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Challenges of Banking Profitability in Eurozone Countries: Analysis of Specific and Macroeconomic Factors

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Abstract

Numerous factors affect the rate of return that a financial institution earns. Some of these factors include external forces that shape earnings performance and internal elements found in each financial institution. Policy implications are determined by the type of explanation and should be taken seriously. This paper classifies determinants of bank profitability as well as reviews existing literature on bank performance. The second section of this study quantifies how external factors and internal determinants have influenced the profitability of EU banks. This paper constructs fixed-effect models and Ordinary Least Squares (OLS), which sheds new light on understanding various factors influencing how the EU banking industry performs. The observation period was from 2012 to 2019, and the findings revealed that EU bank profitability is influenced by both external macroeconomic environment and management decisions. The results of this study suggest that equity to assets ratio (EA), Gap ratio, and GDP have a positive impact on bank profitability, while the loan to assets ratio (LA) and the provision for loan losses to total loans ratio (PLL/TL) hurt EU bank profitability. The empirical findings are consistent with the expected results, although, they are different from those of studies that investigated the structure-performance relationship of EU banks because they found that market share and concentration have a positive effect on bank profitability.

Keywords: bank profitability, regression analysis, panel data, EU countries

Introduction

Various researches have investigated bank performance to isolate factors accounting for differences in profitability among banks. These studies are divided into various categories. Some of them focused on the relationship between balance sheet structure and bank earnings performance, while others focused on the tie between aspects of bank performance and bank earnings. Other studies investigated the impact of structural, macroeconomic, or regulatory factors on overall bank performance. People usually use the term bank structure, especially when referring to features of the individual institutions. The cost of bank operation can be affected by individual bank characteristics, such as the scope of operation and portfolio composition. Additionally, the market structure can influence the price of services offered by banks as well as the quality and quantity. The economic activity of a nation also tends to determine bank profitability. In the eurozone, financial stability has been supported by recent economic expansion in the region.

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But risks have been heightened by the softening of growth prospects. These risks have led to imbalances in both the financial and non-financial sectors and a decrease in bank profitability. Indeed, the deterioration of the macro outlook has rendered some of the challenges more acute. Due to these risks and challenges, it is now necessary to investigate factors that influence bank profitability in European Countries. To identify factors influencing bank profitability, this paper split them into two large groups, namely: external (macroeconomic) factors and internal (bank-specific) factors. The reason for examining these factors is that bank profitability is crucial for the overall financial stability of a nation. Therefore, improving bank profitability will improve the overall performance of an economy.

Numerous, investigation has been done analyzing a particular economic area (i.e. country), analogous the investigation of Mamatzakis and Panagiotis (2003), which measured the factor-profitability relationship in Greece, as well as Saeed (2014) and Kosmidou, Pasiouras, Doumpos, and Zopounidis, (2006), that evaluated the topic based on data from Great Britain. The single-market examination was productive and produced a significant number of researched countries. Williams (2003) focused on Australia, Naceur and Goaied (2001), as well as Ines, Ben, and Mhiri (2013) studied Tunisia, Sufian, and Chong (2008) focused on the Philippines, and later, Sufian and Habibullah (2009) researched China. The effectiveness factors in the United States (USA) were evaluated by Wheelock and Wilson (1995), as well as Miller and Noulas, (1997), while profitability factors in Switzerland have been analyzed by Dietrich and Wanzenried (2011).

Also, a considerable number of studies have been conducted involving states that showed in their findings that interest rates, inflation, and concentration index have a positive impact on return on equity (Goddard, Molyneux, Wilson and Takavoli, 2007); (Mendes & Abreu, 2007); (Staikouras & Wood, 2003). Otherwise, up-to-date revisions on the European Union banking structure were presented by Menicucci and Paolucci (2016) and Petria, Capraru, and Ihnatov (2015); for the countries of Central and Eastern Europe, Căpraru and Ihnatov (2014) and Durguti et al. (2020) have analyzed the determinants that influence the profitability of the banking system in Kosovo, covering the period 2006-2019. According to this study, the capital-to-asset, management efficiency, non-performing loans, inflation rate, and real exchange rate all had an impact on bank profitability. Furthermore, Tmava et al. (2019) examined the degree of profitability in the banking system of the Western Balkan countries, examining how specific factors such as assets, loans, loans-to-deposits, non-performing loans, and interest rates have affected the profitability of the Western Balkans banking system, in the individual countries.

Theoretical Background

A bank's determinants of profitability can either be internal or external. Those factors that are influenced by the bank's policy objectives and management decisions are classified as internal determinants. These internal factors influenced bank management actions, decisions, policies, objectives, and profitability. A study by Menicucci and Paolucci (2016) found that management decisions, especially those that view the concentration of loan portfolios, are crucial in determining the performance of banks. Various studies have also attributed good bank performance to quality management. Control of banks' performance and policies determines the management quality. Claessens et al, (2017) computed income statement and balance sheet ratios for all the federal banks in the United States. The study found a significant relationship between profitability and ratios. The researcher also suggested that emphasizing funds use, fund source management, and expense management would help in improve management. Borroni and Rossi (2019) concluded that a bank's liability and asset management, as well as non-interest cost controls and funding management, significantly affected the profitability of banks. Also, numerous studies have concluded that the primary determinant of bank profitability is expense control. Profitability improvement, thus, is due to expense management. With large differences and sizes, the efficient use of labour becomes the key determinant of profitability. Djalilov and Piesse (2016) argued that staff expenses were inversely related to the profitability of a bank because they increased the cost of operations. However, Firtescu, Terinte, Roman, and Anton (2019) found a positive relationship between a bank's total profits and staff expenses. This study suggested that high profit earned by banks was appropriated by high payroll expenditures.

External factors that determine bank profitability, however, have not been influenced by the bank's policies and decisions. Various studies have devoted a substantial effort in determining the relationship between the structure of banks and their performance. Most of these studies found a positive relationship between measures of market structure and profitability. Two competing hypotheses exist with regards to market structure and performance, the efficiency-structure (EFS) hypothesis and the traditional structure-conduct-performance hypothesis (SCP). SCP is an analytical tool that explains the connection between market structure, market conduct, and its performance, while EFS predicts that under the pressure of market competition, the efficient firm grows and defeats competition so that it earns higher profits, obtains greater market share, and becomes larger. Both EFS and SCP have been used to evaluate the determinants of banks' profitability. According to the SCP hypothesis, banks can extract mo-

nopolistic rents in markets that are concentrated by trying to charge high loan rates or offer a low deposit. A theory that relates to this is relative-market-power, which argues that organizations having well-differentiated products and market shares can exercise power to earn supernormal profits. A study by Rossi, Borroni, Lippi, and Piva (2018) found that collusive profits occurred in Spanish, French, Dutch, and Italian banking markets. EFS challenges SCP by arguing that market concentration is not random because some organizations have superior efficiency. EFS states that efficient firms increase in market share and size because they are capable of generating high profits. To distinguish between these two hypotheses, studies used market share as an independent variable in their research. They modeled bank profitability as a function of interaction and concentration between market share and concentration.

Some studies also used a scale of regulation in banking industries as another variable. Cheng and Mevis (2019) found that loan losses and operating costs decreased sharply upon the deregulation of interstate banking. Other studies have also found that bank profitability is influenced by ownership characteristics. The basis for this is that different forms of bank ownership have varying management incentives. Another study by Del Giudice, Campanella, Dezi, and Al-Mashari (2016) found that GDP as a variable does not affect the profitability of banks. Durguti, Arifi, Tmava, and Kryeziu (2014), using the time series for the period 2006–2013 in Kosovo, investigated empirically the main factors (capital adequacy ratio, management efficiency ratio, asset quality ratio, liquidity ratio, investment to asset ratio, loan to asset ratio, and deposit to asset ratio) that have had a positive impact on the interest rate on loans. The study also used three bank profitability measures, namely: Net Interest Margin (NIM), Return on Equity (ROE), and Return on Assets (ROA). These factors had a strong influence on Kosovo's banking system's profitability. A study by Pacini, Berg, Tischer, and Johnson (2017) examined the impact of inflation on the stability of financial institutions in Europe. The study found that inflation strongly explained variations in bank profitability. For instance, the unexpected rise of inflation makes borrowers experience cash flow difficulties, which, in turn, can cause precipitate loan losses due to premature termination of loan arrangements. Additionally, inflation accounted for margins and operations of banks through interest rates. Barra and Zotti (2018) also claimed that variable and high inflation affected bank earnings because it makes it difficult for the bank to assess loan decisions. Also, problems in planning and negotiation for loans may arise due to inflation. Finally, inflation leads to bank financing investment that may lead to the profitability of losses, depending on the monetary policy implemented by banks.

Lastly, Detragiache, Tressel, and Turk-Ariss (2018) established that bank profitability was influenced by numerous factors, usually termed “demand” factors. To quantify all these factors is difficult, but the level of changes in income and population is very important. The level of bank earnings was, furthermore, strongly influenced by a state's per capita income within that country. On the other hand, Barra and Zotti (2018) argued that bank profits do not depend on per capita income because it may not be a good proxy for shocks in the economy that influence earnings in the banking industry. Another study by Martinho, Oliveria, & Oliveria (2017), determined that conditions such as regional employment significantly contributed to both returns on assets and bank asset quality. On the other side, Pacini et al. (2017) suggested that bank profitability depends on the location. Based on the assessment of this literature in the field of financial productivity, this revision intends to verify the following hypotheses beginning with a brief explanation of the variables under study.

Loan to assets

Loans-to-Assets (LA) ratio: This ratio measures a bank's total loans outstanding as a percentage of its total assets. If the ratio is high, an organization's liquidity is low because it shows that it is loaned up (Meriç, Kamlı, & Temizel, 2017). Therefore, the higher the ratio, the riskier a bank. Several studies have concluded that the valuation of lending potential can be assessed through the loans-to-assets ratio and, thus, it is negatively correlated with the profitability of banks.

H1: *There is a negative correlation between the loans to assets ratio (LA) and bank profitability.*

Equity to assets

Equity-to-Asset (EA) ratio: This ratio measures the amount of equity a firm or business has compared to its total assets (Christaria & Kurnia, 2016). It shows the percentage of a company that is funded by equity shares. To determine this ratio, the net worth of an organization is divided by its total assets.

H2: *There is a positive correlation between the equity-to-assets ratio (EA) and bank profitability.*

Provision for loan losses to total loans

Provision for loan losses-to-total loans (PLL/TL) ratio: this is a percentage of expenses set aside as an allowance for uncollected loan payments (Linares-Mustarós, Coenders, & Vives-Mestres, 2018). This provision is usually used to cover various factors associated with loan losses,

such as renegotiated terms of a loan, customer defaults, and bad loans.

H3: *There is a negative correlation between provision for loan losses to total loans (PLL/TL) and bank profitability.*

Natural logarithm of the total assets

Natural logarithm of the total assets ratio measures a company's short-term investments against its expenditure in the short-term. *Natural logarithm of the total assets for each financial institution {ln(assets)}*: this ratio analyses insider rates versus outsider rates in bank lending (Meriç, Kamışlı, & Temizel, 2017). This ratio also measures the capital strength of a bank in a given year.

H4: *There is a positive correlation between the natural logarithm of total assets (ln [assets]) and bank profitability.*

Market share

Market share (MSH): this is the percentage of all products in a category that a firm sells. Its calculation is obtained by dividing a business' sales by the total assets in a category. Companies that have low market shares are not viable (Linares-Mustarós, Coenders, & Vives-Mestres, 2018).

H5: *There is a positive correlation between market share (MSH) and bank profitability.*

Total assets

Total Assets (OA): this refers to the total amount of assets a company owns. They are calculated in terms of economic value and are expended over time so that they can benefit the owner (Christaria & Kurnia, 2016). These assets usually appear in the business' balance sheet. *Return on Assets*: this ratio shows the percentage of how profitable a company's assets are in generating revenue. That ratio measures a firm's management in generating revenues from their assets or economic resources (Christaria & Kurnia, 2016).

H6: *There is a negative correlation between total assets (TA) and bank profitability.*

Herfindahl index

Herfindahl index (H): this is a measure of the size of a company in relation to what indicates the level of competition among them. A low concentration indicates that the industry operates within a closer to perfect competition scenario (Linares-Mustarós, Coenders, & Vives-Mestres, 2018).

H7: *There is a negative/positive impact between the Herfindahl index (H) and bank profitability.*

Gap ratio

Gap ratio: this is a ratio of sensitive assets of a company to its sensitive liabilities. 'Rate sensitive' indicates that liabilities and assets fall or rise significantly due to changes in interest rates (Linares-Mustarós, Coenders & Vives-Mestres, 2018).

H8: *There is a positive correlation between the Gap ratio (G ratio) and bank profitability.*

Gross domestic product growth

GDP growth: this is a measure of how fast an economy is growing. Economists achieve it by comparing one-quarter of a country's GDP to the previous quarter (Christaria & Kurnia, 2016). Therefore, the GDP measures a nation's economic output. *GPI*: this is a measure of economic activity that includes negative economic factors, such as the cost of underemployment and income inequality (Linares-Mustarós, Coenders, & Vives-Mestres, 2018). GPI, thus, makes it possible to measure the quality of life in more than just cents and dollars.

H9: *There is a positive correlation between GDP growth (DGDP) and bank profitability.*

Inflation rate

Inflation rate: this is a measure of the rate at which average prices of goods and services in an economy rise over a certain period (Meriç, Kamışlı, & Temizel, 2017). It is usually expressed as a percentage; hence, it indicates a decrease in the purchasing power of a currency of a nation.

H10: *There is a positive correlation between inflation rate (INT) and bank profitability.*

Methodology and Data

This study obtained income statements and balance sheets from the International Bank Credit Analysis (IBCA) Ltd. The data used were for the period 2012 to 2019. All the statements were consolidated as of Dec. 31 of every year, and the calculations were in euros (EUR). The study worked with a balanced sample that covered all the EU banking industries. The main reason for doing so was to ensure that the results of the study were accurate and reliable. The data were pooled to account for cross-sectional differences and simultaneous considerations. This study consisted of large numbers of cross-sectional units, but it made a few time-series observations for each bank. The study also approached panel techniques that sought to exploit the time-series dimension of data to ensure that more

powerful tests were achieved. Apart from time-series analysis, cross-sectional regressions were also done. Therefore, this econometric analysis utilized regressions and time-series analysis for the econometric analysis.

The data in the sample also included accounts of subsidiaries of foreign banks. Various reasons made it difficult to omit foreign bank subsidiaries. One of them was that there was no sub-market data when defining the extent of the market. As the study aimed to evaluate bank profitability across various European markets, the market definition included assets of both foreign and domestic banks. From the literature review, it was evident that bank profitability was influenced by a variety of determinations. However, it was challenging to determine whether all of these factors were significant in determining bank profitability. As mentioned earlier, the literature review suggested that both internal and external factors determined bank profitability. This study employed four variables to account for firm-specific risk because the performance measure was not risk-adjusted. One of them was the loans-to-assets ratio (LA), which provided risk because loans are riskier compared to bank assets. Another one was the equity-to-assets ratio (EA), which measured the overall capital strength. This variable captured the average general safety of a financial institution.

Deterioration in this ratio revealed that debt financing was increasing or a decline in the bank's total asset, which is financially unhealthy. This study also used the provision for

loan losses-to-total loans (PLL/TL), which measures capital risk. This study determined that the dataset did not provide figures for Germany's ratio. Finally, this study used the gap-to-assets ratio to differentiate the liabilities and assets of various financial institutions. The literature from previous studies revealed that the distribution of different sizes of firms in various countries and industries can be approximated using skewed distributions. The natural logarithm captures the size effect for each bank. To reduce the scale effect, this study used the log of assets. This helped in controlling the risk variable related to different sizes of financial institutions and ensured the diversification of larger banks. This made it necessary to apply a long time series to estimate a cost function for banks. To analyze data, this study followed a simpler approach to measure efficiencies in the banking industry. The expectation for this was an inverse relationship with profitability.

Finally, this study included the GDP's growth rate as well as GPI (gross personal income) for each European country. Both the GPI and GDP affected the demand and supply for deposits and loans in EU banks. Real GDP drives bank profitability in various ways. First, the position of the circle influences bank asset quality. Also, default risk is related to loan loss provisions. Bank profitability will be positively related to GDP because, during upturns, there will be high demand for bank credits. Also, GDP can be used to measure market size because the larger the market size, the higher the GDP. In contrast, a negative coefficient may exist because countries with higher GPI or GDP have

Table 1. Small and large banks in the sample

Professors Country	Small banks	Large banks	Total
Greece	4	4	8
Netherlands	14	5	19
Portugal	13	7	20
Belgium	18	7	25
Italy	163	25	188
UK	51	15	66
Finland	2	4	6
Denmark	56	5	61
France	176	34	188
Spain	42	19	61
Germany	0	1	1
Ireland	5	3	8
Sweden	3	9	12
Total	547	138	685

financial institutions that operate in a mature environment, thus, leading to competitive profit margins and interest rates. This study also utilized data from the national statistics published in International Financial Statistics. The sample for the study included six hundred and eighty-five banks in Europe (547 small banks and 138 large banks). Table 1 shows the number of banks in the sample.

The summary for statistics is provided in table 2 below. The standard deviation of profits rates is 1.2726, while the mean is 0.9297. The LA ratio had a mean value of 54% and a standard deviation of 20%. The significant variation of equity was 3.92%, with an average of 0.077 of total assets.

The mean values for dGPI and dGDP have similar levels. It is also worth mentioning that there is a high variability of the market share and PLL/TL variable (11.08% and 2.64%, respectively). Lastly, the total assets (OA) had a significant positive kurtosis, while ROA had negative skewness.

The correlation matrix is presented in table 3. The variables were selected in the order of their highest correlation with dependent variables. The study found a significant positive relationship between EA and ROA variables. It also found a negative correlation between OA and EA variables.

Table 2. Descriptive Statistics

	mean	-variance	Std. Dev.	Skew.	Kurt.	Min.	Max.
LA	54.0069	370.6758	19.2529	0.0861	-0.1490	0.3310	99.5503
Ln. assets	14.5790	3.6019	1.8978	0.3907	0.0901	9.3393	20.3752
ROA	0.9297	1.6245	1.2746	-4.7911	75.2807	-22.6530	14.6611
OA	2.9963	1.9696	1.4034	0.8463	4.1734	0.0398	15.2950
Gap	0.0603	0.0024	0.0485	0.1074	1.3588	-0.1831	0.3796
H	786.6545	263129.20	512.9612	1.9231	3.3595	249.2857	3637.543
EA	7.7217	15.3816	3.9219	0.9458	1.6346	-11.2884	38.4245
MSH	2.4319	122.7822	11.0807	9.4619	110.2415	0.0015	179.0446
PLL/TL	1.1386	6.9922	2.6440	9.7118	271.7168	-37.0154	77.7832
DGDP	4.8098	268.3048	16.3800	3.9170	24.3683	-37.2823	106.4748
INT	6.1488	5.8432	2.4173	2.0506	12.9465	3.0754	227.2734

Table 3. Correlation between variables

	Lnas	ROA	OA	Gap	H	EA	MSH	LLP/ TL	DGDP	INT
Lnas	1.000									
ROA	0.360	1.000								
OA	0.110	-0.410	1.000							
Gap	0.320	-0.231	0.063	1.000						
H	0.080	-0.022	0.021	0.320	1.000					
EA	0.390	-0.511	-0.070	-0.010	0.376	1.000				
MSH	0.010	0.430	-0.183	0.694	-0.167	-0.012	1.000			
LLP/TL	-0.430	-0.090	0.064	-0.032	0.371	-0.163	-0.144	1.000		
DGDP	-0.080	-0.080	0.001	-0.011	0.043	0.076	0.033	0.033	1.000	
INT	0.080	-0.020	0.021	0.010	0.204	-0.022	0.087	0.221	0.287	1.000

Results and Discussion

This study adopted a multiple regression framework to help in testing the hypothesis regarding factors of EU bank profitability. This paper used the fixed-effect model because there is a correlation between independent variables and the individual-specific effects. The basic equation for this study is:

$$DEP_{jit} = \alpha + \beta_1 LA_{jit} + \beta_2 EA_{jit} + \beta_3 \frac{LLP}{TL}_{jit} + \beta_4 LnAssets_{jit} + \beta_5 MSH_{jit} + \beta_6 OA_{jit} + \beta_7 H_{jit} + \beta_8 Gap_{jit} + \beta_9 DGDP_{jit} + \beta_{10} INT_{jit} + \mu_{jit} \quad (1)$$

where j refers to the country of operation, i is the individual bank, while t refers to the time.

For each group of regression results and at each stage of model building, this study performed the regression with all variables as well as examined results. The observations in this study were 2,425, with a satisfactory level of 0.68. The regression's standard error is 0.0731, while the significant positive and negative effects were 4.5202 and -8.4756, respectively. The DW test was 1.78; hence, either negative or positive first-order correlation exists. R-squared was at a satisfactory level of 0.71, while the adjusted R-square was at 0.63. The results showed that, at the 5% level in the regression model, all variables were significant. These variables had the expected sign. The results of the Hausman test revealed that it is more appropriate to use fixed effects rather than random effects. The level of interest rates and the

change of GDP had a significant positive effect (t-statistics = 4.5202), while the market structure variables had significant negative effects (t-statistics = -8.4756). Apart from the variables mentioned above, all others had expected signs with significant influence. Table 4 shows the results. It is clear that loan to assets, equity to assets, provision for loan losses to total loans, the natural logarithm of assets, total assets, gap, GDP growth, and inflation consume important positive or adverse effects on banks productivity. While market share and the Herfindahl index are non-significant influences on profitability. The hypotheses of this study will be presented below as well as their sound effects on the expected results. *Hypothesis 1*: loans to assets in relation to productivity retained a negative impact, by a significance level of 1%, and the hypothesis was confirmed. The result is fully in mark with the findings of Hasan MK and Bashir (2003) and Staikouras and Wood (2004), who found that if the banks increased loan volume along with lower margins, it could be presumed to hurt profitability. *Hypothesis 2*: equity to assets or known capital adequacy ratio in relation to profitability has a positive influence on the productivity of banks, through an importance level of 1%, and the hypothesis is confirmed. The results are in line with the findings of Durguti, et al, (2020) and Menicucci and Paolucci, (2016) who found that banks with more capital have greater protection from insolvency.

