics and Organization** Vol. 16, N° 1, 2019, pp. 103 - 116
https://doi.org/10.22190/FUEO1901103A

Preliminary Communication

INSURANCE CLAIMS FRAUD IN HOMEOWNER'S INSURANCE: EMPIRICAL EVIDENCE FROM THE NIGERIAN INSURANCE INDUSTRY

UDC 368.1:343.72(669)

Sunday Stephen Ajemunigbohun[1], Ogochukwu Augustine Isimoya[2], Pretoria Moun Ipigansi[3]

[1]Lagos State University, Department of Insurance, Lagos State, Nigeria
[2]University of Lagos, Department of Actuarial Science & Insurance, Lagos State, Nigeria
[3]Niger Delta University, Department of Finance, Banking and Insurance, Bayelsa State, Nigeria

Abstract. *This study examines insurance claims fraud in homeowner's insurance with its empirical findings from the Nigerian insurance industry. In this study, a descriptive research design was employed while purposive sampling method was adopted for information selection. A structured questionnaire was used for data collection. 221 participants were drawn from 31 insurance companies, which were basically general insurance companies that represent 61% capacity of the industry in terms of market structure. Major statistical techniques employed in the study were simple frequency percentage and T-test statistics. While five relevant research questions were stated and to which verbal interpretation were provided, added with supporting evidence, two hypothetical statements were made. The study recommends that effective fraud deterrent should be in place so as to promote stable, confidence-based, result-oriented and trustworthy market environment, and government on its own part must not fail to exhibit the will-power to drive the anti-fraud strategy designed, built and modeled for the operational efficiency of insurance companies and effective service delivery in the heart of the insuring public. This research work contributes to existing knowledge in that it helps broaden the scope of the regulatory bodies on the need to continually engage academia, insurance practitioners, IT experts and other stakeholders in designing and building a more sustainable anti-fraud strategy in improving insurance market penetration and density.*

Key words: *Claims handling, Fraudulent process, Homeowner's insurance, Claims cost, Fraud detection and prevention*

JEL Classification: G22, M21

Received July 21, 2018 / Revised October 14, 2018 / Revised November 11, 2018 / Revised February 28, 2019 / Accepted March 19, 2019
Corresponding author: Sunday Stephen Ajemunigbohun
Lagos State University, Department of Insurance, Lagos, Nigeria
E-mail: sunday.ajemunigbohun@lasu.edu.ng

INTRODUCTION

Homeowner's insurance is one of the most recognized and permissible form of property insurance in the World (Commonwealth of Virginia, 2011; GAO, 2014; Grace et al., 2004). It has been noted to attract quite an appreciable premium value into the insurance portfolio of most property insurance providers which, in turn, gives a fillip to the financial confidence and capacity of the industry as a whole (Grace et al., 2001; Majewski, 2013). GAO (2014) stressed that whenever perils such as fire, flood, wildfires, lightning, theft, hurricane, etc. occur property, individual and communities get devastated by the destruction of their homes and possessions. Hence, these perils have a significant financial impact on homeowners, insurers and government (be it at the state or federal level).

The term 'claim' is a demand, according to Krishnan (2010), on an insurer towards fulfillment of a promissory facet of insurance contract with the policyholder. An earlier submission by Brooks et al. (2005) gave it as a demand upon recovery for a loss for which an insurance coverage had been sealed. Singh (2012) opined that for an insurer to achieve optimal operational efficiency in claims handling, they must look in the direction of enforcing conventional claims mechanisms, leveraging high level fraud detection techniques and innovating self-service process.

Fraud, according to Brennan (2012), is described as any deliberate act that contravenes laws, rules or policies with the intent to elicit unauthorized financial gains. Monetary Authority of Singapore (2012) sees it as activities involving intentions to profit dishonestly from or illicit benefit accruing to party with an intention to defraud or any other related persons. Past studies such as Ojikutu et al., 2011; Onaolapo, 2000; Yusuf & Ajemunigbohun, 2015; Yusuf & Babalola, 2009; had given their contributions with respect to insurance fraud and claims handling process. With clear observations, it shows that none of these studies had been able to touch on property insurance fraud with respect to homeowners.

However, in a study conducted by Tennyson (2002), it was established as an intertemporal problem that the insureds with more claims experience seem to have a lower tolerance for insurance fraud. Also commented in an earlier study by Tennyson (1997), that policyholders who think erroneously of their premium in an exorbitant manner are of the tendency to embrace fraud. While the study by Miyazaki (2009) pondered on the nexus between deductible and insurance fraud, the study of Dean (2004) directed his submission at ethical perception and fraudulent act ensued from individual policyholder.

In an attempt to investigate an issue of homeowner's insurance fraud and abuse, the following relevant research questions were formulated:

i. What are the perils with high fraud tendency in homeowner's insurance claim?
ii. What are the perils with high claims cost in homeowner's insurance?
iii. What are the major sources of insurance claims fraud in homeowner's insurance in Nigeria
iv. What is the frequency of insurance claims fraud annually detected in homeowner's insurance?
v. What are the factors inducing insurance claims fraud in homeowner's insurance?