Hypothesis 3: provision for loan losses to the total loan is confirmed with a significance level of 1% and with a negative impact on the bank's profitability. Based on this, any

Table 4. Empirical Results

The standard regression error is 0.0731		Durbin Watson is 1.7816		
Residual's variance is 0.5977		LM het. Test is 444.3840		
The sum of the squared residuals is 1630.4		R-squared is 0.7069		
		Adjusted R-squared is 0.6321		
Variable	Std. Error	Est. Coefficient	p-value	t-stats
LA	0.0031	-0.0119	[0.000]	-3.8547
EA	0.0147	0.1968	[0.000]	13.3499
LLP/TL	0.0068	-0.1806	[0.000]	-26.4952
Lnas	0.0820	0.7022	[0.000]	8.5659
MSH	0.0109	-0.0104	[0.343]	-0.9488
OA	0.0335	-0.1860	[0.000]	-5.5549
H	0.0002	0.0000	[0.812]	-0.2379
Gap	0.8495	2.1827	[0.010]	2.5695
DGDP	0.0009	0.0076	[0.000]	8.4756
INT	0.0188	0.0537	[0.000]	4.5202

growth in this percentage has an impact on reducing the profit of banks. In this sense, the authors, Miller and Noulas (1997), have found that there is a negative relationship between credit risk (inadequate credit risk), which obliges banks to raise the provision for loan losses with the profitability of banks. The natural logarithm assets indicator revolved out to be significant with a positive impact on the profitability of banks and, at a similar time, the confirmation of *hypothesis 4* is completed in the framework of this study. This study is in full accordance with the study conducted by the authors Durguti et al. (2020) and their findings were that assets had a positive impact on increasing profitability. Total assets defined in *hypothesis 6* turned out to be significant at the level of 1%, with a negative impact on the profitability of banks, and this result was similar to the study directed by the authors Christaria and Kurnia (2016). They found that banks that had sound assets had the financial capacity to support their customers, but their inadequate management turned out to have a negative impact on the profitability of banks. *Hypothesis 8* is also confirmed at the level of importance 10%, with a positive impact on the profitability of banks. *Hypothesis 9* was proven on GDP growth in banks' profitability is confirmed at the importance level of 1% with a positive effect. The T-statistic of this variable was 8.4756. The results of our study have been in line with those of Athanasoglou et al. (2008) and Albertazzi and Gambacorta (2009). They assumed that bank profitability depended primarily on growth, except for those countries where international groups can own assets. And finally, in *hypothesis 10*, the inflation rate was confirmed with a significance level of 1% and had a positive impact on increasing the productivity of banks. The effects were paralleled with the authors Tan and Floros (2012), who discovered the profitability of banks in China over the period 2003-2009. They used the GMM technique and established that employment productivity, stock market expansion, cost-effectiveness, and inflation have a highly positive effect on banks' profit. Hypotheses 5 and 7 were not confirmed or rejected as their value was non-significant and, as such, was irrelevant to treatment.

Size Effects

This study split the banks based on the cut-off point defined earlier for the financial institutions' size. In this case, the sample consisted of two sub-samples: 547 small banks and 138 large banks. Table 4 above introduced all the variables in the model. All of them were significant with the expected sign, except three variables, namely: H, MH, and DGPI.

For small banks, the t-statistics were more significant than those of the large banks. The results of this study support the recent researches that argued that bank profitability depends on both internal and external factors.

Conclusion

It is essential to test the robustness of banks' profitability because it sheds light on the assessment of banks' performance. This study is significant to the current ongoing restructuring and consolidation of the banking markets in Europe. Banks need to note that both internal and external factors are crucial in determining their performances. Other crucial factors for bank profitability are market structure and pricing by financial institutions. It is, thus, important for banks to take these factors seriously. EU bank profitability is influenced not only by internal factors but also by changes in the external environment. Financial institutions with greater levels of equity generate higher profits. Also, banks that have large non-loan assets are more profitable. The results of this study are in contrast with those that investigated structure-performance relationships for EU banks because those studies found that profitability relates positively to market share variables. Confirmation/rejection of these hypotheses was done at a significance level of 1%, 5%, and 10%. The results overhead illustrations that out of the 10 factors applied in the analysis, 8 of them were confirmed to affect the profitability of banks (in EU countries), and only two of them had no impact.

The empirical results of this study reveal that various variables are crucial in determining the profitability of EU banks. The EA ratio consistently had the same level of significance and sign, which reveals that banks with higher levels of equity are more profitable than others. There was also an inverse relationship between the LA ratio and the bank returns on assets. The implication of this is that a bank is more profitable if it has a great many non-loan earning assets than when it relies heavily on assets. The PLL/TL ratio was significantly negative, and the funds' Gap ratio was significantly positive. In either regression, no significant differences existed in the MSH variable. The variable was found to be negative and unstable in some regressions. However, the exclusion of the loan reserve variable negated the concentration. The variability of the GDP growth rates and interest were negative, while the level of interest rates was positive.

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Izzivi donosnosti bank v državah evrskega območja: analiza posebnih in makroekonomskih dejavnikov

Izveček

Na donosnost finančne institucije vplivajo številni dejavniki. Nekateri od teh dejavnikov vključujejo zunanje sile, ki oblikujejo rezultate na področju dobička, in notranje elemente, ki so prisotni v vsaki finančni instituciji. Politični vplivi so odvisni od vrste razlage in jih je treba jemati resno. Ta članek razvršča determinante donosnosti bank, hkrati pa služi kot pregled obstoječe literature o uspešnosti bank. Drugi del te raziskave meri, kako zunanji dejavniki in notranje determinante vplivajo na donosnost bank v EU. Članek vsebuje modele s fiksnim učinkom in OLS (metode najmanjših kvadratov) ter v novi luči prikazuje različne dejavnike, ki vplivajo na uspešnost bančnega sektorja EU. Obdobje opazovanja je bilo od leta 2012 do 2019 in ugotovitve kažejo, da na donosnost bank v EU vplivata tako zunanje makroekonomsko okolje kot upravljavsko odločanje. Rezultati študije kažejo, da razmerje med kapitalom in premoženjem (EA), razmerje vrzeli in BDP pozitivno vplivajo na donosnost bank, medtem ko razmerje med posojili in premoženjem (LA) ter razmerje med rezervacijami za posojilne izgube in skupnimi posojili (PLL/TL) negativno vplivata na donosnost bank v EU. Empirične ugotovitve se ujemajo s pričakovanimi rezultati, vendar se razlikujejo od študij, ki so proučevale razmerje med strukturno uspešnostjo bank v EU, ker ugotavljajo, da tržni delež in koncentracija pozitivno vplivata na donosnost bank.

Ključne besede: donosnost bank, regresijska analiza, panelni podatki, države EU

The Importance of Corporate Governance of Banks Concerning the Ownership in the International Environment

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Abstract

The analysis of the factors of corporate governance is divided into four thematic sections. In the first part corporate governance is defined as part of the broader economic context. The second part deals with the principles of corporate governance. In the third part, the relation between the index of corporate governance and individual indicators (an indicator of commitment, transparency, and disclosure, caring for partners, and control and audit) regarding ownership is defined. An analysis was undertaken for the countries of Central and Eastern Europe. A higher level of foreign ownership had a positive correlation with the corporate governance index. On the other hand, the correlation between state ownership and corporate governance index was not clear. The prevention of poor banking practices does not only lie in controlling functions, but also in the general corporate and risk-taking cultures, and the social perception of managerial roles, regardless of ownership structure.

Keywords: corporate governance index, state ownership, ownership structure, corporate governance principles, board independence

Introduction

Sound corporate governance has become increasingly important since the economic and financial crisis that began in 2007, which exposed serious flaws in corporate governance. The crisis showed that the management tools were inefficient, especially when confronted with unexpected pressures and conflicts of interest. It was also shown that different ownership structures had different influences on governance and responsiveness during a time of crisis.

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This research addresses whether state ownership had a negative influence on corporate governance and, subsequently, on bank performance.

Central European countries in transition privatized most state-owned companies. Different methods were used for privatization that reflected on different types of ownership structures. Ownership concentration refers to the number of shares owned by individual shareholders and institutional investors.

The results of different research show that the structure of bank ownership has a strong influence on bank performance. Much research has been carried out in the last decades on corporate governance, but researchers have not been unanimous about its influence on performance, how important factors differed among countries, or what the most efficient measures and conditions for the improvement of corporate governance and, potentially, its influence on performance are.

We analyzed the correlation between ownership concentration and corporate governance. Based on our research results it can be confirmed that bank ownership structure has an impact on corporate governance. This means that bank ownership structure has effects on the relationship between corporate governance and bank performance. We structured the corporate governance index, which consists of an indicator of commitment to CG, an indicator of monitoring and auditing, an indicator of the supervisory board and management structure, an indicator of stakeholder care, and an indicator of transparency and disclosure. The analysis was done on the case of Eastern European Countries and it is the contribution of our research.

Literature Overview: Corporate Governance

Organization for Economic Cooperation and Development (hereinafter OECD) in its Principles of Corporate Governance (2009) defined corporate governance as one of the key elements for the improvement of economic efficiency and growth, as well as for increasing investor confidence. According to the OECD definition, corporate governance is comprised of a set of relationships among the company management, its board, its shareholders, and other stakeholders. Corporate governance also provides the structure through which the objectives of the company are set and the tools for attaining those objectives and monitoring performance. An effective system of corporate governance and the national economy contribute toward building an environment of trust necessary for the proper functioning of a market economy.

Corporate governance is a part of a wider economic context, comprised of macroeconomic policies and market factors, namely the legal, regulatory, and institutional environment. Additionally, it incorporates business ethics and the responsibility of companies to the environmental and social development of society.

Company power should be distributed according to the risk level attributed to individual stakeholders. The role of management is to adjust the interests of individual stakeholders. The supervisory board should, in addition to assessing financial statements, set up assessment mechanisms for evaluating management work and strategy implementation, as well as improving their expertise for successful functioning in boards (e.g. the audit board, risk management, remuneration, etc.).

Worldwide, different systems of corporate governance are used. The Anglo-Saxon model emphasizes the interests of shareholders, whereas the models used in Europe and Japan consider the interests of all stakeholders—shareholders, employees, managers, suppliers, buyers, and the community.

Jensen (1993) reported that there were four categories of mechanisms in corporate governance, aimed towards solving problems that stem from the divergence between management decisions and optimal decisions for the company, namely: (1) capital markets, i.e. *mechanisms of external control*; (2) legal/political/regulatory arrangements, i.e. *legal and legislative mechanisms*; (3) product markets, i.e. *product market competition*, and (4) internal control led by the supervisory board, i.e. *internal control mechanisms*. Shleifer and Vishny (1997) argued that the mechanisms of corporate governance were economic and legal institutions that can be altered during a political process to ensure a return on invested capital for the investors. When analyzing the mechanisms of governance, they focused mainly on *incentive contracts*, legal protection, and power for investors, above all with regard to the arbitrary actions of the management (protection of minority shareholder rights) and the ownership of large investors (concentrated ownership), i.e. matching of important control rights with important cash flow rights. Denis (2001) wrote about four governance mechanisms: (1) *legal and regulatory mechanism*, which are external to the company, (2) *internal governance mechanisms*, which include boards of directors, remuneration, ownership, and debt; (3) *external governance mechanisms*, i.e. the takeover market, and (4) *product market competition*. Hughes and Mester (2010) asserted that internal discipline can be established through the organizational form, ownership structure, capital structure, management boards, and the remuneration of management. External discipline is influenced by government

regulation and a secure network as well as through the capital market discipline (takeovers, cost of assets, the ability of stakeholders to sell shares, competition on the manager job market, external blockholders, and the competition on the product market).

The Influence of ownership structure on corporate governance

Central European countries in transition privatized most state-owned companies. Different methods have been used for privatization, which was reflected in different structures of ownership. Ownership concentration refers to the number of shares owned by individual shareholders and institutional investors. Large shareholders tend to seek a high level of control over company management. The same interest is shown by institutional investors (e.g. mutual funds, pension funds), which operate with large quantities of money and want to ensure appropriate yield. Large shareholders have a lively interest in monitoring the performance of the supervisory board and management.

Initially, the research was focused on the idea that companies were owned by shareholders, that ownership was diversified, and that supervisors were not shareholders. During the late '80s, research showed that many companies were owned by large shareholders (Denis & McConnell, 2003). Erkens et al. (2012) discovered that companies with larger institutional ownership operated less successfully during the 2007 crisis, noting that institutional owners had taken greater risks before the crisis. They also discovered that such companies had lower yields per share during the crisis, mainly because before the crisis independent managers and institutional shareholders encouraged managers to increase shareholder yields by making risky decisions. On the other hand, Aljifri and Moustafa (2007) asserted that institutional investors did not have an important influence on company operations, whereas state ownership did. As noted by Denis and McConnell (2003), supervisors often own a part of the company they supervise. It is reasonable to conclude that a higher overlap between ownership and supervision leads to a lower conflict of interests and, consequently, towards a higher value of the company. If owners are managers, this contributes towards the harmonization of interests between management and company owners. Higher management ownership and the fact that the interests of owners and the management are not consistent can ensure more freedom for the management and enables them to follow their interests. When the ownership is diversified and when parts of the company are owned by small shareholders, there is little incentive for spending a lot of resources on management monitoring or for influencing the decision making within the company.

For many small shareholders »*free-rider problem*« reduces incentives for coordinating their activities. Denis and McConnell (2003) discovered that when blockholders (large shareholders) used their power, it is more likely that decisions will be made that increase the value for all shareholders. Nevertheless, blockholders also have some personal benefits. These benefits may not be harmful to other shareholders, e.g. access to influential people for large shareholders. The effect of ownership of benefits of supervision over large owners and the potential private value exploration of the company by large owners.

Many studies discussed the question of whether the effects of privatization were reflected in the operating performance of companies. Megginson, Nash, and Van Randenborgh (1994) investigated 61 state-owned firms from 18 countries, which had been privatized between 1979 and 1990. The results showed that, on average, privatized companies increased their sales, became more profitable, improved their operating efficiency, and increased the number of employees. Similar findings were reported by Boubakri and Cosset (1998), who studied 79 firms from 21 developing countries between 1980 and 1992. Claessens and Djankov (1999) also reported higher productivity and growth on a sample of 6354 privatized firms from Eastern European countries during the period 1992–1995. On the other hand, Dewenter and Malatesta (2001) found that government-owned firms were considerably less profitable and efficient than privately-owned companies but did prove that privatization alone did not influence higher profitability. On the other hand, they identified that profits increase within the three years before privatization.

Majumdar (1998) found that privately-owned enterprises were more efficient than state-owned or mixed-ownership enterprises. He also stated that mixed-ownership firms operated more efficiently than state-owned companies. Frydman, Gray, Hessel, and Rapaczynski (1999) argued that the influence of privatization was not the same for different types of companies and that efficiency did not improve when »insiders« were present in ownership structure, but only when external owners were present (i.e. non-employees). In a sample of Czech firms, Claessens and Djankov (1999) discovered that the more ownership structure is concentrated, the higher the company profitability and labor productivity.

The influence of remuneration

Remuneration is a mechanism of governance, which is based on performance. Individuals are offered bonuses, company shares, higher performance rewards, additional days off work, and other perks (see Słomka-Gołębiowska

& Urbanek, 2014). By remunerating good work, the company improves its business operations. The selection of appropriate remuneration (salary, bonuses, long-term incentives) is important because it aligns management's interests with the interests of shareholders.

The influence of transparency

Firms can reveal pay packages voluntarily when there is no system of compulsory disclosure. Millar et al. (2005) found out that the ideal system of corporate governance in the 21st century does not exist, but that the most efficient systems should follow an integral approach, which encompasses aspects of different systems that are used around the world. Research findings of Millar, & Eldomiaty et al. (2005) also showed the influence of business systems on corporate governance practices, with transparency being one of the determinants of efficiency in the model of corporate governance. Institutional transparency is closely related to information revealed to company shareholders but depends on the ownership structure. The disclosure of information, i.e. transparency, depends on institutional regulation for different types of business systems, among which the efficiency of legal institutions is of the utmost importance because it sets the borders between obligatory and voluntary information disclosure. The fierce competition requires that firms respond quickly and do not wait for the new legislation in the field of disclosures, which will tell them what, where, why, how, and when to make disclosures to their shareholders.

Mahoney and Mei (2009) stated that there is no proof that new disclosure requirements, which, for instance, are set in securities legislation and refer to the remuneration of management and large shareholders, reduced the asymmetry of information. Firms that disclose information regarding their operations reveal their business operations to the competition, but on the other hand, take care of their development and progress. This is, in times of fierce competition, of extreme importance.

Principles for the improvement of corporate governance

A healthy banking system is a precondition for a sound corporate operation and a strong stock market. According to Ribnikar (2009), therefore the state must introduce »suitable normative rules that regulate the functioning of credit institutions«. During the crisis, banks increased their dependence on the state, which ensured them liquidity and survival. Undoubtedly, the last financial crisis also shows that management and supervisory boards did not fulfill their role.

Due to all shortcomings in corporate governance, even more so during the times of crisis that started in the middle of 2007, the Basel Committee on Banking Supervision decided to revise the guidelines.

Sound corporate governance requires efficient legislation and regulation. Several factors including business law, stock exchange rules, and accounting standards can also influence market integrity and system stability but are frequently outside the scope of bank supervision.

Improvement of *corporate governance* was based on 14 principles (Basel Committee on Banking Supervision, 2010).

1. The board should carry out responsibility for the bank. It approves and oversees the implementation of the bank's strategic goals, risk strategy, corporate governance, and corporate values.
2. Board members should be and remain qualified, including through training. They should have a clear understanding of their role in corporate governance and be able to exercise sound decisions about the affairs of the bank.
3. The board should define appropriate governance practices for its work and ensure that such practices are followed and upgraded.
4. The group board is responsible for adequate corporate governance across the group and ensure there are governance policies and mechanisms appropriate to the structure, business, and risks of the group and its entities.
5. Under the direction of the board, senior management should ensure that the bank's activities are consistent with the business strategy, risk tolerance, and policies approved by the board.
6. Banks should have an effective internal control system and a risk management function (including a chief risk officer) with sufficient authority, stature, independence, resources, and access to the board.
7. Risks should be identified and monitored on an ongoing firm-wide and individual entity basis. Bank's risk management and internal control should keep pace with any changes to the bank's risk profile (including its growth) and the external risk landscape.
8. Effective risk management requires robust internal communication about risks, both across the organization and through reporting to the board and senior management.
9. The board and senior management should effectively utilize the work conducted by internal audit functions, external auditors, and internal control functions.
10. The board should actively monitor and review the compensation system (design and operation) to ensure that it operates as intended.

11. Employee compensation should be aligned with prudent risk-taking adopted by the bank. It should be adjusted to all types of risks and symmetric with risk outcomes. Compensation payouts schedules should be sensitive to the time horizon of risks. Compensation payout (mix of cash, equity, and other forms of compensation) should be consistent with risk alignment and will likely vary across employees, depending on their position a role in the bank.
12. The board and senior management should know and understand the bank's operational structure and the risks that it poses.
13. When a bank operates through special-purpose or in environments that impede transparency or do not meet international banking standards, its board and senior management should understand the purpose, structure, and risks of these operations and see to mitigate the identified risks.
14. The governance of the bank should be transparent to its shareholders, depositors, other relevant stakeholders, and market participants.

Weaknesses of corporate governance in financial institutions are primarily related to legal protection, rule of law, conflicts of interest, and other factors.

Himmelberg, Hubbard, and Love (2002) noted that the lack of legal protection for investors is reflected in the larger ownership share of the company's capital owned by internal shareholders (i.e. there is a negative link).

Dittmar, Mahrt-Smith, and Servaes (2003) claimed that companies in countries in which shareholder rights are not well-protected and have surplus cash (i.e. companies have up to twice as much money as companies in countries with good legal protection of shareholders).

Research showed that better legal protection for investors is linked to the higher valuation of stock markets (La Porta, Lopez-de-Silanes, & Shleifer, 2002). Industry and companies in better legal regimes rely more on external sources of funding for their growth (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1997). Greater security for investors also increases the desire for investors to finance and is reflected in lower costs and greater access to external funding sources (Durnev, & Kim, 2005).

La Porta, Lopez-de-Silanes, Schleifer, and Vishny (1998) claimed that the legal system was a fundamentally important mechanism of corporate governance. The degree to which national law protects the rights of investors and to which laws are implemented is the most basic determinant of the direction under which corporate finance and corporate governance in the country are implemented.

Gillan and others (2007) have shown that independent supervisory councils can serve as a substitute for the supervision of companies by the market and that causality takes place from the supervisory board to the choice of the provisions.

Conflicts of interest

Due to the systemic risks, the diversity of transactions, the diversity of financial services, and the complex structure of large financial groups, conflicts of interest in financial institutions have an even greater significance (Burkart, & Panunzi, 2001). Conflicts can arise in a variety of situations such as when exercising incompatible roles or activities, or between a financial institution and its shareholders/investors where there is cross-shareholding or a business link between an institutional investor and a financial institution in which it is investing.

The role of shareholders

New categories of shareholders have appeared, which seem to show little interest in the long-term governance objectives of the businesses or financial institutions in which they invest. They focus, instead, primarily on short-term (quarterly or half-yearly) goals, which encourages excessive risk-taking. Often, a director's interests followed these short-term interests that amplified risk-taking and contributed to excessive remuneration for directors, based on the short-term share value of shares as the only performance criterion. The disinterest of shareholders concerning their financial institutions can be explained by several factors, described below (Francis et al., 2013):

- Certain profitability models, based on possession of portfolios of different shares, lead to the disappearance of the concept of ownership normally associated with holding shares;
- If the participation of shareholders is minimal, the cost that institutional investors would face if they wanted to actively engage in governance can dissuade them;
- Conflicts of interest;
- The lack of effective rights to exercise control; obstacles related to the lack of cross-border voting rights; uncertainty regarding legal concepts; and financial institutions' disclosure of information being too complicated.

When politicians serve as proprietary directors, representing large shareholders, or as executive directors, there is some evidence that board monitoring performance deteriorates (Pascual-Fuster and Crespi-Cladera, 2018).

The role of supervisory authorities

Supervisory authorities possess tools enabling them to intervene in the internal governance of financial institutions,

but due to financial innovations and the rapid change in the business model of these institutions, effective supervision has not been always carried out. Besides, the supervisory authorities often have failed to enforce strict eligibility criteria for members of boards of directors nor do they check if their risk management systems and internal organization were adapted to changes in their business model and financial innovations.

The role of auditors

Auditors have played a key role in the financial systems of corporate governance systems because the auditors assured that the financial statements prepared are credible. However, conflicts of interest can arise, because audit firms were remunerated by the very same companies who mandate them to audit their financial accounts. Financial reporting quality was higher for firms whose board's audit committees had a greater proportion of independent directors who reside close to a firm's headquarters than for firms whose boards consist of directors who are more geographically dispersed (Firoozi et al., 2018).

Also, the importance of ownership structure for corporate governance of banks is described below:

Board of directors

At the heart of the origins of the 2007 crisis was the failure of financial institutions to identify, understand, and control risks for many of the following reasons:

- Members of boards of directors (in particular non-executive directors) devoted neither sufficient resources nor the time to the fulfillment of their duties;
- Members of boards of directors did not come from sufficiently diverse backgrounds in terms of gender, social, cultural, and educational backgrounds;
- Boards of directors (in particular their chairmen) did not carry out a serious performance appraisal of their members or the board of directors as a whole;
- Boards of directors were unable to ensure the appropriate risk management framework;
- Boards of directors were unable to recognize the systemic nature of some risks, and thus, did not provide sufficient information to their supervisory authorities.

There is also a question about the quality of appointment procedures for members of the boards of directors (Becht et al., 2002).

Problems related to the efficient implementation of corporate governance in financial institutions

The 2007 crisis showed that the principles of corporate governance were not efficient in the financial services sector,

especially in banks. Weaknesses defined in the *Green Paper* were the following (European Commission 2010a, 2010b):

- The existing principles of corporate governance were too broad in scope and were not sufficiently precise, giving financial institutions too much scope for interpretation;
- Within the financial institution and the supervisory authority, roles and responsibilities for implementing the principles were not allocated;
- The principles were based on non-binding recommendations by international organizations or the provisions of corporate governance with a lack of relevant checks and an absence of deterrent penalties.

Risk management

Risk management is one of the key aspects of corporate governance in financial institutions, which was not managed holistically. The main shortcomings were (Tandelilin et al. 2007):

- A lack of understanding of the risks on the part of those involved;
- A lack of authority on the part of the risk management function to have sufficient powers and authority to be able to curb the activities of risk-takers;
- Lack of expertise in risk management. The assessment of expertise was focused only on priority risks and did not cover any other risks;
- A lack of real-time information on risks. It is important to set up an efficient flow of clear and correct information on risks and to upgrade IT tools for risk management so that risks can be consolidated rapidly, allowing the evolution of group exposures to be followed up effectively in real-time.

Particular responsibility for the implementation of good practices of risk management on all levels lies with the directors of financial institutions because directors must be themselves exemplary.

Ownership structure

Schleifer and Vishny (1997) discussed the importance of legal protection and concentrated ownership for sound corporate governance. Improved control over the largest shareholders leads to actions that increase company value and the overall position of all shareholders. On the other hand, concentrated ownership makes it possible for the largest shareholders to have discretionary power to achieve their advantages on behalf of other shareholders, which may lead to a decrease in the company value.

Magalhaes et al. (2010) claimed that a concentrated ownership structure enables more efficient control, and, consequently, improves business operations. In the same manner, Caprio et al. (Caprio, Laeven, & Levine, 2007)

concluded that concentrated ownership represents an important mechanism for governing banks. They found that greater rights of controlling shareholders over the cash flow increase bank value. That larger concentration of ownership increases bank value was also confirmed by Li and Song (2010), while Love and Rachinsky (2007) believe that banks with highly concentrated ownership have considerably poorer corporate governance.

The influence of ownership (foreign/domestic) and corporate governance (the composition of the board – external and/or foreign members) on performance (profit) and bank risks was studied by Choi and Hasan (2005). The results of their research show that there is a positive and significant correlation between foreign ownership and the operation of banks. Foreign ownership per se does not have an important influence, but the scope of foreign ownership has a positive and statistically significant influence on bank profit and risk. Banks employing a combination of increased foreign ownership and the presence of a foreign director on the board were associated with positive and significant bank performance. The influence of increased foreign ownership on bank's interest revenues was studied by Lensink and Naaborg (2007). The results of their research show that an increase of foreign ownership has a negative and strong influence on the operation of banks, above all in terms of net interest revenues and profitability.¹ Banks with a lower degree of foreign ownership are more profitable and able to raise more net interest revenues. Tandelilin et al. (2007) found out that bank ownership influences both—the relationship between corporate governance and bank operations and the relationship between corporate governance and risk management. Banks with foreign owners have a better implemented corporate governance than banks owned by the state or domestic banks that are privately owned. The authors proved the hypothesis that better corporate governance leads to improved bank performance.

Barako and Tower (2007) studied the relationship between ownership structure and bank performance. The results of their research showed that a bank's ownership structure had a strong influence on bank performance. The ownership of the board and the ownership by the state are significantly and negatively correlated with bank performance.

Institutional shareholders did not significantly correlate with performance, but foreign ownership had a significant and positive correlation with bank performance. Cornett et al. (2010) found that, in the period between 1989 and 2004, state-owned banks performed with lower profits, they had core capital, and were a greater credit risk than privately-owned banks. The difference in bank performance was particularly strong in countries with greater government involvement and political corruption in the banking system. The difference between state-owned banks and privately-owned banks was lessened after the crisis in the period from 2001 to 2004. Wen (2010) found out that there was no apparent correlation between ownership structure and bank operations. He stated that state-owned commercial banks can reach a square ratio with ROE (return on equity).

Spong and Sullivan (2007) found that manager ownership can improve bank performance. Boards have a positive influence on bank performance when directors had an important financial interest in the bank. The wealth and financial position of managers and directors were negatively correlated, and manager ownership was positively correlated, which was an important correlation with risk-taking.

Research: Empirical Analysis of Corporate Governance and Its Influence on Bank Operations in Selected Countries

Much research has been done dealing with corporate governance. However, researchers have often studied only the influence of a certain spectrum of governance. Also, research has often failed to give an extended insight into corporate governance and its influence on performance. This research mainly deals with the impact of ownership structure (Love & Rachinsky, 2007; Lskavyan & Spatarea-nu, 2006; Magalhaes et al., 2010; Li & Song, 2010; Choi & Hasan, 2005; Lensink & Naaborg, 2007) or the impact of the structure of management boards (Adams & Mehra-na, 2003; Kyereboah-Coleman & Biekpe, 2006; Dahya et al., 2008; Li & Song, 2010; Choudhry, 2011) on corporate governance. In addition, research on remuneration, social responsibility, and corporate governance can be found in the literature.

Despite the vast amount of research carried out during the last decades, researchers have not been unanimous about the influence of corporate governance on performance, nor about how important factors differ among countries, or what are the most efficient measures and conditions for the improvement of corporate governance and its influence on actual performance.

¹ In the banks struggling with profitability the balance sheet was shrunked by reducing their lending to meet stricter capital requirements at the early stage of Basel III (more in Andrieu et al. 2019). There are significant differences in lending behavior between domestic and foreign banks (see, Fidrmuc & Kapouněk 2019). Foreign owners have significant participation in domestic banks (when there are constraints on the supply of credit and as the external solvency of the economy and the banking sector is ensured by their negative international investment position). Banks face increasing regulatory requirements under Basel III (see Brůna & Blahová 2019).

Corporate governance variables were divided into five sets of indicators that form the so-called corporate governance index. Figure 1 shows a schematic presentation of the model of corporate governance. Performance of corporate governance was measured with indicators: return on average assets (ROAA), return on average equity (ROAE), and net interest income (NETII).²

Research variables

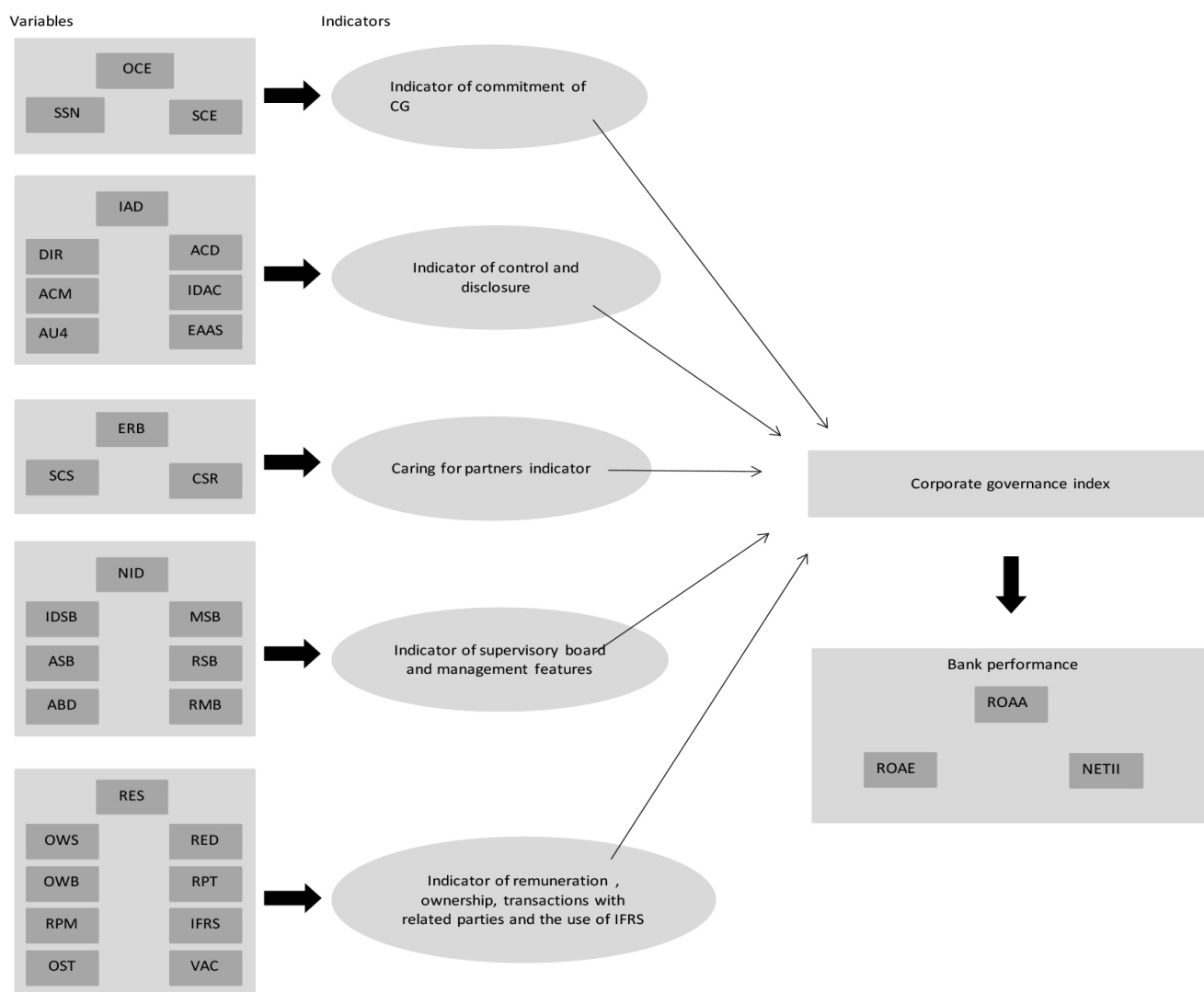
Table 1 shows a list of all independent variables. Based on selected parameters (variables) we designed a matrix and then, based on a review of annual reports, collected the required data.

Five indicators were used in our research, namely:

- Indicator of commitment to CG,
- Indicator of monitoring and auditing,
- Indicator of the supervisory board and management structure,
- Indicator of stakeholder care,
- Indicator of transparency and disclosure.

Individual variables for an indicator are dummy variables, with the value 1 representing sound governance, whereas the value 0 represents poor governance. The sum of the values of variables form indicators or the so-called index of corporate governance. Subsequently, the index values were standardized.

Figure 1. The model of corporate governance and its impact on bank performance³



^{2,3} The abbreviations are explained in Table 1.

Table 1. List of independent variables

Independent variable	Symbol	Description	Source
Indicator of commitment to CG (corporate governance)	CG	Indicator of commitment CG comprises three variables 1) Own code CG, 2) Chapter on CG, 3) Declaration of compliance with the code.	Own calculations
Own code on CG	OCE	1 if the bank has its own code CG; 0 if the bank does not have its own code.	Annual reports and own calculations
Chapter on CG	SSN	1 if bank annual report includes a chapter on CG; 0.5 if the annual report includes only some data related to CG; 0 data regarding CG are not disclosed	Annual reports and own calculations
Declaration of compliance with the code	SCE	1 if the bank's annual report includes declaration of compliance with the code CG; 0 if the declaration of compliance does not exist.	Annual reports and own calculations
Indicator of control and audit		Indicator of control and audit comprises 7 variables: 1) the existence of internal auditing department, 2) if internal audit reports directly to the board, 3) the existence of auditing board (AB), 4) disclosure of names and functions of members of auditing board, 5) (in)dependency of the president of AB, 6) if the external auditor is one of the four international auditing companies and 7) additional services of internal auditor.	Own calculations
Internal auditing department	IAD	1, if the annual report discloses that the firm has internal auditing department; 0, if this is not the case.	Annual reports and own calculations
Direct reporting of internal audit	DIR	1, if internal auditors report directly to the board; 0, if this is not the case.	Annual reports and own calculations
Audit board (AB)	ACD	1, if the firm has an AB; 0, if this is not the case.	Annual reports and own calculations
Disclosure of members	ACM	1, if the name and function of AB is disclosed outside the audited company; 0.5, if only the name of the member is disclosed; 0, if members of AB are not disclosed.	Annual reports and own calculations
Independent president	IDAC	1, if the president of AB is independent; 0, if this is not the case.	Annual reports and own calculations
External auditor - "big 4"	AU4	1, if external auditor is one of the four international auditing companies; 0, if this is not the case.	Annual reports and own calculations
Additional services of external auditor	EAAS	1, if external auditor does not offer any other services to the bank (consultancy, etc.); 0, if external auditor does offer additional services to the bank.	Annual reports and own calculations
Indicator of caring for partners		Indicator of caring for partners comprises of three variables: 1) the presence of employee representative in supervisory board (SB), 2) support of activities in the area of social responsibility and 3) reporting on social responsibility.	Own calculations
Employee representative in supervisory board	ERB	1, if employees have their representative in SB; 0, if this is not the case.	Annual reports and own calculations
The firm supports activities in the area of social responsibility	SCS	1, if the bank discloses activities in the area of responsibility towards employees, environment, donation, etc.; 0, if this is not the case.	Annual reports and own calculations
Report on social responsibility	CSR	1, if, in addition to the annual report, the bank has a separate report on social responsibility; 0.5, if annual report consists of a chapter on social responsibility; 0, if this is not the case.	Annual reports and own calculations
Indicator of supervisory board and management features		Indicator of supervisory board (SB) and management features consists of seven variables: 1) independence of board members, 2) independence of board president 3) membership/employment of members SB, 4) assessment policy for members of the SB, 5) remuneration of members of the SB, 6) assessment system for the members of SB, 7) management remuneration.	Own calculations
Independence of supervisory board members	NID	1, if the SB comprises of independent members; 0, if this is not the case	Annual reports and own calculations
The president of SB is independent	IDSB	1, if the president of SB is independent; 0, if this is not the case.	Annual reports and own calculations
Membership/employment of members of SB	MSB	0, if members of the SB are members of other SBs or if data are not disclosed; 1, if this is not the case.	Annual reports and own calculations
Assessment policy/procedure for members of supervisory board	ASB	1, if the assessment system for members of SB is disclosed; 0, if this is not the case.	Annual reports and own calculations
Remuneration of SB	RSB	1, if remuneration for individual members of SB is disclosed 0.5, if the aggregate remuneration of members of SB is disclosed ; 0, if remuneration is not disclosed.	Annual reports and own calculations
Assessment policy system for the board	ABD	1, if assessment policy system is disclosed; 0, if this is not the case.	Annual reports and own calculations
Remuneration	RMB	1, if remuneration is disclosed by individual members; 0.5, if aggregate remuneration is disclosed; 0, if remuneration is not disclosed.	Annual reports and own calculations
Indicators of remuneration, ownership, transactions with related persons and the use of IFRS		Indicators of remuneration, ownership, transactions with related parties and the use of IFRS comprise of 11 variables: 1) remuneration SB, 2) ownership of SB, 3) remuneration of management, 4) ownership of management, 5) transactions with related parties, 6) transactions with related parties according to individual members of SB and management 7) use of IFRS, 8) disclosure of ownership structure and 9) variable remuneration.	Own calculation
Remuneration - supervisory board	RES	1, if remuneration is disclosed for each individual member; 0.5, if data are disclosed on the aggregate level for the SB; 0.25, if data are disclosed for the SB and management; 0, if data are not disclosed.	Annual reports and own calculations
Ownership - supervisory board	OWS	1, if ownership of individual SB is disclosed; 0.5, if ownership is disclosed on the aggregate level; 0, if ownership is not disclosed.	Annual reports and own calculations
Remuneration - board	RED	1, if remuneration of individual board members is disclosed; 0.5, if data is disclosed on the aggregate level for the whole management; 0.25, if data are disclosed together for the SB and management; 0, if data are not disclosed.	Annual reports and own calculations
Ownership - board	OWB	1, if ownership of individual members of the board is disclosed; 0.5, if ownership is disclosed on the aggregate level; 0, if ownership is not disclosed.	Annual reports and own calculations
Transactions with related parties	RPT	1, if individual transactions are disclosed; 0.5, if aggregate transactions are disclosed, i.e. on the level of business transaction; 0, if they are not disclosed.	Annual reports and own calculations
Transactions with related parties - supervisory board and management	RPM	1, if transactions for individual members of SB/management are disclosed; 0.5, if aggregate transactions are disclosed, i.e. for SB/management together; 0, if they are not disclosed.	Annual reports and own calculations
Use of IFRS (International Financial Reporting Standards)	IFRS	1, if it is disclosed that the firm uses IFRS; 0, if not disclosed.	Annual reports and own calculations
Ownership structures	OST	1, if ownership structure is disclosed for at least 5 largest shareholders or for 90 % of ownership; 0.50, if ownership for a lower percentage is disclosed; 0, if ownership is not disclosed.	Annual reports and own calculations
Variable remuneration	VAC	1, if the amount of variable remuneration is disclosed separately from the total amount; 0.5, if the amount of variable remuneration is disclosed in the total amount of remuneration; 0, if variable remuneration is not disclosed.	Annual reports and own calculations

⁴ The abbreviations are explained in Table 1.

Sampling and its representativeness

The ten largest banks represented the population of our research (according to the value of balance sheet assets) from eight countries in Central and Eastern Europe: the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovakia, and Slovenia. We have chosen these countries due to the comparability of their historical and economic development. Besides, they are geographically close to each other. The chosen sample makes it possible to make comparisons of data with Slovenia, which is the center of our interest, as well as with other Central and Eastern European states.

Data were gathered for the period of 2005–2013. We decided on this period because it is an interesting period during which a serious financial and economic crisis occurred (in 2008) that was felt intensively in most studied countries. The chosen period also represents a period before and after the point in 2014. The implementation of additional directives regarding capital requirements also happened in a short period after 2013, which is why these years have been excluded from the research. This was appropriate because of the content and comparability of data, as the indicators of statistical significance for the gathered data improved. The inclusion of a longer period will become methodologically possible only with a longer period of implementation of the new regulatory requirements and by considering the inflection points of phases in the economic cycle.⁴ By considering different implementation timelines for additional capital requirements and an analysis of the crisis period, the comparability of data is better up to 2013.