The hypothetical propositions, therefore, were stated as below:

Ho_1: Adoption of claims fraud preventions have not significantly improved homeowners insurance delivery

Ho_2: Insurance claims fraud detections have not significantly reduced homeowners insurance claims cost

This paper is aimed at realizing research outcomes that will enable identification of perils with high fraud tendency in homeowner's insurance claim; perils with high claims cost in homeowner's insurance; subsequently revealing major sources of insurance claims fraud in homeowner's insurance and determining frequency of insurance claims fraud annually detected in homeowner's insurance in Nigeria and identifying factors inducing insurance claims fraud in homeowner's insurance. In order to achieve set objectives, descriptive research is used and relevant statistical tests are implemented.

The paper has been structured in the following manner: introduction; research objectives and questions; review of relevant literature; methodology section which takes note of research design, sampling and data processing technique; results and discussion of findings; conclusion, recommendations, research implications and suggestions for further research.

1. Review of Relevant Literature

Quite a number of studies were conducted in the past with respect to insurance claims fraud (Crocker & Tennyson, 2002; Dionne et al., 2009; Gill & Randall, 2015; Insurance Europe, 2013; Loughran, 2005; Roder & Jamieson, 2005; Tennyson, 2008). The term 'fraud' according to Derrig and Krauss (1994), is seen as criminal acts, possibly beyond a reasonable doubt, that violate statutes, making the willful act of obtaining money or value for an insurer under false pretense or material Misrepresentation of a crime. As recorded by Kuria and Morange (2014), fraud is described as an omission or intention to making one gain advantage dishonestly in dealings that can be accomplished by knowingly concealing, suppressing, misrepresenting or non-disclosure of material fact relevant to transactions or financial decision; misappropriating assets; and abusing fiduciary responsibility or position of trust. An earlier submission by Gill et al. (1994) presupposed fraud in the insurance industry as intentionally making fictitious claims, inflating a claim or adding extra items to a claim, or being in any way dishonest with the intent of gaining more than legal entitlement.

However, insurance claims fraud will not only threaten the survival and profitability of an insurer, if not adequately addressed, but thus affects negatively its value system and probably detrimental to sustain its social and economic structure. To this direction, fraud is seen as representation of a threat to the core principles of solidarity that maintains the concept of insurance alive (Guillen, 2004; Viaene & Dedene, 2004). According to Viaene et al. (2007), the cost component of an insurance claims fraud is borne directly by all insured parties in terms of increased premium rates. Picard (2013), in his view, stipulated that fraud by one policyholder impacts the welfare of the other policyholders and providers, and that the methodology under which the effect is spread is the contracts between the provider of insurance and policyholders. Singh et al. (2011) stressed that fraud in insurance transaction range in severity, from marginally exaggerated claims to one that deliberately cause accidents or damage through fraud risk exposure such as: employee-related fraud, vendor-related third-party fraud, insurance applicants, and surrender of policy or claimants.

Accordingly, insurance claims fraud poses a serious risk for insurers and probably result in extra costs for their policyholders (Singh et al., 2011). SAS (2012) averred that fraud, in its real sense, usually weakens the financial position of the insurer and undermines its ability to provide competitive rates and also to underwrite respectable and potentially profit-driven

business; and poses a greater premium cost to the policyholder. In a submission by Ramos et al. (2012), data for claims fraud costs in many industries is not always available, but the insurance sector provides prompt data that may serve as sentries of potential situations for integrity in business-to-business and consumer-to-business claims. Coalition Against Insurance Fraud (1999) suggested insurance fraud laws as being necessary to combat the increasing impact of fraud on the insurance cost.

However, three functional classifications of insurance fraud were proposed, according to Viaene and Dedene (2004), to include: internal vs. external, underwriting vs. claim, and soft vs. hard. According to Henderson et al. (2010), the most common external fraud plans, in the insurance industry, include: fraudulent claims, money laundering, secret commissions, and investment fraud; while internally, the most common fraud plans include: theft of cash/cheque, employee expense fraud, cash receipt/premium fraud/ receivable, fraudulent revenue/underwriting, commission fraud and non-compliance to regulation. Some other types of fraud affecting insurance providers are said to include: fake documentation, commission rebate, misspelling, and collusion between parties (Singh et al., 2011).

According to Ramos et al. (2012), an integrated framework with four pillars for effective claims fraud control in variety of industries has been suggested to include: an operating model which integrates activities to reduce claims fraud; focused managerial strategy in claims fraud with exact goals and priorities; improving information access, quality and regularity to support analytical data; and leveraging data analytics to direct personnel's attention on high risk customers and claims. In earlier submission by Henderson et al. (2010), pertinent anti-fraud controls are expected to include: regular fraud risk assessment, governance (.i.e. oversight by the audit committee and board of directors), ethical code of business, incident reporting systems, investigative protocol, remediation procedure, hiring and improvement policies and guidelines, and management control and testing.