Methodological limitations

When carrying out our empirical analysis, we encountered some methodological limitations. A methodological limitation was the choice of sample and its representativeness. The sample included a selection of countries from Central and Eastern Europe. Given the specificity of the countries studied, their geographical location, their historical and economic characteristics, the representativeness of results obtained can be questionable for the countries from non-comparable environments.

Inaccessibility of some data is another limitation. It appeared in the form of a lack of data. We tried to solve this issue of missing data in the Bankscope database by replacing the missing data with data available from public annual reports on bank web pages. If financial data or annual

reports for a bank were unavailable for a certain year, the bank was excluded from the sample and the next biggest bank was placed on our list.

Discussion: Results of Empirical Research

We studied the influence of concentrated ownership, foreign ownership, and state ownership on the index of corporate governance.

The following variables were used to study the influence of concentrated ownership and ownership structure on corporate governance: the number of shareholders (NSH), the number of large owners (NLO), and the ownership of the five largest shareowners (% O5S). These variables were used to find the correlation and influence of concentrated ownership of corporate governance.

At the same time, we studied the influence of foreign and state ownership on corporate governance. Two variables were used, namely the share of foreign ownership (% FO) and the share of state ownership (% SO).

The results of our research showed that in our sample of banks, the largest *number of shareholders (NSH)* was found in Slovakia, Slovenia, and the Czech Republic. This signaled a diversity of ownership in these countries. In countries like Estonia, Hungary, and Latvia, the number of shareholders was the lowest. In these countries, the concentration of ownership was the highest. At the same time, these countries had a large share of foreign ownership, greater than 50% in all of them.

The number of large owners (NLO), with the ownership share larger than 5% was highest in Estonia (2.41) and Slovenia (2.27). In other countries, the average number of large owners was lower than 2. The largest maximal number of large owners was found in Estonia (11), Lithuania in Hungary (8), and Slovenia (7).

The average values of *ownership share of shareholders that own more than 5 % of shares (% O5S)*, amounted to between 82% and 96%. This suggests that the ownership concentration in all these countries if ownership share was larger than 5 % was considered, was very high. No considerable differences have been found between the countries. The highest average value was found in the Czech Republic (96.18 %), the lowest in Poland (72.63%).

The average value of *ownership share of foreign shareholders among the 5 largest shareholders (% FO)* was highest in Slovakia (93%) and lowest in Slovenia (51%).

⁴ More on cycles and efficiency of banks, see Maripuu and Männasoo (2014) and Košák et al. (2009).

It was found for the sampled countries that, in general, the *percentage of state ownership among the 5 largest shareholders (% SO)* was low. The highest average percentage of state ownership among the 5 largest shareholders was found in Latvia (33.91%), Poland (27.23%), Slovenia (12.09%), and the Czech Republic (8.82 %). In most of these countries, a comparably lower ownership share of foreign shareholders among the 5 largest shareholders was observed. In line with our expectations, it was found that the share of state ownership is not necessarily inversely proportional to the share of foreign ownership. On the other hand, inverse proportionality was found in the case of domestic and foreign ownership.

When analyzing the results of descriptive statistics for the variables of ownership structure, the largest average number of shareholders was found in Slovakia, Slovenia, and the Czech Republic. On average, the highest number of large owners was found in Estonia and Slovenia. The ownership share of shareholders with more than 5% of shares is, on average, was very high, between 81% and 96%. The share of foreign shareholders among the five largest shareholders was highest in Slovakia, Hungary, and Poland, but lowest in Slovenia. The percentage of state ownership among the five largest shareholders was highest in Latvia and Poland.

Table 2 shows the correlation between ownership structure and the corporate governance index, where we tested the correlation between the corporate governance index variable (index CG) and the number of all bank shareholders (NSH), the number of shareholders (from among the 10 largest) with more than 5% of shares (NLO), ownership share of shareholders with more than 5% shares (% O5S), ownership share of foreign shareholders among the 5 biggest shareholders (% FO), and the percentage of state ownership among the 5 biggest shareholders (% SO). Correlation analysis was used for testing, in which the direction and strength of a linear relationship between two variables were measured.

The number of bank shareholders was statistically significant and positive with the corporate governance index in Latvia, Lithuania, Hungary, and Slovenia, with the most significant correlation in Hungary and Slovenia. The result is in line with expectations in which a lower ownership concentration has a positive influence on corporate governance. Slovakia had no statistically significant and negative correlations, which means that the number of owners was negatively correlated with the corporate governance index. This indicated that Hungary's lower ownership concentration correlates with poorer corporate governance.

When studying the correlation between the number of large shareholders and the corporate governance index, we found

that in Lithuania the correlation between the number of large owners and corporate governance index was positive and statistically significant, at the level of 0.05. In Hungary, the magnitude of statistic relevance was higher, and the correlation was also positive and statistically significant at the level of 0.01. In Slovakia, the correlation was the same as the number of all shareholders, negative and statistically significant at the level of 0.01. In all the other countries (the Czech Republic, Estonia, Lithuania, Poland, Slovenia) the correlations were not statistically significant.

The results were slightly better in the calculation of the correlation of the ownership share of shareholders owning more than 5% of shares and the corporate governance index. The results were statistically significant in the case of Latvia, where the correlation was negative and statistically significant at the level of 0.05. The same correlation was found between Lithuania and Slovenia. This result showed that in the case of interpreting the ownership share as the indicator of ownership concentration, it holds for the said countries that the higher ownership concentration correlated with poorer corporate governance. In other cases, the correlation was positive but not statistically significant. The result is consistent with our expectations, according to which lower ownership concentration positively correlated with corporate governance.

Considering the fact that when studying the correlation between the number of shareholders and corporate governance, that we found, in most cases, a positive and significant correlation and that the correlation between ownership share of shareholders with more than 5% of shares and corporate governance was most often negative, we concluded that a lower ownership concentration had a positive influence on corporate governance. Contrary to our expectations, the correlation between the number of large shareholders and corporate governance was most often positive, but rarely significant. A positive correlation was determined for only two countries (Latvia, Hungary). On the other hand, the correlation was negative and significant in Slovakia. The correlation between ownership share of shareholders with more than 5% shares and the corporate governance index was significant and negative in three countries (Latvia, Lithuania, Slovenia). In other countries, the correlation was not significant. By taking these findings into account, we concluded that the hypothesis that a smaller concentration of ownership (i.e. highly diversified ownership) had a positive influence on corporate governance.

For the sample of most countries (except Slovenia) it was determined that there is a positive correlation between the share of foreign capital among the five largest shareholders and the corporate governance index. The correlation was positive and significant on the level of 0.01 in the case of

Table 2. Correlation coefficient between the index of corporate governance and ownership structure, by country

Country	Index CG			NSH	NLO	%O5S	%FO	%SO	Država	Index CG			NSH	NLO	%O5S	%FO	%SO
the Czech Republic	Index CG	Pearson coefficient Sig.	1	-----					Hungary	Index CG	Pearson coefficient Sig.	1	-----				
	NSH	Pearson coefficient Sig.	-0,043 0,754	1	-----					NSH	Pearson coefficient Sig.	0,746** 0,000	1	-----			
	NLO	Pearson coefficient Sig.	-0,043 0,754	1,000	-----	1	-----			NLO	Pearson coefficient Sig.	0,746** 0,000	1	-----	1	-----	
	%O5S	Pearson coefficient Sig.	-----	-----	-----	-----	-----			%O5S	Pearson coefficient Sig.	-----	-----	-----	-----	-----	-----
	%FO	Pearson coefficient Sig.	0,537** 0,000	-0,097 0,478	-0,097 0,478	-----	1	-----		%FO	Pearson coefficient Sig.	0,376* 0,020	0,265 0,108	0,265 0,108	-----	1	-----
	%SO	Pearson coefficient Sig.	0,014 0,212	0,212 0,117	0,212 0,117	-----	-0,465** 0,000	-----		%SO	Pearson coefficient Sig.	-----	-----	-----	-----	-----	-----
Estonia	Index CG	Pearson coefficient Sig.	1	-----					Poland	Index CG	Pearson coefficient Sig.	1	-----				
	NSH	Pearson coefficient Sig.	-0,108 0,483	1	-----					NSH	Pearson coefficient Sig.	-----	-----	-----	-----	-----	-----
	NLO	Pearson coefficient Sig.	0,048 0,755	0,775** 0,000	1	-----				NLO	Pearson coefficient Sig.	-0,362 0,481	-----	1	-----		
	%O5S	Pearson coefficient Sig.	0,225 0,142	-0,916** 0,000	-0,575** 0,000	1	-----			%O5S	Pearson coefficient Sig.	0,562 0,246	-----	-0,961** 0,002	1	-----	
	%FO	Pearson coefficient Sig.	0,116 0,217	0,217 0,157	-0,117 0,451	-0,294 0,053	1	-----		%FO	Pearson coefficient Sig.	0,534 0,275	-----	-0,967** 0,002	0,997** 0,000	1	-----
	%SO	Pearson coefficient Sig.	-----	-----	-----	-----	-----	-----		%SO	Pearson coefficient Sig.	0,557 0,251	-----	-0,965** 0,002	0,998** 0,000	0,999** 0,000	1
Latvia	Index CG	Pearson coefficient Sig.	1	-----					Slovakia	Index CG	Pearson coefficient Sig.	1	-----				
	NSH	Pearson coefficient Sig.	0,416** 0,009	1	-----					NSH	Pearson coefficient Sig.	-0,543** 0,002	1	-----			
	NLO	Pearson coefficient Sig.	0,327* 0,045	0,631** 0,000	1	-----				NLO	Pearson coefficient Sig.	-0,562** 0,001	0,914** 0,000	1	-----		
	%O5S	Pearson coefficient Sig.	-0,367* 0,023	-0,992** 0,000	-0,611** 0,000	1	-----			%O5S	Pearson coefficient Sig.	0,293 0,110	-0,765** 0,000	-0,542** 0,002	1	-----	
	%FO	Pearson coefficient Sig.	0,097 0,563	-0,295 0,072	-0,422** 0,008	0,284 0,084	1	-----		%FO	Pearson coefficient Sig.	0,49** 0,005	-0,718** 0,000	-0,671** 0,000	0,412* 0,021	1	-----
	%SO	Pearson coefficient Sig.	-0,133 0,426	0,320 0,050	0,042 0,801	-0,319 0,051	-0,869** 0,000	1		%SO	Pearson coefficient Sig.	-0,360* 0,047	-0,013 0,944	0,186 0,317	0,084 0,653	-0,014 0,939	1
Lithuania	Index CG	Pearson coefficient Sig.	1	-----					Slovenia	Index CG	Pearson coefficient Sig.	1	-----				
	NSH	Pearson coefficient Sig.	0,417** 0,005	1	-----					NSH	Pearson coefficient Sig.	0,461** 0,000	1	-----			
	NLO	Pearson coefficient Sig.	0,287 0,062	0,907** 0,000	1	-----				NLO	Pearson coefficient Sig.	0,025 0,821	-0,042 0,696	1	-----		
	%O5S	Pearson coefficient Sig.	-0,367* 0,016	-0,986** 0,000	-0,933** 0,000	1	-----			%O5S	Pearson coefficient Sig.	-0,216* 0,044	-0,507** 0,000	-0,336** 0,001	1	-----	
	%FO	Pearson coefficient Sig.	0,227 0,144	-0,451** 0,002	-0,448** 0,003	0,466** 0,002	1	-----		%FO	Pearson coefficient Sig.	-0,298** 0,005	-0,289** 0,007	-0,548** 0,000	0,825** 0,000	1	-----
	%SO	Pearson coefficient Sig.	-----	-----	-----	-----	-----	-----		%SO	Pearson coefficient Sig.	0,438** 0,000	0,328** 0,002	0,091 0,400	-0,063 0,559	-0,405** 0,000	1

* Correlation is significant at 0.05 (two-tailed). **Correlation is significant at 0.01 (two-tailed).

the Czech Republic and Slovakia. The correlation was positive and significant on the level of 0.05 in Hungary and negative and statistically significant on the level of 0.01 in Slovenia. Based on the results, it can be concluded that foreign ownership has a positive correlation with corporate governance. In most cases a positive and significant correlation was confirmed between the share of foreign ownership and corporate governance index, we can say that foreign ownership has a positive influence on corporate governance.

Data on state ownership among the five largest shareholders in Hungary, Lithuania, and Estonia were not disclosed. The results show that there is a statistically significant and negative correlation on the level of 0.05 between state ownership and corporate governance index in Slovakia, whereas for Slovenia the correlation was positive and significant on the level of 0.01. For many countries, we could not prove that state ownership has a statistically significant and negative correlation with corporate governance, we cannot prove with sufficiently high certainty that state ownership has a bad influence on corporate governance, and consequently, bank performance.

According to the above findings, it can be confirmed that the ownership structure influences corporate governance. By studying partial hypotheses, we found out that less concentrated ownership and foreign ownership have a positive influence on corporate governance. However, we cannot say with certainty that state ownership has a negative effect on corporate governance.

Key Findings: The Influence of Bank Ownership Structure on Corporate Governance

In our study on the influence of a bank's ownership structure on corporate governance, we wanted to find out how features like ownership concentration, foreign ownership, and state ownership influence corporate governance. When analyzing the correlation between ownership concentration and corporate governance the results show that banks with lower ownership concentration have a higher corporate governance index. This means that banks with more shareholders pay more attention to the disclosure of information related to corporate governance and trends in this field. We found a statistically significant and positive correlation between the number of shareholders and corporate governance index for the studied period in Latvia, Lithuania, Hungary, and Slovenia. A statistically significant and negative correlation was found only in Slovakia. The results show that, for most countries, consistent with our expectations that lower ownership concentration has a positive effect on corporate

governance. Ownership concentration can also be defined with the number of large shareholders; in this case, the results show that, in connection with the corporate governance index, correlations are not significant in most surveyed countries. A statistically positive correlation was identified in Latvia and in Hungary, a significant and negative correlation was identified in Slovakia. The variable regarding the number of large shareholders does not have a significant influence on explaining the influence of ownership concentration or ownership structure on the corporate governance index. Contrary to the research results regarding the correlation between the number of large shareholders and corporate governance, the correlation between shareholder ownership share (for owners with more than 5 % shares) and corporate governance index, the results were more satisfactory, as they show a statistically significant and negative correlation in Latvia, Lithuania and in Slovenia. In other countries, the correlation is positive, but not significant. The results conform to our expectations for the surveyed countries, according to which a higher degree of ownership concentration for shareholders with more than 5 % of shares correlates with poorer corporate governance. Because a statistically significant correlation was found in most cases as having a positive relationship with corporate governance, we confirmed a partial hypothesis that lower ownership concentration (diversified ownership) has a positive correlation with a higher corporate governance index. Love and Rachinsky (2007) also found that banks with high ownership concentration have considerably worse corporate governance. Erkens et al. (2012) also found that companies with a higher degree of institutionalized ownership perform poorly. On the other hand, Magalhaes et al. (2010) found out that a concentrated ownership structure enables more efficient supervision, and consequently, better company performance. Denis and McConnell (2003) also found out that large shareholders can use their power and are more likely to make decisions, which will increase the value for shareholders. On the other hand, diversified ownership and small shareholders demonstrate less power and incentive to influence the decision-making process. Caprio et al. (2007) found that concentrated ownership represents an important bank governance mechanism. Li and Song (2010) also found that higher ownership concentration increases bank value. Lskavyan and Spatareanu (2006) found that ownership concentration does not have an important impact on performance, both in developed countries and transitional economies. Based on the findings of previous research, it can be confirmed that there is no single answer to the question regarding bank performance concerning the higher or lower level of ownership concentration.

Regarding the correlation between foreign ownership and corporate governance index, there is a positive correlation, except for Slovenia, which is statistically significant in the Czech Republic, Slovakia, and Hungary. It can be

concluded that the greater the foreign ownership share the better the corporate governance. This means that our partial hypothesis, according to which foreign ownership has a positive effect on corporate governance, can be confirmed. On the other hand, Love and Rachinsky (2007) found that there is no statistically significant correlation between foreign ownership and corporate governance. The results of some research show that there is a positive and significant correlation between foreign ownership and bank performance (e.g. Choi and Hasan (2005), Tandelilin et al. (2007), Barako and Tower (2007)). On the other hand, the findings of Lensink and Naaborg (2007), show that an increase in foreign ownership has a negative influence on the bank performance (particularly on net interest margin and profit).

The research results regarding the correlation between state ownership and corporate governance show that only Slovakia has a statistically significant and negative correlation between state ownership and the value of corporate governance index. In Slovenia, this correlation is positive and statistically significant. For many surveyed countries we could not prove that state ownership has a statistically negative correlation with corporate governance. Love and Rachinsky (2007) found that there is no statistically significant correlation between state ownership and corporate governance. The results found in previous research in the field of company performance showed that state ownership was mainly negatively correlated with performance (e.g. Megginson, Nash & Van Randenborgh, 1994; Majumdar, 1998; Boubakri & Cosset, 1998; Claessens & Djankov, 1999; Dewenter & Malatesta, 2001; Barako & Tower, 2007; Cornett et al., 2010). In state-owned enterprises, board members were powerless decision-makers, as the decision-making process in the boardroom was controlled by the government and politicians (Apriliyanti & Randøy, 2018).

Based on our research, we confirmed that bank ownership structure had an impact on corporate governance. Indirectly, this means that a bank's ownership structure affects the

relationship between corporate governance and bank performance. More diversified ownership and a higher level of foreign ownership had a positive correlation to the corporate governance index (see also, Zsámboki, 2006). On the other hand, the correlation between state ownership and corporate governance index was not clear.

Conclusion

The results of our empirical analysis for the sample of countries showed that smaller ownership concentration and foreign ownership have a positive influence on corporate governance. We cannot say with certainty, however, that state ownership had a negative influence on corporate governance and, subsequently, on bank performance. We cannot reject the hypothesis, nor even prove it that state ownership had a negative influence on corporate governance in the sense of banking results.

According to a large body of research, corporate governance had a central role in the economic crisis and was also an important factor that should be thoroughly studied in the future in the context of company performance. It may at first appear that corporate governance depends on certain factors and that its impact on corporate governance is obvious, but there are many unexplored areas in this field of research. By using relevant and comparable data and appropriate methodological approaches in the future, many of these unanswered questions can be solved.

The crisis raised many questions for the political and professional public, ranging from bank recovery, regulation, supervision efficiency, management, and supervisory board responsibility. Preventing poor banking practices does not lie only in controlling functions, but also in general corporate culture, risk-taking culture, ethical culture, and in the social perception of the functions and managerial roles, regardless of ownership structure.

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Pomen korporativnega upravljanja bank, povezanega z lastništvom v mednarodnem okolju

Izvleček

Analiza dejavnikov korporativnega upravljanja je razdeljena na štiri tematske sklope. V prvem delu korporativno upravljanje opredeljujemo kot del širšega gospodarskega okvira. Drugi del obravnava načela korporativnega upravljanja. V tretjem delu opredeljujemo in ocenjujemo razmerje med indeksom korporativnega upravljanja in posameznimi kazalniki (kazalnik zavezanosti, preglednosti in razkrivanja, skrb za partnerje ter nadzor in revizija) glede lastništva. Analiza je narejena za države Srednje in Vzhodne Evrope. Višja raven tujega lastništva ima pozitivno korelacijo z indeksom korporativnega upravljanja podjetij, na drugi strani pa povezava med državnim lastništvom in indeksom korporativnega upravljanja ni jasna. Preprečevanje slabih bančnih praks ni le v nadzornih funkcijah, temveč tudi v splošni korporacijski kulturi, kulturi prevzemanja tveganj in kulturi ter družbenem dojemanju vodstvenih položajev ne glede na lastniško strukturo.

Ključne besede: indeks korporativnega upravljanja, državno lastništvo, lastniška struktura, načela korporativnega upravljanja, neodvisnost uprave

Urban Population Growth and Job Opportunities: The Case of Albania

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Abstract

Demographic change is a complex phenomenon, but it has generally been accepted that having better employment opportunities and quality of jobs are among important factors that determine people's mobility. The purpose of this paper is to test the relationship between the increase in the number of people living in urban areas and the job opportunities in these areas in Albania. In order to do so, we performed a statistical analysis of a dataset on labor force surveys for the time period of 2007-2013. Our findings confirmed a positive correlation between the increase of individuals living in a certain area and job opportunities for specialized occupations in that area; however, a significant relationship was not found when job opportunities in general, in general, were considered.

Keywords: urban population growth, job opportunity, Albania, transition economies, demographic change, internal migration

The Main Topic and Research Questions

While polarization in the development of different areas of a country is a complex phenomenon influenced by socioeconomic, demographic, location, and other factors (Pociūtė-Sereikienė, 2019), demography and employment play an important role. Job opportunities and the quality of the work job quality are an important aspect of human life and a major cause of mobility, which in the end can be deterministic of growth of some areas, and reduction of growth in others. while some others shrink.

Uneven developments, depopulation, and shrinking cities are both a national and a local issue. Depopulation poses a risk about to the sustainability of the welfare state. As it is associated with an aging population aging, which implies an increase in public spending on pensions and health cures. Depopulation is also associated with economic slowdowns or recessions, because of the lack of migration of young people who are potential local leaders, founders, and managers of new businesses (Headey & Hodge, 2009; see also Maestas, Mullen, & Powell, 2016). It may lead to a downward spiral as the departure of young and skilled people determines an economic downward downturn that is associated with high unemployment, lack of security and criminality, and social problems (Šerý, Svobodová, Šilhan, & Szczyrba, 2017).

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In this paper, we have referred to the resident urban population by district in Albania. According to the Constitution, Albania is a unitary state with two levels of local government: the municipality / communes at the first level and the district at a higher level. During the period to which this paper refers, there were 308 communes, 65 municipalities, and 12 districts. The district consists of several basic units of local government with economic and social ties and it is the administrative unit where regional policies are built created and implemented and where they are harmonized with state policy.

This paper, which focuses on referred to the Albanian situation specifically, will address the following questions: is there a relationship between city dimensions, the urban population, and job opportunities? If so, what kinds of jobs are more affected?

The Literature on Demographic Change in Transition Countries

Steady depopulation of rural areas and population concentration, of population and economic activities in Eastern European countries - the so-called "compression" of social and economic space - has been the subject of studies of several research papers seeking to identify any general pattern or determinants of income disparities across regions (Chapman & Meliciani, 2018; see also Romanova, Vinogradova, & Frizina, 2015). The transformations in Eastern Europe, that has led have led to the emergence of a handful of dynamic metropolitan areas on one hand and to some underdeveloped, scarcely- populated peripheral regions, on the other hand. This has been, reflected in the concentration of highly educated and internationally- oriented professionals and entrepreneurs located mainly in metropolitan areas (Smetkowski, 2013).

Shrinking populations because of de-industrialization is a well-known phenomenon in western countries. In Eastern Europe, after the collapse of the communist regime, depopulation was widespread. had remarkable proportions after the collapse of the communist regime. Most of the post-communist Eastern European countries have faced the problem of having some cities shrink and others becoming highly urbanized and overpopulated the shrinkage of some cities and few others urbanization and overpopulation (Turok & Mykhnenko, 2007; see also Haase, Grossmann, & Rink, 2016). 40% of all European cities with more than 200,000 inhabitants' areas shrinking or losing population over the short-, medium- and even long-term periods (Turok & Mykhnenko, 2007).

The demographic change in transition countries is a complex process, and it is difficult to summarize it into a unifying model. The metropolitan areas and the regions of the transition countries that are near EU in the nearby with EU countries have tended to adapt faster to the new economic conditions (Petrakos, 2001).

In the case of Albania, shrinking in some areas and thriving in some others is has been related to several factors which that can be summarized in three categories: political factors, economic factors, and social factors, although the separation between them, however, is not definitive because often economic factors determine the fate of political initiatives and vice versa.

Political factors refer to the removal of the restrictions to on free movement after the fall of the communist system. According to the communist ideal, the centralized planning included almost every aspect of human existence and among them, restriction applied to the free movement of workers. The utopian ideal was egalitarianism, translated as a compulsory equalization of (quality of life in all areas. The aim was not just to improve the quality of the individuals but also the quality of life of the individuals in the country where they were born and raised. Although not completely inexistent, mobility was restricted by the right to buy a home - real estate was public) - and a special authorization was even required to be transferred to another city. Mobility was limited by the right to work, and as the enterprises were public, eventually to search and find a new job without the authorization of political leadership was impossible. This controlled planning limited the natural growth of the population of major cities. The population of Tirana, Durrës, Shkodra, and Vlora in the period of 1945-1989 grew 50% less than the population growth in Albania (Kopliku, 2016). These restrictions confined 70% of the population in rural areas and created a potentially explosive situation that was precipitated after the 1990. The removal of restrictions on free movement started an inexorable process of population shrinkage in the rural areas.

Among the economic factors that determined the movement of the population are was the reduced state's role in the economy, the closure of public enterprises and state industries, the shrinkage of state administration, and the consequent massive job cuts. The increase of unemployment has been one of the major reasons for the huge emigration since 1990, a third of the population (Instat, 2018), as well as the massive internal migration from inner areas to western urban centers (Instat, 2014).

Regarding the social factors, we must note that contraction of the state's role in the economy determined a reduction

in public services and the withdrawal own from public services such as transport, education, health, and social assistance in rural and mountainous areas. Public services cuts have worsened the quality of life and for the people, especially in the hinterlands, who had decided to abandon their homes. But gradually, this shrinking of the population made the presence of some other public services not justifiable, which have which are further reduced. This phenomenon progressively leads the system into a sort of vicious circle. The closure of the production activities such as large public enterprises and the reduction of social services lead to rising greater unemployment, which was becomes reflected in declining demand in for other activities, thus causing a general economic downturn. As described by (Myrdal, 1957), if the size of an economic downturn is so large that none of the sectors of the economy can absorb the unemployment caused by the closure of the an industry, unemployed workers have nothing else to do but emigrate.

The Literature on Urban Concentration and Economic Growth

Neoclassical theory emphasizes the fact that agglomeration and business concentration in a given area are is advantageous due to the spillover effect between firms, ease of communication and transportation, proximity to suppliers, a broad labor market, and availability of skilled workers (Marshall, 1890). Metropolitan areas generally perform better, because they are faster to restructure and catch up with economic change.; They are also they are preferred by foreign investors as a residential base because they are more connected and more integrated into the global economy (David, Peeters, Van Hamme, & Vandermotten, 2013; see also Komlosi & Balazs, 2016). The openness of metropolitan areas to internationalization and globalization attracts new businesses which, if operating in technologically advanced sectors, have a greater local multiplier in employment than traditional jobs in local non-tradable sector like restaurants, real estate, cleaning services, legal services (Moretti & Thulin, 2013; see also Moretti, 2010). The peculiarity of modern technologies is that, due to their complexity, productivity increases exponentially because of the accumulation of experiences and that thus, an early lead adoption may corner the market of potential adopters (Arthur, 1989). The faster and stronger the economic change is, the deeper the deeper is the uneven territorial and economic development between metropolitan areas opened to globalization and rural peripheries or old industrial metropolitan regions becomes (Rumpel & Slach, 2012). The inherent tendency toward sharpening of regional inequalities is more dominant in poor countries and it is characteristic of the laws of economics under laissez-faire (Myrdal, 1957).

Reciprocal Relationships: Market Size and Economic Development

According to Henry Lefebvre (2018), a city is not merely a physical space but also a social space, an urban system including economic, political, cultural relations. Lefebvre, according to a Marxist vision, describes this social space as a superstructure generated by the base structure—the industrial production system—but then the city develops autonomously, assumes a separate identity, influences, and ultimately changes the very structure that generated it, so the urban moment through the second circuit of capital, - related to consumption and financial speculation - builds its own environment (Lefebvre, 2018).

Market size attracts firms that offer products and services, but and the also the firms themselves are consumers, and that causes the market widening to widen (Hirschman, 1958). This principle of interconnection and circular inter-dependence of among the quantities: demand, earning power, and income, investment, and production, determines a circular causation that involves the field of social relations and has an impact on the social substrate. (Arthur, 1989). A virtuous circuit is triggered between the dimensions of urban areas and work opportunities. City dimensions will increase to a certain point extent until that the advantages offered by job opportunities will outweigh the disadvantages associated with the cost of living in a big city.

This reciprocal relationship between market size and economic development has been called “circular causation” by (Myrdal, 1957) and “positive feedback” by (Hirschman, 1958). Thus, production tends to concentrate where there is a large market, but the market will be large where manufacturers’ production is concentrated.

Hypotheses

Assumed that metropolitan areas are more attractive to new businesses due to concentration, openness to internationalization, and globalization, we expect that growing populations in certain areas is are correlated with better job opportunities:

H1: There is a significant relationship between the increase of the urban population and job opportunities.

H2: There is a significant relationship between the increase of in urban population and job opportunities in sectors different from the primary sector.

H3: The increase of in urban population is significantly correlated with the shifting of the labor force from the primary sector toward other sectors.

Synopsis of the Research Design

The methodological approach selected for this study was the quantitative and one describing relationships between the urban population as the independent variable and the employment situation as a dependent variable. To test the above-mentioned hypotheses we used the logit and multinomial logit model multinomial logit model.

Logistic and multinomial logistic regression, where a dichotomous/categorical dependent variable may be predicted by an explanatory variable, is often used in research papers that investigate the relationship between unemployment and other variables such as education, gender, training, healthcare, etc. According to Cattaneo (2008), the probability of being unemployed is computed as Φ – the Cumulative Density Function of a Standard Normal Distribution – a probit (logit) function of personal characteristics and district of residence dummy variables. In Oancea, Pospisil, & Dragoescu (2016), several logit models were used to estimate the probability of being unemployed by the educational level, gender, marital status, and residence. Unemployment has been associated with poor self-assessed health including also other control variables such as business cycle fluctuations and individual variables such as age, gender, the level of education, etc. (Böckerman & Ilmakunnas, 2007). Fabrizi & Mussida (2009) used a multinomial logit model, upon with data from longitudinal studies, aimed to estimate transition probabilities between labor market states status (employed, – unemployed, – inactive) as averages of heterogeneous individual transition probabilities that are likely to depend on individual characteristics as well as on the general conditions of the labor market.

In this study, we used the logistic and multinomial logistic regression, and we supposed that the dependent variable— - the employment status of the subject observed— - may be predicted by the density of the population resident in its territorial administrative unit. Albania is a small country, with a small population and, consequently, a substantially homogeneous distribution of characteristics. For this reason, we decided to rely solely on the density of the resident population as an explanatory variable of the employment situation of the observed subjects.

Method and Source of Data

Regarding For the first hypothesis, we used the logit model that is a nonlinear regression statistical model where the dependent variable may assume only two possible outcomes. The explanatory variable, on the other hand, while

the explanatory variable is a continuous variable (Greene, 2011). It takes the form:

$$\Pr(Y_{it} = 1 | X_{it}) = \Phi(X_{it} \beta) \quad (1)$$

where:

\Pr represents the probability that $Y_{it}=1$

Y_{it} is the status of a person on the job market, resident in the district i at the time t was observed during the LFS. In our panel of data, it assumes categorical values from 0 = Unemployed/Inactive to 1 = Employed. An individual is classified as employed if s/he has worked at least an hour in the reference week, which, in general, is the week preceding the survey. Φ represents the Cumulative Distribution Function of a standard normal random variable. X_{it} stands for the explanatory variable, the explanatory variable is the population resident in the urban area of the district i at the time t of the person subject of interview through the LFS. i – the district of residence of the subject observed. In Albania, the district is a territorial administrative unit that includes a main municipality— - the main city which gives its name to the district— - and some secondary municipalities. Albanian territory is divided into 12 districts, the codification of which is as follows: (1=“Berat”, 2=“Dibër”, 3=“Durrës”, 4=“Elbasan”, 5=“Fier”, 6=“Gjirokastrë”, 7=“Korçë”, 8=“Kukës”, 9=“Lezhë”, 10=“Shkodër”, 11=“Tiranë”, 12=“Vlorë”. The abbreviation t represents the year of observation; $t \in \{2007; 2013\}$ And β stands for the parameter is estimated by the maximum likelihood of having observed this particular Y .

The marginal effect on the dichotomous dependent variable is estimated as an average of the marginal effect on the probabilities that $\Pr(Y_{it}=1 | X_{it})$ because of marginal changes in the continuous explanatory variable X_{it} . In this study, the data of the population resident in a district, is expressed in thousands, therefore, a marginal change of one unit of the dependent variable X_{it} corresponds to a change of 1.000 residents.

The validity of a model is measured by the percentage of the answers correctly predicted by the model. In a binary response, in which the possible values are only two, zero, and one, the casual probability of a correct answer is 50%; therefore, the model is to be considered valid if the predicted probability is significantly higher than 50%.

To test the second and the third hypothesis, we used the multinomial logit model that which is an extension of the binary logit model, but here, the outcome may assume more than two categories, $Y \in (1,2,3,4 \dots n)$ or multiple categories. This test evaluates the probability, that, depending on the explanatory variable, the outcome may assume a different model from the most represented category named

as the base outcome. Regarding the second hypothesis, in the multinomial logit model:

Y_{it} – the dependent variable is the category of the job of an employed person resident in the district i at the time t . The ten major categories according to the International Standard Classification of Occupations (ISCO 2008) are: 1 = “Managers,” 2 = “Professionals,” 3 = “Technicians and associate professionals,” 4 = “Clerical support workers,” 5 = “Service and sales workers,” 6 = “Skilled agricultural, forestry, and fishery workers,” 7 = “Craft and related trades workers,” 8 = “Plant and machine operators, and assemblers,” 9 = “Elementary occupations.”. The category “Armed forces occupations” has been excluded from this analysis.¹

X_{it} – the population resident in the urban area of the district i at the time t .

Regarding For the third hypothesis, we assumed that the growth of the urban population positively affects job opportunities for better- educated workers. The outcome of interest is categorically distributed into four choices or / categories. In this model:

Y_{it} – the dependent variable is the education level of an employed person resident in the district i at the time t . The categories are: 1 = “No School”, “2 = “Primary Education”, 3 = “Secondary Education”, 4 = “Tertiary Education”.

X_{it} – is the population resident in the urban area of the district i at the time t .

Our source of data, i.e. the employment status of the persons interviewed, are is the Labor Force Surveys (LFS) in Albania² for the period 2007 – 2013; LFS includes information on districts of residence, age, gender, employment status, activity sector, education.

Demographic data, i.e. the population resident in the district i at the time t , were obtained from the Instat’s population reports.

A major problem with the labour force surveys is that the employed or self-employed in the agriculture sector are reported qualitatively the same as the employed in industry or tertiary sector, even though they might have been working only for one day during the last week before the survey was carried out. Therefore, we decided to exclude them in the tests for the second hypothesis we have decided to exclude them.

The data has been pre-processed (inspected, cleaned, and transformed) for analysis purposes without compromising the integrity of the original data. Statistical analyses were performed using the Stata software package.

Limitations

A One major limitation of this research is that the period of analysis was e limited period of only seven years from 2007 to 2013.

Another limitation, in our opinion, is related to the definition of a person as “employed” as “a person who during the last week before the survey has worked at least one hour, even on a farm owned or rented by him or a member of his household (even unpaid).”. Given that a very large share — 49% — of the labour force in Albania works - 49% - work in the agriculture sector., in our opinion this may distort the real numbers of the unemployed because many of those see employed in agriculture may prefer a regular paid job but are forced to work on their small farms due to a lack of opportunities.

Table 1. Urban Population and Districts

Variable	Obs	Mean	Std. Dev.	Min	Max
UrbanPopul_k	67693	189.1708	168.9427	28.3765	552.9084
District	67693	6.467966	3.728625	1	12

¹ Classification of the categories of jobs follows the International Labour Organization (ILO) classification according to the International Standard Classification of Occupations (ISCO 2008).

² Institute of Statistics Albania (<http://www.instat.gov.al/en/>).

Findings and Results

H1: There is a significant relationship between the increase of the urban population and job opportunities.

The first set of analysis analyses tested the hypothesis that an increase in the urban population is correlated with an increase of in the employed. As summarized in *Table 2. Logistic model H.1*, an increase in the population resident in urban areas (*UrbanPopul_k*) does not increase the likelihood that the dependent variable - the status of the subject observed (*WSTATOR*) - is "Employed", $Y = 1$. The β coefficient is negative (-.0005462), meaning that an increase of the urban population resident in a district makes the outcome $Y=1$ (employed) in that district less likely.

The accuracy of fit measures of the model, measured by the percentage of correctly predicted values, is 51%, basically the same probability, 50%, of a correct choice from a random selection between 0 and 1 (*Table 3. Logistic model estimation H.1*). Therefore, we may conclude that a pattern does not emerge from this test and the model has no prediction validity.

H2: There is a significant relationship between the increase of urban population and job opportunities in sectors different from the primary sector.

If we exclude the employees in the agriculture sector from our analysis, the logit test on 52281 observations indicates that at the 0.01 significance level, the sign of β coefficient is positive (.0008135) *Table 4. Logistic model H.2*. Therefore, we cannot exclude the hypothesis that an increase in the population resident in urban areas does not increase the likelihood that the subject observed is "Employed", $Y=1$.

The average marginal effect of urban population growth of 1000 units on the probability that $Y=1$ ("Employed") in a sector different from agriculture in that district is +0.02% (*Table 5. Average marginal effects H.2*). The consequences on large numbers mean that the probability of a person resident in the district of Tirana (552.000 inhabitants in 2013) to be employed is 10% higher than that of a person resident in the district of Kukes (28.000 inhab. 2013).

The percent of correctly predicted values is 67%, significantly higher than the probability from a random selection between 0 and 1 that is 50%, and therefore we may conclude that the model has significant prediction validity (*Table 6. Logistic model estimation H.2*).

H3: The increase of the urban population is significantly correlated with the shifting of the labor force from the primary sector toward other sectors.

Regarding the third hypothesis, the multinomial logit test on 32540 observations, with a confidence of 99%, cannot exclude the positive correlation between urban population growth and the shift of the employees from "Agriculture, Forestry and Fishing" jobs towards other sectors (*Table 7. Multinomial logistic regression H.3*).

The average marginal effect of population growth is higher for three activities or /occupations in particular: $Y= 5$ "Service Worker,", $Y = 2$ "Professionals and Sales," and $Y = 7$ "Craft and Related Trades Workers" (*Table 8. Average marginal effects H.3*). The greatest marginal effect occurs in the agriculture, forestry, and fishing sector, - 0.1%. The probability that an employee, residing in the largest city or / district of Tirana, is employed in the agricultural sector is 50% lower than an employee residing in less populated cities, such as Kukes.

Discussion

In this paper, we did not find a correlation between urban population increase and job opportunities in general. But if we exclude the employed in the agriculture sector, then the chances for employment will increase with the increase of the urban population; the most affected job categories are "qualified professionals" and "service activities workers.". In fact, the reliability of official data on unemployment is a common problem in underdeveloped countries, as they are often affected by distortions such as a work force employed in agriculture which ere this sector can represent almost half of the employed work force, whereas, in the developed countries it barely is higher than 2-3 %. Consequently, our main interests have been the employed in activities different from agriculture and our research found interesting dynamics between an increasing population in urban areas and job opportunities.

The overall pattern was that the growth of the population in urban areas carries the necessity for qualified professionals. First, a large urban area means a larger market that favors the division of labor. Second, metropolitan areas being more open and sensitive to internationalization, are more oriented towards an exchange, which also favors specialization. It follows that the probabilities of finding a skilled job increase with the population of cities.

These results are consistent with those observed in earlier studies of (Moretti, 2010)Moretti (2010): an increase in high-qualification employment activities has a spillover effect across the labor market, as any new qualified job leads to a progressive increase in the other service sector jobs. Regarding the circular causation between the extent of the market and the skills of workers, it that is a discussion topic that may need further research.

Conclusions

The results of this study in– Albania between 2007-2013 – indicated that there has been an existence of a correlation between the dimensions of the urban population and job opportunities different from those in the agriculture.

Even though the Albanian economy has shown a satisfactory average economic growth in the last 20 years of 4%,³, the structure of the economy is distorted if we analyzed it from the perspective of the distribution of the workforce across economic sectors. Almost half of the workforce is employed in the agricultural sector while this sector contributes only 18.5%⁴ into the GDP. for only 18.5%⁵.

Two conclusions can be drawn. First, basically employment in agriculture is rather more a mandatory choice, than a true job alternative. Second, the future of employment lies on economic sectors other than agriculture, such as

in services, specialized professionals, and crafts, which proved to be the more active and dynamic in our study result to be more active and dynamic.

The implications for public policy recommendations are a consequence of the consideration, that the high number of employees in agriculture, which is indicative of is an indicator of technological backwardness in this sector where in which work is still labour intensive and mostly manual work. Hence, it can be concluded that a greater commitment to the technological modernization of this sector is needed. Another recommendation relates to the fact that efforts and investments are needed to improve the quality of human capital. to be addressed in terms of an increase in the quality of human capital. The process of urbanization and the concentration of the population in urban areas is inevitable; however, it is the responsibility of a policy to facilitate and make less traumatic the shift of the workforce from the backward sectors of agriculture towards more dynamic and productive activities.