Roder and Jamieson (2005) opined that the true economic cost of insurance is near impossible to measure. In the work by Chartered Global Management Accountant (2012), effective anti-fraud strategies were suggested to involve: prevention, detection, response and deterrence. In furtherance of its work, it was noted that the quantification of prevention, detection and response can help to create an effective fraud deterrent; in that, while fraud prevention strategy is noted to comprise sound ethical culture and internal control mechanisms, the core tools for detecting fraud include training and experience combined with the essential mindset that fraud is always a possibility. Lexis-Nexis (2014) suggested that tactics to preventing insurance fraud must be linked with insurers' operational activities to guarantee the following: ensuring secure information management, improving efficiency in operation, enhancing efficient investigation, reducing false-positive outcome, and facilitating compliance with world regulations.

2. Overview of the Nigerian Insurance Industry

The Nigerian Insurance Industry is governed by the National Insurance Commission. The guiding principle regulating the affairs of the industry is Insurance Act 2003 as amended in 2005. The insurance industry in Nigeria is still growing and developing. Moreover, it only contributes 0.7% toward Gross Domestic Product (GDP) as juxtapose to other markets such as South Africa with penetration status of about 12% (PricewaterhouseCoopers International, 2015).

The Nigerian Insurance Industry experienced a landmark change in the year 2008 with a post consolidation exercise that produced 49 insurance companies and 2 reinsurance companies, a total market capitalization of over ₦600 billion (Babington-Ashaye, 2009). However, the Nigerian Insurance Industry is composed of four strategic players: insurers and reinsurers, insurance brokers, agents, and loss adjusters. The industry primarily focuses on broker driven corporate account especially the oil and gas sector. Brokers are dominant insurance distribution channels in the Nigerian Insurance Industry.

For strategic desire to be achieved in improving penetration level, the National Insurance Commission (NAICOM) came up with the Market Development and Restructuring Initiative in 2009, among others, purposely to enforce compulsory insurance and eradicate 'fake' policies. By this initiative, 6 insurance products were made obligatory with occupiers' liability insurance – section 65 of the insurance Act 2003 inclusive. With an estimated insurance penetration rate at 0.47, and only 1% of the population holding any form of insurance policy, the opportunities in the Nigerian markets are substantial. In 2016, the industry's Gross Premium Income (GPI) grew by an estimated 10% to N356 billion (Agusto & Co. Research, 2017).

There is an increasingly experienced claims payment as is typical in the period of recession. The Nigerian insurance industry is no different. In 2016, net claims paid by operators amounted to an estimated N100 billion ($ 327 million @ N305/$), a 19% growth over the preceding year. According to Ufomadu (2017), profitability is hampered by weak investment returns, raising maintenance and acquisition expenses as well as increasing claims.

3. Research Methods

This study adopted descriptive research design. The motive for its use was due to its provision of germane interested facets to the researchers and also observation of the occurrence of sample items without any form of manipulation (Asika, 2008; Sekaran, 2003). It has also been noted to have the capacity to predict dispositions and, thus, assist in collecting the same information concerning all samples (Easterby-smith et al., 2008; Saunders et al., 2009). Data collection was conducted through the field survey among insurance companies with the assistance of structured questionnaire. The use of this data gathering source was because of its appropriateness to the design of the research (Babbie, 2005). The data gathering instrument further helped the researcher to elicit responses via its completion by adopting Likert-scaling measurement attached with a covering letter.

The target population comprises the entire members of staff within the sampling frame of 51 insurance companies operating presently in Nigeria (List of registered insurance companies in Nigeria, 2016), out of which a sampling unit of 31 insurance companies (specifically, general insurance companies) were surveyed giving a sample size of 221 respondents through the distribution of 10 questionnaires per surveyed company. The sampling frame was drawn within the Lagos metropolis hence it houses a larger percentages of insurance firms in Nigeria. For due diligence and genuine response, frequent phone calls and visits by research assistants were made to hasten proper filling and returning of the questionnaire. Ultimately, among 310 copies of questionnaires distributed, 221 were found useful for analytical results, giving a 71% response rate.

Regarding the research validity, theoretical and content were choices of validity. While the former was carried out via variable measures from extant literature, the latter was designed via the administration of a set of questionnaire drafts to scanty selected insurance claims officers, research and development officers, and academia in the insurance profession. Eventually, experts deeply pondered on this instrument and gave commendable instructions within the respondents' comprehension. On the level of reliability, 0.814 was recorded as the Cronbach alpha with high sense of indication that the instrument surpassed the required standard of 0.70.

4. Results and Discussion

The simple frequency percentage table was used to analyse the above-stated research questions with the support of verbal interpretation.

In a bid to analyse the hypotheses formulated in this study, the T-test statistical technique was employed.