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³ World Bank Open Data. - <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=AL>

⁴ Instat. <http://www.instat.gov.al/al/statistikat-në-shkolla/prodhimi-i-brendshëm-bruto/>

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Appendix

Table 2. Logistic model H.1

WSTATOR	Coef.	Std. Err.	z	P>z	[95%Conf.	Interval]
UrbanPopul_k	-0.00055	0.0000458	-11.93	0	-0.00064	-0.00046
_cons	0.02217	0.011552	1.92	0.055	-0.00047	0.044811

Logistic regression Number of obs = 67693
 LR chi2(1) = 143.04
 Prob> chi2 = 0.0000
 Log likelihood = -46794.345 Pseudo R2 = 0.0015

Table 3. Logistic model estimation H.1

Classified	True		Total
	D	~D	
+	2879	3382	6261
-	29599	31833	61432
Total	32478	35215	67693

Classified + if predicted $\Pr(D) \geq 0.5$

True D defined as WSTATOR != 0

Sensitivity	$\Pr(+ D)$	8.86%
Specificity	$\Pr(- \sim D)$	90.40%
Positive predictive value	$\Pr(D +)$	45.98%
Negative predictive value	$\Pr(\sim D -)$	51.82%
False + rate for true ~D	$\Pr(+ \sim D)$	9.60%
False - rate for true D	$\Pr(- D)$	91.14%
False + rate for classified	+	$\Pr(\sim D +)$ 54.02%
False - rate for classified	-	$\Pr(D -)$ 48.18%
Correctly classified	51.28%	

Table 4. Logistic model H.2

WSTATOR	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
UrbanPopul_k	0.0008	5.16E-05	15.77	0	0.000712	0.000915
_cons	-0.893	0.014444	-61.84	0	-0.92152	-0.8649

Logistic regression Number of obs = 52281
 LR chi2(1) = 246.19
 Prob > chi2 = 0.0000
 Log likelihood = -32911.671 Pseudo R2 = 0.0037

Table 5. Average marginal effects H.2

Std. Err.	dy/dx	Std. Err.	z	P>z	[95% Conf.	Interval]
UrbanPopul_k	0.0002	1.12E-05	15.91	0	0.000156	0.0002

Average marginal effects Number of obs = 52281
 Model VCE : OIM

Table 6. Logistic model estimation H.2

Classified	True		Total
	D	~D	
+	0	0	0
-	17084	35197	52281
Total	17084	35197	52281

Classified + if predicted $\Pr(D) \geq 0.5$

Classified + if predicted $\Pr(D) \geq 0.5$

Sensitivity	$\Pr(+ D)$	0.00%
Specificity	$\Pr(- \sim D)$	100.00%
Positive predictive value	$\Pr(D +)$	0.00%
Negative predictive value	$\Pr(\sim D -)$	67.32%
False + rate for true ~D	$\Pr(+ \sim D)$	0.00%
False - rate for true D	$\Pr(- D)$	100.00%
False + rate for classified	$\Pr(\sim D +)$	0.00%
False - rate for classified	$\Pr(D -)$	32.68%
Correctly classified		67.32%

Table 7. Multinomial logistic regression H.3

	ISCO_1_DIGIT	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
1- Managers	UrbanPopul_k	0.0043531	0.0001872	23.25	0	0.003986	0.00472
	_cons	-3.61406	0.0552842	-65.37	0	-3.72242	-3.50571
2 - Professionals	UrbanPopul_k	0.0040275	0.0001223	32.92	0	0.003788	0.004267
	_cons	-2.414009	0.0326103	-74.03	0	-2.47792	-2.35009
3 - Technicians and associate professionals	UrbanPopul_k	0.0038061	0.0001762	21.6	0	0.003461	0.004152
	_cons	-3.279774	0.0487651	-67.26	0	-3.37535	-3.1842
4 - Clerical support workers	UrbanPopul_k	0.0045207	0.0002356	19.19	0	0.004059	0.004982
	_cons	-4.187344	0.0720991	-58.08	0	-4.32866	-4.04603
5 - Service and sales workers	UrbanPopul_k	0.0036803	0.0001131	32.54	0	0.003459	0.003902
	_cons	-2.051576	0.0285384	-71.89	0	-2.10751	-1.99564
6 - agricultural, forestry, and fishery workers		(base outcome)					
7 - Craft and related trades workers	UrbanPopul_k	0.0033815	0.0001144	29.57	0	0.003157	0.003606
	_cons	-1.978198	0.028129	-70.33	0	-2.03333	-1.92307
8 - Plant and machine operators, assemblers	UrbanPopul_k	0.0034789	0.0001483	23.45	0	0.003188	0.00377
	_cons	-2.739443	0.0387819	-70.64	0	-2.81545	-2.66343
9 - Elementary occupations	UrbanPopul_k	0.0036654	0.0001318	27.8	0	0.003407	0.003924
	_cons	-2.49648	0.03446	-72.45	0	-2.56402	-2.42894

Table 8. Average marginal effects H.3

	variable	dy/dx	Std. Err.	z	P>z	[95% C.I.]	X
1- Managers	Urban~_k	0.0000653	0	14.13	0	0.000056 0.000074	181.043
2 - Professionals	Urban~_k	0.000176	0.00001	20.89	0	0.00016 0.000193	181.043
3 - Technicians and associate professionals	Urban~_k	0.0000636	0.00001	11.51	0	0.000053 0.000074	181.043
4 - Clerical support workers	Urban~_k	0.0000407	0	11.75	0	0.000034 0.000047	181.043
5 - Service and sales workers	Urban~_k	0.000198	0.00001	19.59	0	0.000178 0.000217	181.043
6 - agricultural, forestry, and fishery workers	Urban~_k	-0.00093	0.00002	-46.49	0	-0.00097 -0.00089	181.043
7 - Craft and related trades workers	Urban~_k	0.000166	0.00001	15.87	0	0.000145 0.000186	181.043
8 - Plant and machine operators, assemblers	Urban~_k	0.0000843	0.00001	11.64	0	0.00007 0.000099	181.043
9 - Elementary occupations	Urban~_k	0.000125	0.00001	15.38	0	0.000109 0.000141	181.043

Rast mestnega prebivalstva in zaposlitvene možnosti: primer Albanije

Izvleček

Demografske spremembe so večplasten pojav, toda na splošno je sprejeto, da med pomembnejše dejavnike, ki določajo mobilnost ljudi, spadajo boljše zaposlitvene možnosti in kakovost delovnih mest. Namen tega prispevka je preizkusiti razmerje med povečanjem števila ljudi, ki živijo v mestnih območjih, in možnostmi zaposlitve na teh območjih v Albaniji; v ta namen smo izvedli statistično analizo zbirke podatkov iz anket o delovni sili za časovno obdobje 2007–2013. Naše ugotovitve potrjujejo pozitivno povezavo med povečanjem števila posameznikov, ki živijo na določenem območju, in možnostmi zaposlitve za specializirane poklice na tem območju; vendar pa ob upoštevanju splošne možnosti zaposlitve pomembne povezave ni bilo mogoče najti.

Ključne besede: rast mestnega prebivalstva, možnosti zaposlitve, Albanija, gospodarstva v tranziciji, demografske spremembe, notranja migracija

Analysis of the Fluctuation of the Number of ISO 9001:2015 Certificates in the Republic of Croatia and Assessment of Satisfaction of Business Organisations Leadership with the Certificate

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Abstract

The ISO 9001:2015 certificate of quality is nowadays the most renowned quality standard in the world. Standardised quality has become an imperative competitive advantage on the market for all serious business organisations. The fluctuation of the number of certificates of quality indicates to what extent companies are willing to ensure the quality of their products and services to customers and clients, and how fast the domestic market is standardised and integrated into the global economy. This paper presents the results of two empirical studies. The first one focused on the analysis of the fluctuation in the number of ISO 9001:2015 certificates in the period from 2008 to 2018, while the second aimed to determine the satisfaction of leadership with the certificate. The study has shown that, during the observed period, the number of certificates of quality in Croatia fluctuated between – 18% and +22% annually. At the annual level, a certain number of companies lose their certificates or opt for decertification. For that reason, a study of the leadership's level of satisfaction with the ISO 9001:2015 certificate was conducted using a sample of 296 certified business organisations. The study has proven that the leadership showed a high level of satisfaction with the certificate of quality and that they appreciate business organisations with certificates of quality. It demonstrates that the quality management certification has a bright future regardless of the annual fluctuation of the number of certificates.

Keywords: certificate, standard, ISO 9001:2015 certificate, quality system, leadership, business organisations

Introduction

The fluctuation of the number of certificates was analysed during the period from 2008 to 2018. The analysed data showed an interesting decline in the number of certified business organisations in the aftermath of the global economic crisis of 2008. This was to be expected considering the decline of business activities at the time. In the years following, the number of certificates increased and

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reached a maximum in 2014, followed by another decline in the number of certificates. The observed trend confirmed significant fluctuations in the number of certificates in the observed period, so an additional study, an analysis of the leadership satisfaction with the ISO 9001:2015 certificate was conducted to determine the level of satisfaction with the implemented quality system or to establish whether the ISO 9001:2015 certificate is appreciated.

The random stratified sample was determined based on the size of business organisations. Three strata were defined (micro, small, medium, and large business organisations observed in a common stratum) with a population of $N=2529$. The study indicated that 53% of the respondents showed high satisfaction with the ISO 9001:2015 certificate. Eighty-point-nine percent of respondents had a positive perception of the certificate, i.e. they appreciated business organisations with ISO 9001:2015 certificates. Therefore, it can be concluded that the fluctuations in the number of certificates have not been related to the leadership's dissatisfaction with the certificate of quality.

Business organisations of different sizes have organisational structures and business processes of different complexity, so the initial assumption was that a certified quality system does not create the same positive effects on business activities, which then results in different levels of satisfaction depending on the size of the business organisation. That is why it was tested whether there was a statistically significant difference among the three strata based on the business organisation size in the leadership's satisfaction with the certificate and their perception of the importance of the certificate. The conducted study has shown that there was not a statistically significant difference among various strata of the sample. These results, additionally, confirmed previous positive experiences with certified quality systems.

The research was conducted through an original survey, distributed and collected between March 1st, 2018, and June 1st, 2018. The majority of respondents filled out the survey online via the Limesurvey platform. A minority of the respondents (10%) filled out the survey through a questionnaire delivered via e-mail as a Word document. The scientific contribution of the article reflected that while current studies created critical outlooks on the benefits gained through certified quality systems, not one earlier research has proven the leadership's satisfaction with the ISO certificate of quality or how they appreciate business organisations with the certificate of quality. The uniqueness of this study lies in the differentiated approach of evaluating the satisfaction of leadership within micro, small, medium, and large business organisations. This is the first research paper that provided scientific confirmation of leadership

satisfaction with the ISO certificate of quality along with their perception about it through different sizes of business organisations and various business sectors. This study is also notable because it evaluated the trends in the number of certificates in the observed period and connected this number with the leadership's satisfaction in the quality management system. The paper combined the theory from previously published literature regarding certified quality systems, acquired knowledge and experience from business practice in certified quality systems, and empirical evidence from scientific research. The theme upon which the scientific contribution is built is both modern and contemporary because there is an increasing number of certified business organisations in the world that have implemented a quality management system according to the ISO 9001:2015 standard in their business management.

Literature Review

ISO 9001:2015 certificates confirm that business organisations have implemented a quality management system into their business operations, i.e. that they have accepted a quality standard. The terms standard and norm are synonyms since the word standardisation means to the norm, i.e. change something into the required size, strength, or approach (Lazibat, 2001). The practical value of the ISO 9001:2015 standard is that through its requirements, it enables business organisations to establish a quality management system that improves their business operations and facilitates participation in international markets. The standard determines the guidelines for quality system improvement (Dumičić, Kunović, & Dumičić, 2005). The system is defined as a group of interrelated elements (parts, processes, subsystems) that function in line with set rules, aimed at attaining a certain goal, while they also make a relatively independent unit (Zelenika, 2001). Certified quality systems contribute to order, which is based on good organisation, better communication among people, better productivity, reduction of mistakes, satisfied workers who are, consequently, also significantly more productive. It is these positive effects in business activities that have made certification to the ISO 9001:2015 standard popular around the world. For that reason, Croatian business organisations need to be involved in quality certification as much as possible. Certificates are important, also, because they facilitate business operations in the international market by creating trust among buyers, clients, suppliers, and partners. Dumičić, Knego, & Melvan (2006) have underlined the European perspective of quality development in Croatia. A certificate is imperative for all business organisations that would like to be competitive in the global market. Čuzović and Čuzović (2012) studied the importance of quality systems in the internationalisation of

trade. The purpose of quality certification is to accelerate liberalisation processes important for international trade. Free markets imply business operations based on the same rules and principles, and if business organisations follow them, doing business is, to a large extent, facilitated. Črnjar and Vrtođušić Hrgović (2013) proved that quality certification in tourist companies strengthens their competitiveness, while Zambelli and Rajić (2014) concluded that exportation is the main motivation for quality certification in foreign trade companies. The present paper analyses the fluctuation of the number of certified business organisations, i.e. the number of ISO 9001:2015 certificates because this fluctuation is indicative of how fast the Croatian market is standardised and to what extent customers' and clients' demands are given priority. Dumičić (2004) used a questionnaire to study the implementation of the quality system in Croatian companies. Dumičić, Lazibat, and Matić (2005) used the same questionnaire to determine the implementation of the quality system in Croatian companies in the context of market structure.

Another reason why it is important for as many as possible Croatian business organisations to be certified is the quality measurement. Certificates of quality confirm that the leadership of business organisations measures quality and improves it to meet customers' expectations, and, consequently, customers' satisfaction always results in satisfied leadership as well. According to Gryna and Juran (1999), quality is defined as customer satisfaction. These authors focused their attention on two very important components, a "customer" and a "product." "A customer is anyone who is affected by the product or by the process used to produce the product" (Gryna & Juran, 1999). Measuring service quality is important if the leadership plans to meet its expectations of the quality system since quality measurement ensures service the provider's satisfaction, sets high standards for services provided to clients, continuously monitors and surveils performance as well as provides feedback to employees (Cronin & Taylor, 1992; Abu-Kharmeh, 2012). Škafar (2020) studied quality management systems in 30 higher vocational colleges and concluded that the interviewees believed that implementation of the quality management system had contributed to improving the satisfaction of individual members of the college, better implementation of processes, and regular improvements in the college. When a business organisation accomplishes a certain level of quality, benefits for the business organisation are created, which is then reflected in improved efficiency of business processes, higher profitability, and competitive advantage (Benner & Veloso 2008, 611). Business processes are important because they are the backbone of each quality management system, so one of the main aims of a certified quality system is the development of the process-oriented approach to measurement

to remedy non-compliance. A process-oriented organisation ensures the implementation of regular improvements, which can be internal or external. Internal improvements target internal processes and prevent mistakes within them, which leads to a reduction of costs. External improvements focus on external customers to increase their satisfaction to ensure a larger market share and larger revenue as well, as emphasised by Dahlgaard, Kristensen, & Kanji (1998). A certificate of quality can also be defined as a confirmation of the suitability of the quality system management to remedy non-quality. Crosby (1989) pointed out that quality results from prevention, and that the performance standard means zero defects. Consequently, all the above leads to satisfaction of the business organisation leadership, and this satisfaction influences the leadership's perception of the certificate of quality. However, the universality of the application of the same principles stipulated by the standard and the neglect of numerous specificities of the environment as well as the organisation itself made being average one of the associations with quality. On the other side, according to Bogataj and Žurga (2020), the quality management system with unified approach to leadership that is incorporated in the new ISO 9001 quality management system will influence not only on organization and processes but business results.

Methodological Base

Data on the number of certificates in the observed period were obtained from the ISO survey source (ISO, 2018). The fixed base index was used for the analysis of the fluctuation of the number of certificates in various years, while the chain index was used to analyse the relative change in the number of certificates during the observed period. A series of fixed base indices were converted into a series of chain indices so that each index was divided by the previous one, and the obtained coefficient was multiplied by 100.

Two formulas are used for the calculation of analysed values, Formula 1 is for the calculation of the fixed base index and Formula 2 is for the calculation of the chain indices:

$$I_t = \frac{y_t}{y_b} \times 100, \quad i=1,2,\dots,n \quad (1)$$

and

$$V_t = \frac{y_t}{y_{t-1}} \times 100, \quad i=1,2,\dots,n \quad (2)$$

What makes this study specific is that it was conducted directly through a questionnaire. The questionnaire was made for this study, and it was distributed to 269 business organisations with the ISO 9001:2015 certificates. The sample is

a random stratified sample with a proportional allocation of elements per strata $n_1=50$, $n_2=150$, $n_3=100$ (micro, small, and medium and large business organisations). The sample was derived from the population of $N=2529$ business organisations in the Republic of Croatia on 31 December 2015 with a confidence level of 95%. The sample fraction estimation does not derogate from the population parameters for more than $\pm 5\%$. Žugaj, Dumičić, and Dušak (2006, 1999) used a representative method of sampling, and they have analysed sampling method techniques. In addition to the questionnaire and graphic representations, the paper uses numerical methods of the exploratory descriptive statistical analysis. Graphic representation of data is elaborated by Dumičić (2011c), while Dumičić and Palić (2011) discussed numerical measures of descriptive statistics. The ANOVA test and the chi-square test were used for analysing the statistical significance of differences among strata in the sample. Statistical data processing was conducted using the software SPSS, IBM (2018).

Research Results and Discussion

According to the latest data available in the ISO Survey in 2018, 2343 business organisations were certified to the ISO 9001:2015 standard on the Croatian market. The data presented in Table 1 show an initial increase in the number of certificates in 2008 and 2009. That number of certificates decreases in the decrease of business activities generated externally by the 2008 crisis, which also resulted in decertifications. Business organisations assessed that the cost of maintaining the certificate is higher than the positive effects of the business activities created by the certificate of quality. According to the statistical data of the High Commercial Court, which registers data on bankruptcy and winding up procedures from 1 July 2008 to 31 December

2009, 1.5 business organisations closed daily, which is one of the reasons for the decrease in the number of certificates in 2010 and 2011. The market gradually started recovering, and the number of certificates increased from 2012 with the highest increase in the number of certificates in 2014, when there were 2806 business organisations with a certificate of quality doing business on the Croatian market. Since 2014, the number of certificates has been in a mild decline, but it is still higher than the initial number from the year 2008. The smallest number of certified business organisations was in 2010 when 2102 certificates of quality were in organizations in the Republic of Croatia.

Table 1 shows that taking the year 2008 as the base year, the difference in the number of certificates per year is determined in comparison to the initial year of 2008. The most significant decrease in the number of certificates was in 2010 when 200 business organisations were left without a certificate of quality, a decline of 9% from the initial year 2008. The most significant increase in the number of certificates was in 2014 when the number of certificates increased by 504 (22%) in comparison to the initial year of 2008.

Throughout the observed period, the number of certificates fluctuated annually within the range of -18% and $+22\%$. The bottom limit of -18% presents a valuable datum, since it shows the most significant decrease in the number of certificates, which could be relevant for the Covid-19 related crisis. When it comes to YOY %, which measures the difference in the number of certificates year over year, it can be seen that the number of certificates in the last two years (2017 and 2018) declined by 10% and 2%, respectively. Data indicate that the number of certificates in Croatia has been in decline, and observing the 2019 data when available will be valuable. The calculated fixed base index leads to the conclusion that the most significant change following the year 2008 was in the year 2014, with the maximum number of certificates in the observed period, and in the

Table 1. Fluctuation of the number of certificates from 2008 to 2018

Country	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Croatia (HR)	2302	2567	2102	2117	2584	2636	2806	2529	2659	2381	2343
2008 base-absolute value		265	-200	-185	282	334	504	227	357	79	41
2008 base - percentage		12%	-9%	-8%	12%	15%	22%	10%	16%	3%	2%
YOY % - year over year		12%	-18%	1%	22%	2%	6%	-10%	5%	-10%	-2%
Index – fixed base (It)	100	111.51	91.31	91.96	112.25	114.50	121.89	109.861	115.50	103.43	101.78
Index YOY (Vt)	100	111.51	81.88	100.71	122.05	102.01	106.44	90.12	105.14	89.54	98.40

year 2012 when there was the smallest number of certificates in Croatia. The YOY index shows a change for the reference year in comparison to the previous year, and, in conclusion, the most significant fluctuation in the number of certificates was recorded from the year 2009 to the year 2010. The research indicated that the number of certificates in Croatia fluctuated depending on the observed year.

Figure 1 presents the trend in the observed period from 2008 to 2018, and the number of certified business organisations fluctuated between 2000 and 3000.

The trend in the number of certificates showed that there was a fluctuation in the number of certificates, i.e. certified business organisations. Fluctuations are caused by business organisations abandoning certification or losing the right to be certified. Most business organisations lose their certificates due to the following circumstances: the quality system has not been implemented or was implemented partially, the quality system did not reflect the actual state of the organisation, the indicated non-compliance had not been remedied, an audit or recertification was not held within the required period, the certificate was inappropriately used, legal requirements had not been met or the business organisation did not manage to appeal the certificate suspension. Certification is abandoned when the estimated benefit from the certificate is smaller than was expected. The decision about whether a business organisation should abandon the certification or not depends on the leadership's satisfaction with

the certified quality system. An efficient quality management system is based on the understanding of stakeholders' needs and expectations (Lazibat, Sutić & Baković, 2013). The finding that a certain number of business organisations abandon certification or lose their certificate was the reason to study the leadership's satisfaction with the ISO 9001:2015 certificate. In their earlier study among the leadership of health organisations Žabica, Lazibat and Dužević (2014) proved that more than 80% of respondents do not see the benefits of implementing the quality management system in their business operations and service provision.

The study of the satisfaction with the ISO 9001:2015 certificate was conducted using a questionnaire among the leadership (the term *leadership* is taken from the ISO 9001 standard) of the micro, small, medium, and large business organisations. The respondents were authorised representatives acting as management board members or quality coordinators. The satisfaction with the certificate of quality in business organisations was graded on a scale, with grade 1 meaning "low satisfaction", grade 2 meaning "medium satisfaction", and grade 3 meaning "High satisfaction". Statistical data processing showed that only 7.8% of respondents expressed a low level of satisfaction with the certificate, 41.3% showed medium satisfaction, and 50.9% showed high levels of satisfaction with the certificate. The analysis leads to the conclusion that every second respondent expressed a high level of satisfaction with the certificate.

Figure 1. The trend in the number of certificates from 2008 to 2018

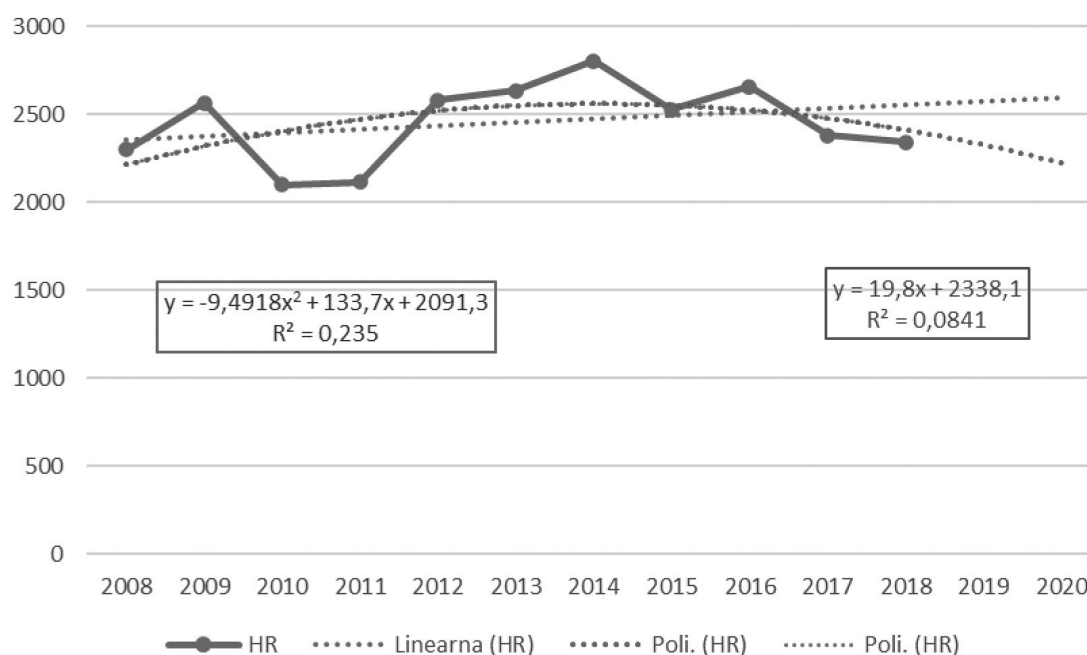


Table 2. The level of satisfaction of the leadership of business organisations with the ISO 9001:2015 certificate

		Frequency	Percent	Valid Percent	Cumulative Percent
Evaluate your satisfaction with the 9001 certificate	Low	21	7.8	7.8	7.8
	Medium	111	41.3	41.3	49.1
	High	137	50.9	50.9	100.0
	Total	269	100.0	100.0	

Table 3. Descriptive statistics of the obtained value of satisfaction with the certificate based on the size of business organisations (arithmetic mean, standard deviation, and standard error)

		N	Mean	Std. Deviation	Std. Error
Satisfaction with the certificate per 3 strata	Micro	94	3.43	0.810	0.084
	Small	125	3.41	0.774	0.069
	Medium and large	50	3.68	0.713	0.101
	Total	269	3.96	0.700	0.043

Table 4. Testing the satisfaction with the ISO 9001:2015 certificate in relation to the size of the business organisation (the ANOVA test)

Item	F	p
Evaluate your satisfaction with the ISO 9001 certificate	2,380	0.095

Furthermore, Table 4 presents the results of the conducted ANOVA test ($F=2.380$, $p=0.095$), which shows whether there is a statistically significant difference in the satisfaction with the ISO 9001 certificate of quality with the size of the business organisation. It was established that there were no statistically significant differences in relation to the size of the business organisation ($F=2.380$, $p=0.095$).

Statistical significance was further tested using the chi-square test as presented in Table 5 and Table 6. The chi-square test established the statistical significance of the difference in the satisfaction of the leaders among the three strata based on the size of business organisations.

Table 5. Testing the satisfaction with the ISO 9001:2015 certificate in relation to the size of the business organisation (chi-square test)

		Micro	Small	Medium and large	Total
Low	Count	10	10	1	21
	%	10.6%	8.0%	2.0%	7.8%
Medium	Count	37	54	20	111
	%	39.4%	43.2%	40.0%	41.3%
High	Count	47	61	29	137
	%	50.0%	48.8%	58.0%	50.9%
Total	Count	94	125	50	269
	%	100,0%	100.0%	100.0%	100.0%

Table 6. Testing the satisfaction with the ISO 9001:2015 certificate in relation to the size of the business organisation (chi-square test)

	Value	df	Asymptotic Significance (2-sided)
Pearson chi-square	3,964 ^a	4	.411

Table 6 presents the results of the chi-square test that tested the statistical significance of the difference in respondents' satisfaction with the size of the business organisation. No statistically significant difference was found ($\chi^2=3.964$, $p=0.411$). Thus, the leadership's satisfaction with the certificate was not affected by the size of the business organisation, i.e. the complexity of their structures and processes.

One of the aims of this paper was to question the leadership of business organisations to determine whether they value business organisations that hold an ISO 9001:2015 certificate of quality. The goal was to study the perception of the quality certificate on the market by those who possess it. The perception of the certificate of quality was graded by grade 1 meaning "I do not appreciate", grade 2 meaning "I am indifferent", and grade 3 meaning "I appreciate". Table 7 presents the results.

Table 7. Leadership's perception of business organisations with an ISO 9001:2015 certificate

		Frequency	Percent	Valid Percent	Cumulative Percent
Do you appreciate the ISO 9001 certificate?	I do not appreciate	8	3.0	3.0	3.0
	I am indifferent	45	16.7	16.7	19.7
	I appreciate	216	80.3	80.3	100.0
	Total	269	100.0	100.0	

The results show that 80.3% of respondents appreciate business organisations with ISO 9001:2015 certificates. Sixteen point seven percent were indifferent while only 3% of the respondents did not appreciate business organisations with the certificate.

The ANOVA test, i.e. the variance analysis from Table 9 tested whether there was a statistically significant difference in the perception of the certificate of quality, i.e. whether the appreciation of the ISO 9001:2015 certificate depended on the size of a business organisation. It was de-

Table 8. Descriptive statistics of the perception of the certificate of quality concerning the business organisation size (arithmetic mean, standard deviation, and standard error)

Do you appreciate business organisations with the ISO 9001 certificate?	Micro	94	3.90	0.763	.079
	Small	125	3.91	0.684	.061
	Medium and large	50	4.16	0.584	.083
	Total	269	3.96	0.700	.043

Table 9. Testing the appreciation of business organisations having ISO 9001:2015 certificates (ANOVA test)

Item	F	p
Do you appreciate business organisations having the ISO 9001 certificate?	2,656	0.072

Table 10. Testing the appreciation of the ISO 9001:2015 certificate in relation to the business organisation size (chi-square test)

		Micro	Small	Medium and large	Total
Not appreciated	Count	6	2	0	8
	%	6.4%	1.6%	0.0%	3.0%
Indifference	Count	14	26	5	45
	%	14.9%	20.8%	10.0%	16.7%
Appreciated	Count	74	97	45	216
	%	78.7%	77.6%	90.0%	80.3%
Total	Count	94	125	50	269
	%	100,0%	100.0%	100.0%	100.0%

Table 11. Testing whether the ISO 9001:2015 certificate was appreciated concerning the business organisation size (chi-square test)

	Value	df	Asymptotic Significance (2-sided)
Pearson chi-square	9,463 ^a	4	0.051

terminated that there was no statistically significant difference in the perception of the certificate of quality in relation to the business organisation size ($F=2.656$, $p=0.072$).

The statistical significance of the difference was then tested using the chi-square test as shown in Table 10 and Table 11. The chi-square test was used to test the statistical significance of the difference in the perception of the certificate of quality by the leadership among the three strata determined based on the size of business organisations.

Table 11 presents the chi-square test results testing the statistical significance of the difference in appreciation of the ISO 9001:2015 certificate in business organisations of various sizes. It was established that there is no statistically significant difference ($\chi^2=9.463$, $p=0.051$), although the results were very close to statistical significance.

Conclusion

The ISO 9001:2015 certificate of quality confirms that a business organisation has established a quality management system. The same requirements that the standard imposes on all business organisations in the world regardless of their size and business activities has resulted in the international reputation of the certificate of quality. Such quality standardisation is important since it facilitates the

globalisation processes. This paper aimed to study the fluctuation of the number of ISO 9001:2015 certificates in Croatia and to evaluate the satisfaction and perception of the leadership with it. The fluctuation in the number of certified business organisations in the period between 2008 to 2018 was analysed using the chain index and the fixed base index. The greatest decrease in the number of certificates was registered in 2010 because of the economic crisis in 2008. The decrease was 18% from the previous year, i.e. there were 456 certificates less than the year before. The most significant increase in the number of certificates was in 2012 when the market recovered. There were 467 more certificates than the year before. The number of certificates fluctuated annually between -18% and +22%. The lowest percentage of -18% might be valuable because it could indicate the expected decrease in the number of certificates in the Covid-19-related crisis. On the other hand, due to a significant oscillation in the number of certificates at the annual level during the observed period, the researcher decided to analyse the satisfaction of the leadership with the ISO 9001:2015 certificate and their perception of the certificate of quality. The study indicated that almost every second respondent leading a business organisation with the ISO 9001:2015 certificate expressed high satisfaction with the certificate. Since business organisations differ in their structure and processes, the study also tested whether there was a statistically significant difference in satisfaction in the three size strata, micro, small and medium, and large,

of business organisations. Testing was conducted using the ANOVA test and the chi-square test. The results showed that there is no statistically significant difference in the satisfaction of the leadership with the certificate based on the size of business organisations. For this analysis, the research question was formed in the way to determine whether business organisations with an ISO 9001:2015 certificate were appreciated. Business organisations that had implemented a certificate of quality in their business operations were appreciated by 80.3% of respondents, which confirms the reputation of the certificate of quality. Only 3% of the respondents did not appreciate business organisations with a certificate of quality. Furthermore, no statistically significant difference in the perception of the certificate of quality with the size of the business organisation occurred. Eventually, the research showed that regardless of significant oscillations in the number of certified business organisations and based on the satisfaction of the most relevant stakeholders in the quality system, these certificates have a bright future.

The research was limited to the territory of Croatia and conducted with 269 certified business organizations. It will be interesting to conduct similar research in other countries. A higher number of certified business organizations in differ-

ent countries would contribute to increasing the reliability of the results. A limitation of the research lies in the bias of the respondents. The respondents may have given insincere answers to present their quality management system as more efficient or exaggerate their satisfaction with it. The unwillingness of business organisations to participate in the survey was an additional limitation of the research. Respondents felt that providing answers could harm the reputation of their business organisation. It should be noted that GDPR (General data protection regulation) was also an obstacle that hindered the path to useful information through surveys. This study sheds light on the importance of leadership satisfaction because the satisfaction of leadership is the critical determinant of a quality management system and proof that a quality system creates business benefits for leadership. Only having a satisfied leadership is a confirmation that a quality system creates benefits for business organisations. In future research, it would be useful to see which elements of the quality management system leadership is most satisfied with and which have the most significant impact on generating benefits for business organisations. This study showed that the popularity of the ISO 9001 certificate is not fading due to the many benefits of a quality management system. It is the most well-known standard of business in the world.

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Analiza nihanja števila potrdil ISO 9001:2015 v Republiki Hrvaški in ocena zadovoljstva vodstev poslovnih organizacij s potrdilom

Izvleček

Potrdilo o kakovosti ISO 9001:2015 je danes najbolj priznan standard kakovosti na svetu. Standardizirana kakovost je postala nujna konkurenčna prednost na trgu za vse resne poslovne organizacije. Nihanje števila potrdil o kakovosti kaže, v kolikšni meri so podjetja pripravljena svojim strankam zagotoviti kakovost izdelkov in storitev ter kako hitro je domači trg standardiziran in vključen v svetovno gospodarstvo. V prispevku so predstavljeni rezultati dveh empiričnih študij. Prva se osredotoča na analizo nihanja števila potrdil ISO 9001:2015 v obdobju od 2008 do 2018, druga pa želi ugotoviti zadovoljstvo vodstva s potrdilom. Študija je pokazala, da v opazovanem obdobju število potrdil o kakovosti na Hrvaškem letno niha med -18 % in +22 %. Na letni ravni določeno število podjetij izgubi potrdila ali se odloči za njihovo ukinitve. Prav zato je bila na vzorcu 296 certificiranih poslovnih organizacij izvedena študija stopnje zadovoljstva vodstva s potrdilom o kakovosti ISO 9001:2015.. Študija je dokazala, da vodstvo kaže visoko stopnjo zadovoljstva s potrdilom o kakovosti in da ceni poslovne organizacije s potrdili o kakovosti. Navedeno dokazuje, da imajo potrdila o upravljanju kakovosti svetlo prihodnost ne glede na letna nihanja števila certifikatov.

Ključne besede: potrdilo, standard, potrdilo ISO 9001:2015, sistem kakovosti, vodstvo, poslovne organizacije

Insights into Classic Theatre Market Segments

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Abstract

Marketing segmentation is one of the key strategic elements in marketing planning that helps identifying key consumer groups and their characteristics and enables the adaptation of marketing strategies to different target consumers. The aim of this paper is to segment classic theatre audiences based on their attendance frequency and identify major socio-demographic characteristics of each segment. A self-completion questionnaire was developed upon analysis of previous studies and was distributed to the population in an area of about 50 km around Osijek. The research was conducted on a convenient sample, using an in-person method in two different intervals: in the first interval, research was conducted on young respondents (18-34), and in the second interval, research was conducted on adult respondents (age 35+). Altogether 1315 participants took part in the research. Statistical techniques of univariate analysis (frequency distribution and central tendency measures), ANOVA, and two-step cluster analysis were used.

The results of the study have identified six classic theatre segments: young theatre friends, young theatre acquaintances, young theatre strangers, adult theatre friends, adult theatre acquaintances, adult theatre strangers. Each segment is described in detail by their geographic (distance from the venue), demographic (age, income, marital status, education, employment) and psychographic characteristics (social activities, free time spending, and informing gathering about classic theatre offer) characteristics. The research results emphasized the differences in classic theatre audiences, which calls for continuous market segmentation in order to ensure timely recognition of consumer trends and changes in preferences. This would enable theatre management to adapt and implement adequate marketing initiatives and strategies.

Keywords: classic theatre, marketing segmentation, theatre audience

Introduction

Classic theatre is a social, situational, and experiential phenomenon rather than a fixed or tangible product (Walmsley, 2011) and therefore needs a special marketing approach toward customers. Marketing experts have agreed that market segmentation is one of the key strategic elements in marketing planning (Colbert,

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1994; Kotler and Scheff, 1997; Conway and Whitelock, 2007) that helps identifying key consumer groups and their characteristics and enables adaptation of marketing strategy to different target consumers. In this way, market segmentation assists in structuring and focusing on an organisation's marketing management activities. In other words, such a study can help theatre management understand why people engage with theatre and contribute to building an efficient relationship with existing audiences as well as recognize the specific potential customer. This issue has been recognized earlier by Heilbrun and Gray (2001) and Reiss (1994), who emphasized the importance of identification of both theatre goers and non-goers. According to Reiss (1994), it can ease the reach to perspective audience cost efficiently and with the most persuasive message. When faced with restricted public theatre budgets, this would be of utmost importance. Botha and Slabbert (2011) stated that the segmentation of theatre audiences can be an effective tool to divide existing and potential markets into homogeneous groups based on meaningful characteristics that could be profitably targeted. Moreover, it may help forecasting to forecast future trends of theatre consumption (Grisolia et al., 2010). Therefore, the market segmentation strategy as we know it in business or conventional marketing can also be applied in non-profit marketing, in this case, the marketing of public cultural institutions.

This study seeks to extend the well-established academic background of market segmentation to the context of classic theatre in Croatia. Several studies have recognized the challenge of the aging loyal theatre audience (Peterson, et al., 2000; Taylor et al., 2001; Colb, 2001; Carson, 2004; Turrini et al., 2012, and among others) and called for building new strategies to recognize and attract younger audiences. In this context Buljubašić et al. (2020), for example, have identified the need for unconventional marketing based on social media to reach younger audiences and to attract them to Croatian classic theatres.

This study aims to identify key classic theatre market segments and their characteristics in order to provide key elements for creating efficient marketing strategies for the theatre analysed in the study. The segmentation criteria used in the paper are the age (young vs. adult, i.e. up to the age of 35 and over 35, respectively) and theatre attendance frequency. The reason for such an approach was that previous studies in Croatia have been done separately on young and adult audiences (Leko Šimić & Pap, 2020), so it was found interesting to compare the two age-based segments; Secondly, the population of 35+ has already built its "cultural profile," and it is highly unlikely that it will change significantly, whereas young existing and potential audiences can be reached by adequate marketing strategies, and their attitudes and behavior are easier to

change. Chytková, et al. (2012) also confirmed that age is a significant criterion to segment audiences. They found that older audiences (over 60) in the Czech Republic are the most frequent classic theatre attendees. The same situation exists in Croatia, and if this is related to the long-term trend of the decline of classic theatre audiences (Leko Šimić & Pap, 2020), it is clear that a detailed age segments analysis is needed. Moreover, although several newer studies have concentrated on motivational factors (Walmsley, 2011; Obaidalahe & Steils, 2018), engagement (Pap et al., 2017), satisfaction (Leko Šimić & Pap, 2019) and other factors affecting theatre attendance, Hager and Kopczynski Winkler (2012) warned that neither scholars nor managers can afford to underemphasize the value of demographics in predicting performing arts attendance.

This paper is the first in Croatia that studies has studied the different classic theatre segments and to provide insight into youth and adult theatre consumers' profiles. The findings of the study may help theatre management in the creation of the best possible programs and marketing activities to retain existing and attract new audiences.

The paper is organized in the following way. In the introductory part, the emphasis is on the need for marketing orientation and use of marketing tools for classic theatre and its market survival, focusing on market segmentation. In the literature review section, a short overview of historic and recent studies that focus on theatre market segmentation and describe the methods and models used as well as their results in terms of identified market segments are provided. The third part of the paper is focused on our research with methodology, research results, and discussion. The last part, the conclusion, summarizes our findings and identifies limitations and areas for further research.

Literature Overview

Segmentation of performing arts audiences, as one of the most fundamental techniques of targeted marketing, has been widely discussed in the literature (e.g. Kotler & Scheff, 1997; Berstein, 2007).

Most of the existing research on cultural organizations' marketing identifies key segmentation criteria as demographic (age, gender, income), geographic (region, urban/rural, distance from the venue), and psychographic (lifestyle, personality) (Kotler & Scheff, 2007). Grisolia et al. (2010) added socio-economic variables. Among demographic criteria, Kotler and Scheff (1997), Grisolia et al. (2010), and others emphasized education and income variables as crucial ones. Since consumers' satisfaction is

crucial to retaining existing customers and attracting new ones, several authors identified satisfaction with a cultural product as a key segmentation determinant (Oom do Valle et al., 2010; Jobst & Boerner, 2011; and others).

Ngobo (2005) found that age is a significant moderator in a consumer's frequency of performing arts attendance. Hager and Kopczynski Winkler (2012) claimed that age is perhaps the most discussed demographic driver in the performing arts. Favaro and Frateschi (2007) came to the same conclusion in their study of Italian audiences (in this case, the effect was moderated by the type of performance attended). Willis et al. (2012) in their study proved that geographical distance negatively influenced the number of theatre visits. Most research on performing arts attendees centred on one or more components of social class, such as income, education, or occupation (Solomon et al., 2010). Andreassen (1987) concluded that more frequent attendees of classical performances tended to be of higher education or higher income, and that these attendees had been socialized to performing arts in childhood. Similarly, Masters et al (2001) proved education to be significant in predicting Australians' performing arts attendance. Falk and Falk (2011) compared EU countries and found that all the components of social class (income, education, and occupation) were a significant predictor of consumers' performing arts attendance.

Regarding audience segmentation, we have emphasized a few studies. Sargeant's (1997) research into British theatres has identified three segments, i.e. clusters of theatre visitors: *nouveau sophisticates* (youngest segment, high interest for arts in general) *bluemooners* (the least educated, lowest attendance rate, least demanding) and *ageing socialites* (oldest, most important motivation is the participation in social occasion).

Andreassen and Belk (1980) identified "culture patrons" and "socially-active" segments to be the most frequent theatre visitors. As a result of their favourable attitudes toward the arts, cultural patrons are highly involved in theatre because of their favourable attitudes toward the arts. They rely very little on television for entertainment or relaxation. The socially active are less frequent attendants than culture patrons, but they are aware of theatre offerings. They attend parties, eat out often, like reading, and spending quiet evenings at home. Andreassen later on (1992) developed a segmentation strategy based on stages in the performing arts adoption process, where he identified four key segments: *disinterested and non-attendees' segment*, *trial and interest segment*, *positive evaluation segment*, and *adoption and confirmation segment*.

McCarty and Jinnet (2001) have developed an Interest/Attendance model of audience development and identified

four segments: the *participating segment*, i.e. the existing market, the *"inclined-to- participate"* segment that has an interest but does not attend, the *"no-inclination"* segment consisting of those who attend but have no interest, and the *"disinclined- to- participate"* segment, with those who neither attend nor have interest.

Belgian arts sociologist Rudi Laermans segmented arts audiences using several different criteria, to classify the audience: professional involvement, experience with arts, and knowledge/competence. His inner circle is comprised of the "small, usually highly educated core audience." The second circle is called the "interested participants," who frequently make an appearance. The third is the "incidental visitors or participants." They are more passers-by than participants (Laermans, 2002). Similarly, Roose (2008) distinguished three qualitatively different audience segments attending classical music concert: the "inner circle," "outer circle," or "passers-by's," and "interested participants," who differ in their motivation to attend a cultural event (extrinsic vs. intrinsic motives) and the "socio-demographic profile." The inner-circle members are older and very highly educated, they attend concerts out of an intrinsic and genuine interest for the particular musicians and/or orchestra performing and prefer innovative and unfamiliar pieces. Extrinsic motives for attendance, such as spending an evening out with friends or because they have been invited, are the most salient for the passers-by or the outer circle. They tend to be the youngest segment with the lowest educational capital, although this is a relative qualification: still, more than 60 per cent had obtained at least a bachelor's degree. Roose (2008) labelled the third segment, the interested participants, which is situated somewhere in between.