4.1. Analysis of Research Questions

Table 1 Perils with high fraud tendency in homeowner's insurance claim

Alternatives	Responses	Percentages (%)
Fire	98	44.3
Burglary	48	21.7
Theft	36	16.3
Flood	21	9.5
Windstorm	11	5.0
Lightning	07	3.2
Total	221	100.0

Source: Field Survey, 2017

The table above shows that perils with high fraud tendency in homeowner's insurance are fire, followed by burglary, theft, flood, windstorm and lightning. To corroborate this evidence, Commonwealth of Virginia (2011) opined that purchasing homeowner's insurance will not prevent fires, theft or some other types of loss, but it can assist in the recovery from financial effects of a loss.

Table 2 Perils with high claims cost in homeowner's insurance

Alternatives	Responses	Percentages (%)
Fire	82	37.1
Burglary	49	22.2
Theft	38	17.2
Flood	29	13.1
Windstorm	14	6.3
Lightning	09	4.1
Total	221	100.0

Source: Field Survey, 2017

The results expressed in Table 2 imply that perils with high claims cost in homeowner's insurance are fire with 37.1 %, followed by windstorm, flood, burglary, theft and lightning. In a bid to support this evidence, the work of Amorose (2011) and Harrington and Niehaus (2006) opined that insurers that can minimize their costs of claims by just a single percent have the tendency to achieve substantial saving. They reiterated further that the amount of claim payouts and expenses is the largest spending category for an insurer, responsible for not less than 80% of premium income. SAS (2012) arguably stated that creating an impression before policyholders through claim payment could be expensive for an insurer to bear.

Table 3 Major sources of insurance claims fraud in homeowner's insurance in Nigeria

Alternatives	Responses	Percentages (%)
Policyholders	86	38.9
Insurance brokers	63	28.5
Employees	31	14.0
Loss adjusters	28	12.7
Insurance agents	13	5.9
Total	221	100.0

Source: Field Survey, 2017

The results from the table above show that policyholders are the highest source of insurance claims fraud with 38.9%, followed by insurance brokers, employees, loss adjusters and insurance agents. As cited in Yusuf (2010), four classes of insurance fraud fully expressed in the table, have been said to include: policyholder fraud, intermediary fraud, internal fraud and insurer fraud. The study by Terisa (2010) gave supporting evidence that fraud might occur at different phases in the insurance transaction and by different parties ranging from insurance applicants (.i.e. new customers); policyholders (existing customers); third-party claimants; and professional (i.e. insurance brokers, employees of insurance firms, insurance agents, loss adjusters, whose services were required by insurers, etc) who provided services to claimants. Derrig (2002) aligned his view to say that the existence of insurance claim fraud is hinged upon information that is asymmetrically distributed between the policyholder and the corresponding insurance company. Dulleck and Kerschbamer (2006), International Association of Insurance Supervisors (2011), and Muller (2013) were of the opinions that, apart from policyholders, other actors potentially linked with the occurrence of insurance fraud include: insurance brokers, intermediaries and service providers.

Table 4 Frequency in insurance claims fraud annually detected in homeowner's insurance in Nigeria

Alternatives	Responses	Percentages (%)
Less than 11 times	19	8.6
11 – 20 times	57	25.8
21 – 30 times	79	35.7
31 – 40 times	39	17.7
Above 40 times	27	12.2
Total	221	100.0

Source: Field Survey, 2017

The table shows that annual insurance claims fraud usually recorded in most insurance companies in Nigeria with respect to homeowner's insurance is between 21 to 30 times with 35.7%, followed by 11 – 20 times, 31 – 40 times above 40 times and less than 11 times. This result, then, corroborates the study of Goel (2013) who arguably stated that claims managers must focus mainly on the most significant claims tasks that require their attention and also better use of their time. To substantially corroborate the evidence above, Johnson and Jones (2012) stipulated that the most occurring fraud risk exposures in insurance business are categorized into: false claims, exaggerated claims, multiple claims and inflation claims.

Table 5 Factors inducing insurance claims fraud in homeowner's insurance

Alternatives	Responses	Percentages (%)
Personality of the insured	87	39.4
Economic/financial	49	22.2
Weak organisational system	37	16.7
Poor motivation of employees	29	13.1
Weak legal system to punish offenders	19	8.6
Total	221	100.0

Source: Field Survey, 2017

The result above clearly implies the personality of the insured as the most critical factors inducing insurance claims fraud in homeowner's insurance. To corroborate this findings, Gabaldon et al. (2014) opined that insured's decision with the intent of getting a greater indemnity that what is precisely owed under the contract is taken to be fraudulent, and the insurers attempt to control such imply a cost, which may either be passed onto other consumers of insurance in the form of inflated premium, or borne by the insurer in the form of reduced profit.

4.2. Hypotheses Testing

In an attempt to further investigate insurance claims fraud in homeowner's insurance in Nigeria's insurance industry, T-test statistical technique was employed for empirical-oriented results.

Table 6 Respondents' opinions on hypothetical proposition one

Alternatives	Responses	Percentages (%)
Strongly Agree	10	04.5
Agree	34	15.4
Undecided	22	10.0
Disagree	86	38.9
Strongly Disagree	69	31.2
Total	221	100.0

Source: Field Survey, 2017

Table 7 Descriptive statistics for testing the adoption of claims fraud prevention and improvement of homeowner's insurance

	N	Mean	Std. Deviation	Std. Error Mean
Adoption of claims fraud prevention and improvement of homeowner's insurance	221	3.7692	1.17788	.07923

Source: Authors' computation, 2017

Table 8 One-Sample T-test of the adoption of claims fraud prevention and improvement of homeowner's insurance

	Test Value = 3					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence interval of the Difference	
					Lower	Upper
Adoption of claims fraud prevention and improvement of homeowner's insurance	9.705	220	.000	0.76923	0.6137	0.9573

Source: Authors' computation, 2017

The result in table 8 shows that the calculated p-value (0.0000), which is lower than 0.05, confirms that there is a statistically significant difference between average respondents' opinion on hypothetical proposition 1 and hypothetical value 3. Hypothesis (Ho) which states that adoption of claims fraud preventions could not have significant improvement on homeowner's insurance delivery is rejected. It is, therefore, germane to note that survey participants have an opinion that adoption of claims fraud preventions could have significant improvement on homeowner's insurance. This result corroborates the study of Asikhia (2010) who had mentioned that until companies are able to deliver their service in an efficient manner, with service-oriented information systems, financial institutions may not be able to retain their customers. In support of the evidence to this result, Lexis-Nexis (2014) opined that tactics used to prevent insurance fraud must be integrated with insurers' operational activities to guarantee security of information management, operational efficiency improvement, investigation efficiency improvement, minimisation of false-positive results and promotion of compliance with global regulations. To deliver excellence in insurance claims handling, key components that ought to be in place are said to include: communication, culture and philosophy, people, claims procedure, infrastructure, data management, operations, monitoring and review (Association of Insurance and Risk Managers in Industry and Commerce, 2009; Yusuf et al., 2017).

Table 9 Respondents' opinions on hypothetical proposition two

Alternatives	Responses	Percentage (%)
Strongly Agree	16	07.2
Agree	42	19.0
Undecided	28	12.7
Disagree	76	34.4
Strongly Disagree	59	26.7
Total	221	100.0

Source: Field Survey, 2017

Table 10 Descriptive statistics for testing of claims fraud detection and homeowner's insurance claim costs

	N	Mean	Std. Deviation	Std. Error Mean
Claims fraud detection and homeowner's insurance claim cost	221	3.5430	1.26642	.08519

Source: Authors' computation, 2017

Table 11 One-Sample T-test of claims fraud detection and homeowner's insurance claim costs

	Test Value =3					
	t	Df	Sig.(2-tailed)	Mean Difference	95% Confidence interval of the Difference	
					Lower	Upper
Claims fraud detection and homeowner's insurance claims cost reduction	6.374	220	.000	0.543	0.3761	0.7009

Source: Authors' computation, 2017

The result in Table 11 shows that the calculated p-value (0.0000), which is lower than0.05, confirms the statistical significance of difference between obtained and hypothetical level of agreement with the statement of hypothesis two. Hypothesis (Ho) which states that insurance claims fraud detections could not have significant effect on homeowner's insurance claims cost is rejected. It is, therefore, crucial to note that survey participants have an opinion that insurance claims fraud detections could have significant effect on homeowner's insurance claims cost. This result corroborates existing submission of the Chartered Global Management Accountant (2012), who had suggested training and experience combined with the necessary mindset that fraud is always a possibility as the key tools for detecting fraud. In furtherance of the supporting evidence by IBM (2012), taking an assessment technique, insurance companies are guaranteed with discovery of fraud by examining patterns on data; investigating fraud more efficiently by reducing false claims; accelerating investigations; and visualizing trends to continuously enhancing antifraud efforts.

CONCLUSION AND RECOMMENDATIONS

Insurance claims fraud has been emphasized in a number of studies; therefore, not taking appropriate step to combat this menace could be devastating, not only to the Nigerian insurance market environment but also to the economy globally. However, insurance, among its contributions to the economy, has been said to promote financial stability; reduce fear; facilitate trade and commerce; and mobilize savings. This research work attempted to examine experts' opinion on insurance claims fraud in homeowner's insurance among selected insurance companies in Nigeria. Results from the study have evidence that, according to the subjective assessment of the surveyed employees of the selected insurance companies, the adoption of insurance claims fraud preventions might have significantly improved homeowner's insurance in Nigeria. Also, empirical results from the T-test analysis based on experts' opinion provide evidence that insurance claims fraud detections might have significantly reduced homeowner's insurance cost. In addition, the results equally showed that speedy, accurate, efficient and effective claims managerial process is thus germane for cost control, due to managerial risk process and capacity building in underwriting.

On recommendations, insurance companies are advised to strictly tackle major sources of insurance claims fraud not only in the homeowner's insurance, but also in other types of insurance, so as to minimise the cost effects on their claims responsibilities to the policyholders. Moreover, rigorous efforts should be made to ensure proper implementation of an anti-fraud strategy that would continuously curtail fraudulent activities within and outside the insurance market space. An effective fraud deterrent should be put in place and to which aggressive campaign should be mounted to promote a stable, confidence-based, result-oriented, and trustworthy market environment in the minds of the insuring populace. As to the regulatory authorities, efforts should be made to monitor the anti-fraud progress within and outside the Nigerian insurance market space, by creating a more reliable and sustainable data management system that has the capacity to capture any fraudulent attempt or committed fraudulent activities in the running of insurance companies in Nigeria. Government on its own part must not fail to exhibit the will-power to drive antifraud strategy mechanism that will enhance the operational efficiency of insurance companies and effective service delivery in the heart of the insuring public.

This research work contributes to knowledge in that it awakes the regulatory body on the need to continually engage academia, insurance practitioners, IT experts and other stakeholders in designing and building a more sustainable anti-fraud strategy in improving insurance market penetration and density. It further stresses the need for managers to be alive to their responsibilities in ensuring that loopholes in the claims managerial procedures are tackled. It benefits the insuring public in terms of effective policy delivery, rise in confidence level etc.

On suggestions for further studies, researchers can pull their weight into studying some of the factors inducing insurance claims fraud in other property-related insurance policies. Efforts could also be made by other researchers to find out if the various sources of insurance claims fraud in homeowner's insurance are applicable to other property-related insurance policies. Lastly, other interested researchers can direct their research efforts towards insurance claims fraud response from insurance policyholders in Nigeria.

REFERENCES

Agusto & Co. Research. (2017). Agusto& Co. unveils 2017 insurance industry report. Retrieve from: http://www.thisdaylive.com/index:php/2017/02/09/agusto-co-unveils-2017-insurance-industry-report/

Amorose, R.C. (2011). *Driving operational excellence in claims management.* USA: Deloitte Development

Asika, N. (2008). *Research methodology in the behavioural sciences*. Lagos: Longman Nigeria Plc

Asikhia, O. (2010). Customer orientation and firm performance among Nigerian small and medium scale business. *International Journal of Marketing Studies,* 2 (1), 197 – 212.

Association of Insurance and Risk Managers in Industry and Commerce (2009). *Delivery excellence in insurance claims handling: Guide to best practice.* London: AIRMIC.

Babbie, E. (2005). *The basic of social research.* 3rd edition, Canada: Thomson Learning Inc.

Babington-Ashaye, F. (2009). Re-engineering the insurance industry. Risk Analysts Insurance Broker Limited, Lagos, Nigeria.

Brennan, P. (2012). *A comprehensive survey method for overcoming the class imbalance problem in fraud detection*. M.Sc Dissertation. Institute of Technology, Dublin, Ireland.

Brooks, P.J., Popow, D.J. & Hoopes, D.L. (2005). *Introduction to claims*. Pennsylvania: American Institute for Chartered Property Casualty Underwriters.

Chartered Global Management Accountant (2012). *Fraud risk management: CGMA report*. New York: Association of International Certified professional Accountants.

Coalition Against Insurance Fraud (1999). *Model insurance fraud act*: Summary of provision.

Commonwealth of Virginia (2011). *Homeowner's insurance consumer's guide.* Virginia: Commonwealth of Virginia State Corporation Commission.

Crocker, K. &Tennyson, S. (2002). Insurance fraud and optimal claims settlement strategies. *Journal of Law and Economics,* 45 (2), 469 – 507.

Dean, D.H. (2004). Perceptions of the ethicality of consumer insurance claim fraud. *Journal of Business Ethics,* 54 (1), 67 – 79.

Derrig, R.A. (2002). Insurance fraud. *Journal of Risk and Insurance,* 69 (3), 271 – 287.

Derrig, R.A. & Krauss, L. (1994). First steps to fight workers' compensation fraud. *Journal of Insurance Regulation,* 12 (3), 390-415.

Dionne, G.; Giuliano, F. & Picard, P. (2009). Optimal auditing with scoring: Theory and application to insurance fraud. *Management Science,* 55 (1), 58 – 70.

Dulleck, U. & Kerschbamer, R. (2006). On doctors, mechanics and computer specialists: The economics of credence goods. *Journals of Economic Literature,* 44 (1), 5 – 42.

Easterby-Smith, M., Thorpe, R. & Jackson, P.R. (2008). *Management research.* 3rd edition, London: Sage.

Gabaldon, I.M., Hernandez, F.J.V. & Watt, R. (2014). The effect of contract type on insurance fraud. *Journal of Insurance Regulation,* 33 (8), 1 – 34.

Gill, K.M., Woolley, K. & Gill, M. (1994). *Insurance fraud: The business as a victim*. In M.Gill (Ed.). Crime at work (pp. 73 -83). Leicester: Perpetuity Press.

Gill, M. & Randall, A. (2015). *Insurance fraudsters: A study for the ABI*. UK: Perpetuity Research and Consultancy International Limited.

GAO (2014). *Homeowners insurance: Multiple challenges make expanding private coverage difficult*. Washington DC: United State Government Accountability Office.

Goel, C. (2013). *Insurance claims management: improving staff capacity using BPM*. London: Cognizant Business Consulting.

Grace, M.F., Klein, R.W. & Kleindorfer, P.R. (2001). The demand for homeowners insurance with bundled catastrophic coverages (*Center for Risk Management and Insurance Research* Working Paper, 01 -05). Georgia State University

Grace, M.F., Klein, R.W. & Kleindorfer, P.R. (2004). Homeowners insurance with bundled catastrophic coverages. *The Journal of Risk and Insurance,* 71 (3), 351 – 379.

Guillen, M. (2004). *Fraud in insurance.* In: Teugels, T., & Sundit, B. (Eds.). Encyclopedia of Actuarial Science (2, 729 -739). London: Wiley.

Harrington, S.E. & Niehaus, G.R. (2006). *Risk management and insurance.* Ney York: McGraw-Hill.

Henderson, S.P., Haywood, R. & Mooney, K. (2010). Investigating fraud in the insurance industry: Are you prepared? 2009 Global Economic Crime Survey. *PricewaterhouseCoopers*, 21 June

IBM (2012). *Insurance claims fraud assessment: Reducing loss costs by combining insurance claims fraud*. USA: IBM Corporation.

Insurance Europe (2013). *The impact of insurance fraud*. Brussels: Insurance Europe aisbl.

International Association of Insurance Supervisors (2011). *Application paper on deterring, preventing, detecting, reporting and remedying fraud in insurance*. Technical Report.

Johnson, M. & Jones, N. (2012). *Insurance fraud in the digital age*. UK: Gower publishing.

Krishnan, B. (2010). Claims management and claims settlements in life insurance. *The Journal of Insurance Institute of India*, 36 (July-December), 49-57.

Kuria, J.T. & Moronge, M. (2014). Effect of fraud control mechanisms of the growth of insurance companies in Kenya. *International Journal of Innovative Social & Science Education Research,* 2(1), 26-39.

Lexis-Nexis (2014). *Key factors for prayers in fraud and abuse prevention: Protect against fraud and abuse with a multi-layered approach to claims management.* Lexis-Nexis. Retrieved from: http://www.lexixnexis.com/risk/healthcare.

List of registered insurance companies in Nigeria (2016). *Punch Newspaper*, 12 October

Loughran, D. (2005). Deterring fraud: The role of general damage awards in automobile insurance settlements. *Journal of Risk and Insurance*, 72 (4), 551 – 575.

Majewski, P. (2013). Insurance crime in Poland: Characterisation and evolution of the phenomenon. *Insurance Review*, 4, 121 – 132.

Miyazaki, A.D. (2009). Perceived ethicality of insurance claims fraud: Do higher deductibles lead to lower ethical standard? *Journal of Business Ethics*, 87 (4), 589 – 598.

Monetary Authority of Singapore (2012). *Guidelines on risk management practices for insurance business: Insurance fraud risk*, 19, 1 – 11.

Muller, K. (2013). *The identification of insurance fraud: An empirical analysis (*Risk Management and Insurance, Working Papers, 137), Switzerland: Institute of Insurance Economics, University of St. Gallen.

Ojikutu, R.K., Yusuf, T.O. & Obalola, M.A. (2011). Attitude and perception about insurance fraud in Lagos State, Nigeria. *European Journal of Scientific Research*, 57 (4), 615-625.

Onaolapo, A. (2000). *Detecting and handling fraud in insurance claims*. Being a paper delivered at the Workshop on advanced claims management by FAS Consultants, July 28

Picard, P. (2013). *Economic analysis of insurance fraud.* In: G, Dionne (Edn.). Handbook of insurance. 2nd edition. New York: Springer.

PriceWaterhouseCooper International (2015). Strategic and emerging trends in insurance markets in Nigeria. Insurance Industry Survey 2015, 1 – 81.

Ramos, C., Kinzie, J. & Epps, D. (2012). *Reducing claims fraud: A cross-industry issue.* UK: Deloitte Touche Tohmatsu Limited.

Roder, S. & Jamieson, G. (2005). *Insurance fraud: The victimless crime.* Hong Kong: KMPG International.

SAS (2012). *Combating insurance claims fraud: How to recognise and reduce opportunistic and organized claims fraud*. USA: SAS Institute Inc.

Saunders, M., Lewis, P. & Thornhill, A. (2009). *Research methods for business students.* 5th edition, Essex: Pearson Education Limited.

Sekaran, U. (2003). *Research methods for business: A skill-building approach*. 4th edition, USA: John Wiley & Sons, Inc.

Singh, A., Parekh, A., Indge, R., Bali, S. & Torpey, D. (2011). *Fraud in insurance on rise: Survey 2010-2011.* India: Ernst & Young Pvt. Limited.

Singh, V. (2012). Global trends in non-life insurance: Claims Capgemini. https://www.capgemini.com/..../global_trends_in.online_insurance_2012_claims.pdf

Tennyson, S. (1997). Economic Institutions and individual ethics: A study of consumer attitudes toward insurance fraud. *Journal of Economic Behaviour and Organisation*, 32 (2), 247 – 265.

Tennyson, S. (2002). Insurance experience and consumer attitudes towards insurance fraud. *Journal of Insurance Regulation* 21(2), 35 – 55.

Tennyson, S. (2008). Moral, social and economic dimensions of insurance claims fraud. *Social Research*, 74 (4), 1181 – 1204.

Terisa, R. (2010). *Improving the defense lines: The future of fraud detection in the insurance industry with fraud risk models, text mining and social networks.* Marlow: SAS Institute Limited

Ufomadu, A. (2017). Nigerian insurance industry: Overview, challenges and opportunities. Africa's Insurance Markets, May 27.

Viaene, S. & Dedene, G. (2004). Insurance fraud: Issues and challenges. *The Geneva Papers on Risk and Insurance*, 29 (2), 313 -333.

Viaene, S., Ayuso, M., Guillen, M., Gheel, D.V. & Dedene, G. (2007). Strategies for detecting fraudulent claims in the automobile insurance industry. *European Journal of Operational Research*, 176 (1), 565 – 583.

Yusuf, T.O. & Ajemunigbohun, S.S. (2015). Effectiveness, efficiency and promptness of claims handling process in the Nigerian Insurance industry. *European Journal of Business and Economics*, 10 (2), 6-10.

Yusuf, T.O., Ajemunigbohun, S.S. & Alli, N.G. (2017). A critical review of insurance claims management: A study of selected insurance companies in Nigeria. *SPOUDAI Journal of Economics and Business*, 67 (2), 69 – 84.

Yusuf, T.O. (2010). Brokers and the control of post contractual opportunism in the Nigerian Insurance market. *Journal of Financial Crime*, 17 (2), 223-239.

Yusuf, T.O. & Babalola, A.R. (2009). Control of insurance fraud in Nigeria: An exploratory study (case study). *Journal of Financial Crime*, 16 (4), 418-435.

PREVARE U OBLASTI OSIGURANJA IMOVINE: EMPIRIJSKI DOKAZI IZ NIGERIJSKE INDUSTRIJE OSIGURANJA

Ova studija ispituje prevare osiguranja u vezi sa zahtevima za naknadu štete u oblasti osiguranja imovine sa empirijskim nalazima iz industrije osiguranja u Nigeriji. Korišćena je deskriptivna metoda istraživanja dok je ciljna metoda uzorkovanja usvojena za izbor informacija. Za prikupljanje podataka korišćen je strukturirani upitnik. Učestvovao je 221 ispitanik iz 31 osiguravajućeg društva, koja su u osnovi kompanije za opšte osiguranje i koja predstavljaju 61% kapaciteta industrije u pogledu strukture tržišta. Glavne statističke tehnike korišćene u studiji bile su jednostavni procenat frekvencije i T-test statistika. Postavljene su dve hipoteze na osnovu pet relevantnih istraživačkih pitanja na koja je data verbalna interpretacija, kao i dodatnih dokaza. Studija preporučuje stvaranje delotvornih mehanizama sprečavanja prevare kako bi se promovisalo stabilno tržišno okruženje, zasnovano na poverenju i orijentisano na rezultate, dok država sa svoje strane mora da pokaže volju da zastupa strategiju za borbu protiv prevara koja je osmišljena i napravljena kako bi podržala operativnu efikasnost osiguravajućih društava i efikasnu isporuku usluga korisnicima osiguranja. Ovaj istraživački rad doprinosi postojećem znanju u tome što pomaže da se ukaže regulatornim telima na potrebu da se kontinuirano angažuju akademici, stručnjaci u oblasti osiguranja, IT stručnjaci i druge zainteresovane strane u osmišljavanju i izgradi održivije strategije za borbu protiv prevara koja bi poboljšala penetraciju i gustinu osiguranja.

Ključne reči: *upravljanje zajtevima za naknadu stete, prevara, osiguranje imovine, troškovi potraživanja, otkrivanje i prevencija prevare*

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

33+007

FACTA Universitatis. Series, Economics and Organization / editor in chief Dejan Spasić. - Vol. 1, No 1 (1993)- . - Niš : University of Niš, 1993- (Niš : Unigraf-x-copy). - 24 cm

Tromesečno. - Tekst na engl. jeziku. - Drugo izdanje na drugom medijumu: Facta Universitatis. Series: Economics and Organization (Online) = ISSN 2406-050X
ISSN 0354-4699 = Facta Universitatis. Series: Economics and Organization
COBISS.SR-ID 87230727

FACTA UNIVERSITATIS

Series
Economics and Organization

Vol. 16, N° 1, 2019

Contents