Guillon (2011) did a dual segmentation of theatre audiences based on different degrees and forms of loyalty. Her study confirmed that there was an individual propensity for loyalty that is based on both the inherent characteristics of attendees and contextual factors. Also, her research confirmed that different forms of loyalty do not always correspond to precisely the same logic of consumption and, therefore, are not always displayed concurrently. Chytкова et al. (2012) argued that traditionally- used demographic variables are context – insensitive and suggest the use of the benefit, i.e. motivations as a basis for segmentation. These benefits are identified as functional, symbolic, social, and emotional, and their study confirms differences in motivation as a significant predictor of theatre- visit frequency. Cavdar and Çobanoğlu (2018) have used clustering analysis with the same approach, benefit segmentation, which investigates benefits sought in theatre visit. They have identified four characteristic segments: *enthusiasts*, *utilitarians*, *hedonistics*, and *socializers* groups.

Research

In the performing arts literature, three groups of variables are used for audience segmentation, that is, geographic (e.g., region, distance from the venue), demographic (e.g., age, income), and psychographics (e.g., lifestyle, personality), and this is the approach that was taken in this study. A self-completion questionnaire was developed upon analysis of previous studies and distributed to the population in the area of about 50 km around Osijek. The questionnaire was developed with a goal to evaluate respondents' attendance at the Croatian National Theatre in Osijek (in further text HNK Osijek) and its relation to the socio-economic characteristics of respondents.

Methodology

The research was conducted on a convenient sample using an in-person method in two different intervals: in the first interval, research was conducted on young respondents (18-35), and in the second interval, research was conducted on adult respondents (age 35+). Altogether 1315 participants took part in the research. The information obtained was analysed using the statistical software package SPSS version 21.0. The statistical technique of Two-Step cluster analysis was used. Table 1 depicts the detailed sample description.

Table 1. Sample description

			Young respondents		Adult respondents	
			N	%	N	%
Gender	Male		355	40.5	206	47
	Female		518	59.1	232	53
Age*	18-21	35-45	335	38.2	222	50.7
	22-25	46-55	306	34.9	135	30.8
	26-30	56-65	141	16.1	58	13.7
	31-34	66-78	88	10	23	4.8
Place of residence	Osijek		569	65	304	69.4
	Other urban areas		34	3.9	84	19.2
	Rural area		142	16.2	50	11.4
Completed level of education	Primary school		10	1.1	20	4.6
	Secondary school		573	65.4	196	44.7
	College/university		268	30.6	195	44.5
	Postgraduate		22	2.5	27	6.2
Employment status	Employed		214	24.4	306	69.9
	Unemployed		137	15.6	73	16.7
	Retired		523	59.7	59	13.5
Average monthly household income	Up to 400 €		153	17.5	64	14.6
	401 – 800 €		319	36.4	190	43.4
	801 – 1200 €		218	24.9	121	27.6
	Over 1200 €		177	20.2	63	14.4
Social networks active	Yes		783	89.4	262	59.8
	No		83	9.5	176	40.2

*Age intervals in the first column are related to young respondents' age groups, and age intervals in the second column are related to adult respondents' age groups

Table 2. Cluster description of young audience according to their theatre attendance (demographic and geographic characteristics)

Cluster description	Cluster 1 Young theatre friend (N=53)	Cluster 2 Young theatre acquaintance (N=394)	Cluster 3 Young theatre strangers (N=427)
Demographic characteristics			
Age		%	
18-21	25	35.5	43.2
22-25	36.5	37	33.3
26-30	23.1	15.3	16.3
30-35	15.4	12.2	7.3
Gender		%	
Male	30.2	35.6	46.6
Female	69.8	64.4	53.4
Working status		%	
Employed	35.8	28.5	19.2
Unemployed	7.5	13.7	18.5
Student	56.6	57.8	62.2
Marital status		%	
Married	28.3	17.8	14.2
Single	71.7	82.2	85.8
Education		%	
Elementary school	1.9	0.8	1.4
High school	45.3	61.1	72.5
Faculty	47.2	35.1	24.5
Masters or doctorate	5.7	3.1	1.6
Average household income		%	
Less than 400 €	11.3	15.2	20.6
400 – 800 €	34	41.1	33.1
801 – 1200 €	24.5	24.9	25.5
More than 1200 €	30.2	18.8	20.8
Geographic characteristics			
Place of residence		%	
Osijek	84.9	72.8	56.5
Other town/city	3.8	11.3	26
Village	11.3	15.9	17.5

Clusters were named according to theatre attendance. Frequent young attendants were called young theatre friends, occasional young attendants were called young theatre acquaintances and young non-attendants were called young strangers.

Table 3. Cluster description of young audience according to their theatre attendance (psychographic characteristics)

Cluster description	Cluster 1 Young theatre friend (N=53)	Cluster 2 Young theatre acquaintance (N=394)	Cluster 3 Young theatre stranger (N=427)
Psychographic characteristics			
Information gathering about theatre	%		
Web page			
Often	44	20.6	9.6
Sometimes	48	44.5	32.4
Never	8	34.8	67.6
Social networks			
Often	31.3	16.4	8.6
Sometimes	41.7	41.6	23.1
Never	27.1	41.9	68.3
Print media			
Often	40.8	17.9	7.9
Sometimes	34.7	45	27.2
Never	24.5	37.1	65
Friends' recommendation			
Often	53.8	32.6	10.2
Sometimes	40.4	49.6	36.5
Never	5.8	17.8	53.3
Theatre posters			
Often	43.1	33.1	16.5
Sometimes	45.1	48.1	37.1
Never	11.8	18.8	46.4
Program preferences	Mean (max. 5)		
Drama	4.02	3.72	3.23
Comedy	4.4	4.56	4.5
Opera	2.92	2.54	2.21
Spending leisure time	Most frequent category		
Doing sports	Daily (40%)	Weekly (39.4%)	Weekly (33.3%)
Reading books	Daily (31.4%)	Never (23.2%)	Never (25.6%)
Watching TV	Daily (49%)	Daily (53.3%)	Daily (59%)
Surfing the internet	Daily (75.5%)	Daily (87.8%)	Daily (89.4%)
Reading newspapers	Weekly (31.3%)	Daily (43.1%)	Daily (37.2%)
Reading magazines	2-3 times in a month (25%)	Weekly (35.5%)	Weekly (29%)
Going to the cinema	Never (32.6%)	Never (47.9%)	Never (50.3%)
Going to parties	Monthly (27.1%)	Weekly (32.1%)	Weekly (36.9%)
Going to modern music concerts	Never (34.8%)	Never (52.8%)	Never (49.6%)
Going to the theatre, classical music concerts, exhibitions, etc.	2-3 times a month (33.3%) Monthly (33.3%)	Never (55.5%) Monthly (21.6%)	Never (49.1%)

Table 4. ANOVA test results – young audience

	Young theatre friend (Mean)	Young theatre acquaintance (Mean)	Young theatre stranger (Mean)
Cultural products consumption	2.4706*	1.6000 (p=0.000)	1.7160 (p=0.000)
Comedy preference	4.4091	4.5598	4.4972
Opera preference	2.9268*	2.5389 (p=0.004)	2.2110 (p=0.003)
Drama preference	4.0233*	3.7235 (p=0.000)	3.2330 (p=0.000)

*Statistically significant difference in relation to other two segments (level of statistical significance for each of two segments is shown the brackets)

Findings and Discussion

Cluster analysis – young audience

Cluster analysis was the most appropriate statistical technique for market segmentation. It can provide description of different clusters that can be turned into market segments. Two- Step cluster analysis was used in this research because it is designed to efficiently handle large datasets, is capable of handling both continuous and categorical variables, and has features to aid in determining the optimal number of clusters (Landau & Everitt, 2004). This research has used only one criterion for developing and describing market segments: classical theatre attendance frequency. The variable used for clustering is categorical, and the possible categories were: a) subscriber, b) frequent attendance (at least once in two months), c) occasional attendance (a couple of times a year) and d) non-attendance (never). The results of the analysis on the young audience identified 3 clusters where subscribers and those who often attend classical theatre were placed in the first cluster that was named young theatre friend; occasional attendees were placed in a second cluster named young theatre acquaintance, and non-attendants were placed in the third cluster named young theatre strangers. The largest cluster was young theatre strangers with 427 respondents (49%), the cluster with young theatre acquaintances had 394 respondents (45%) and the smallest cluster called young theatre friends had only 53 respondents (6%). The clusters were evaluated by their demographic and geographic characteristics (Table 2) and their psychographics characteristics (Table 3).

To identify some statistically significant key differences between the three identified segments, an ANOVA test was performed. The test aimed to see if there were statistically significant differences between three young audience segments according to their general cultural product consumption (going to the theatre, classical music concerts, exhibitions, etc.) and their preferences when it comes to theatre program (comedy, drama, opera). Table 4 depicts the results of the ANOVA test.

Results have shown that the first cluster (young theatre friend) consumed cultural products significantly more than the other two segments. Also, when it comes to the content of the program, this segment prefers drama and opera significantly more compared to the other two segments.

Based on tables 2, 3, and 4, it is possible to make young segment profiles.

Young theatre friends are mostly women, from age 22 to age 25 and single. They are mostly highly educated (or students) with higher household income and live in the city where the theatre is located. They most often get informed about theatre through friends' recommendations, theatre web pages, and theatre posters. When it comes to the theatre program, they preferred comedies and drama in a theatre program, and significantly more opera and drama than did the other two segments. They mainly spend their leisure time doing sports, reading books, watching TV, and surfing the internet daily. They read newspapers once a week and magazines 2-3 times a month. They also attend theatre, classical music concerts and exhibitions 2-3 times a month, and parties once a month. They hardly ever attend the cinema or modern music concerts.

Young theatre acquaintances are mostly women, aged 22 to 25 and single. They are mostly highly educated (or students) with an average household income from 400 – 800 euros and live in the city where a theatre is located. They usually get information about theatre through theatre posters and friends' recommendations. When it comes to the theatre program, they strongly prefer comedies. They usually spend their leisure time watching TV, surfing the internet, and reading newspapers daily. At least once a week they play sports, read magazines and attend parties. They rarely attend cinema, modern music concerts or theatre, classical music concerts, exhibitions, etc.

Young theatre strangers are approximately equally men and women, mostly in ages 18 – 21 and single. Their level of education is mostly high school, their average income is

400 – 800 euros, and they mostly live in the city where theatre is located even though a significantly higher percentage of this segment compared to the two previous groups lives in some other town or city. They usually do not seek information about theatre but would be interested in watching comedies. They spend their leisure time watching TV,

surfing the internet, and reading newspapers on daily basis. At least once a week, they play sports, read magazines, and attend parties. They rarely consume other cultural products: books, cinema, modern music concerts and theatre, classical music concerts, exhibitions, etc.

Table 5. Cluster description of adult audience according to their theatre attendance (demographic and geographic characteristics)

Cluster description	Cluster 1 Adult theatre friend (N=29)	Cluster 2 Adult theatre acquaintance (N=238)	Cluster 3 Adult theatre stranger (N=170)
Demographic characteristics			
Age		%	
35-43	48.3	52.5	45.3
44-51	20.7	23.9	20.6
52-59	13.8	18.1	15.9
60+	17.2	5.5	18.2
Gender		%	
Male	39.3	41.6	56.5
Female	60.7	58.4	43.5
Working status		%	
Employed	79.3	78.6	56.5
Unemployed	6.9	14.3	21.8
Retired	13.8	7.1	21.8
Marital status		%	
Married	65.5	80.3	74.6
Single	34.5	19.7	25.4
Education		%	
Elementary school	0	1.7	9.4
High school	31	38.2	55.9
College/university	58.6	51.3	32.9
Masters or doctorate	10.3	8.8	1.8
Average household income		%	
Less than 400 €	6.9	8.4	24.7
400 – 800 €	34.5	44.1	43.5
801 – 1200 €	41.4	31.1	20.6
More than 1200 €	17.2	16.4	11.2
Geographic characteristics			
Place of residence		%	
Osijek	74.1	70.2	74.5
Other town/city	18.5	19.3	13.9
Village	7.4	10.5	11.5

Table 6. Cluster description of adult audience according to their theatre attendance (psychographic characteristics)

Cluster description	Cluster 1 Adult theatre friend (N=29)	Cluster 2 Adult theatre acquaintance (N=238)	Cluster 3 Adult theatre stranger (N=170)
Psychographic characteristics			
Information gathering about theatre	%		
Web page			
Often	53.6	19.9	6.9
Sometimes	21.4	47.5	13.8
Never	25	32.6	79.4
Social networks			
Often	51.9	16.5	6.9
Sometimes	25.9	38	10
Never	22.2	45.6	83.1
Printed media			
Often	35.7	27.7	15.8
Sometimes	25	42.9	29.1
Never	39.3	29.4	56.3
Friends' recommendation			
Often	28.6	39.9	26.3
Sometimes	53.6	45	17.5
Never	17.9	15.1	56.3
Theatre posters			
Often	63	48.1	20.5
Sometimes	29.6	36.2	25
Never	7.6	15.7	54.5
Program preferences	Mean (max. 5)		
Drama	4.11	3.89	3.47
Comedy	4.32	4.22	4.01
Opera	3.11	2.77	2.01
Spending leisure time	Most frequent category		
Doing sports	Weekly (41.4%)	Weekly (29.8%)	Monthly (31.2%)
Reading books	Monthly (37.9%)	Monthly (33.6%)	Monthly (37.9%)
Watching TV	Daily (69%)	Daily (64.7%)	Daily (67.1%)
Surfing the internet	Daily (75.9%)	Daily (71.4)	Daily (52.4%)
Reading newspapers	Daily (65.5%)	Daily (39.5%)	Daily (37.6%)
Reading magazines	Monthly (24.1%) Never (24.1%)	Monthly (28.5%)	Never (29%)
Attending cinema	Monthly (51.7%)	Monthly (67.3%)	Never (41.2%)
Attending parties	Never (62.1%)	Monthly (37.8%)	Never (49.4%)
Attending modern music concerts	Monthly (51.7%)	Monthly (51.3%)	Never (66.9%)
Attending theatre, classical music concerts, exhibitions, etc.	Monthly (48.3%)	Monthly (65.4%)	Never (66.9%)

Table 7. ANOVA test results – adult audience

	Adult theatre friend (Mean)	Adult theatre acquaintance (Mean)	Adult theatre stranger (Mean)
Cultural product consumption	3.3571*	2.3935 (p=0.000)	1.4403 (p=0.000)
Comedy preference	4.32	4.22	4.01
Opera preference	3.11*	2.77 (p=0.000)	2.01 (p=0.000)
Drama preference	4.11*	3.89 (p=0.003)	3.47 (p=0.030)

*Statistically significant difference in relation to other two segments (level of statistical significance for each of two segments is shown in the brackets)

Cluster analysis – adult audience

In common with the young audience, only one criterion for developing and describing adult market segments was used: classical theatre attendance frequency. The same variable was used for clustering: How often do you visit classical theatre: a) subscriber, b) often attendance (at least once in two months), c) occasional attendance (two or more times a year), and d) non-attendance (never). The results of the analysis on the adult audience also identified three clusters. Subscribers and those who often attend classical theatre were placed in the first cluster, titled the adult theatre friends; occasional attendees were placed in a second cluster named adult theatre acquaintances; and non-attendees were placed in the third cluster, named adult theatre strangers. The largest cluster was the one called adult theatre acquaintances with 238 respondents (54%), the cluster called adult theatre strangers had 170 respondents (39%), and the smallest cluster called adult theatre friends had only 29 respondents (6,6%). The clusters were evaluated by their demographic and geographic characteristics (Table 4) and their psychographics characteristics (Table 5).

As with the young audience, the ANOVA test was performed for the adult audience. The aim of the test was to see if there are statistically significant differences between three adult audience segments according to their general cultural product consumption (going to the theatre, classical music concerts, exhibitions, etc.) and their preferences when it comes to the type of theatre program (comedy, drama, opera). Table 7 depicts the results of the ANOVA test.

The results were the same as with the young audience: – cultural product consumption was significantly higher in adult theatre friends than in the other two segments. Also, this segment preferred opera and drama more than the other two segments.

Based on tables 5, 6, and 7, it is possible to identify adult segment profiles. These segments were named according

to theatre attendance. Frequent adult attendants are called adult theatre friends, occasional adult attendees are called adult theatre acquaintances, and adult non-attendees are called adult strangers.

Adult theatre friends are mostly women, aged 35 to 43, employed and married. They are mostly highly educated, with an average monthly income from 801 to 1200 euros, and mostly live in the city where the theatre is located. When it comes to information gathering about theatre, they mostly receive information through theatre posters, theatre web pages, and social networks. In general, they prefer comedy and drama in theatre programs, but significantly more opera and drama than the other two segments. When it comes to spending their free time, they mostly watch TV, surf the internet and read newspapers on daily basis; at least once a week they play sports, and once a month they read books and magazines, attend cinema, listen to modern music concerts, theatre, classical concerts and exhibitions. They rarely go to parties.

Adult theatre acquaintances are mostly women, from age 35 to 43, employed, and married. They are mostly highly educated with an average monthly income from 400 to 800 euros and live in the city where the theatre is located. They usually get information about theatre through theatre posters and friends' recommendations. They strongly prefer comedies. When it comes to their leisure time, they watch TV, surf the internet, and read newspapers daily. At least once a week, they play sports and, at least once a month, they read books, magazines, attend cinema, parties as well as theatre, classical music concerts, exhibitions, etc.

Adult theatre strangers are mostly men, aged 35 to 43, employed, and married. Their level of education was mostly high school, their average monthly income was from 400 to 800 euros, and they mostly live in the city where a theatre is located. They rarely seek information about theatre, and would slightly prefer comedies when it comes to the theatre program. For leisure, they watch TV, surf the internet, and read newspapers daily. Once a month, they may

play sports and read books, but they rarely read magazines, attend cinema, parties, modern music concerts or the theatre, classical music concerts, exhibitions, etc.

Furthermore, the study compared the two age groups and their identified segments. We found no significant differences between the age groups of the same segments in their residence, method of information gathering about theatre, and theatre program preferences. However, there were differences in the size of the segments. The largest segment in the young age group was the non-attendees, i.e. theatre strangers (49%), and in the adult group, the largest segment were the occasional visitors, i.e. theatre acquaintances (54%). Among both age groups attendees, i.e. theatre friends were the smallest segments, with only 6% in the young age group and 6.6% in the 35+ age group. For both age groups, important factors for theatre attendance were similar:

1. Income, in which higher income was related to more frequent theatre attendance, confirming the previous findings of Kotler and Scheff (1997) and Grisolia et al. (2010);
2. Gender, in which females were significantly more frequent theatre attendees in both age groups. This contrasted with the findings of Borongovi (2004), who found that females were more likely than males to attend, and to do so as occasional visitors. Further when males participated, they were more likely than females to be frequent attendees. Also, Hager and Kopczynski Winkler (2012) study found no significant differences regarding gender and age but did find socio-economic status as an important factor in attracting theatre audiences. In our case study, the theatre was more of a “female thing”, in both age groups and at both levels of attendance.
3. Level of education, where higher levels of education were positively related to more frequent theatre attendance. This had also been identified as crucial by Kotler and Scheff (1997) and Grisolia et al. (2010), and
4. Lifestyle, where an overall higher consumption of cultural products (books, exhibitions, music concerts) was positively related to more frequent theatre attendance.

A recent study (Leko Šimić & Pap, 2019) on theatre visitors' satisfaction has also identified differences between the two age groups and visiting frequency. The occasional visitors' segment was the most critical, and the discrepancies between the expectations and experiences were highest, in general. Satisfaction with a theatre/cultural product was also emphasized as a segmentation criterion in several other studies (Oom do Valle, Mendes, & Guerreiro, 2010; Jobst & Boerner, 2011, among others).

Conclusion

The study aimed to get an insight into the classic- theatre market segmentation. The findings of the research contribute to theatre segmentation theory and classical theatre marketing practice. Segments identified in this study offered insights into classical theatre segments according to their attendance, frequency, and age.

Since there is limited research on market segmentation on cultural products and events in Croatia, this study contributed to building knowledge about classic theatre audiences and for marketing strategy creation for different theatre segments, which is increasingly important in the growing competition among cultural products.

In two age groups (young, i.e. age 18-35 and adult, i.e. age 35+), three segments were identified: theatre friends, theatre acquaintances, and theatre strangers. Besides the compliance with studies that identify socio-demographic and economic characteristics of more frequent theatre visitors (female, higher income, higher education), this study confirmed that theatre attendance is a significant symbol of a lifestyle and is strongly related to the consumption of other cultural products.

Our research results also emphasized the differences in classic theatre audiences, which require continuous market segmentation to ensure timely recognition of consumer trends and changes in their preferences. Theatre management can then adapt and implement adequate marketing initiatives and strategies. Noting that the classic theatre audience is aging, the focus of marketing strategies should be put onto younger audiences, whose cultural profile can be influenced. Since the “young theatre strangers” segment was generally not interested in cultural products consumption, our suggestion is to focus on the “young theatre acquaintances” segment. In this context, the adaptation of theatre programs in terms of addressing this young population interests in cultural products could include more “easy products,” based on edutainment, special performances for young audiences (eg. late-night shows, stand-up comedies), pre- or post- performance events (eg. meeting with actors or, discussions on performances) that engages the young audiences. Additionally, special price packages for young audiences can be adopted.

The major limitations of this study are the facts that, although the sample was large and representative, it was a convenient one, and the research was performed in only one classic theatre – HNK Osijek. Therefore, the results may not be representative of other classic theatres in Croatia, or in other countries. Also, some other segmentation criteria might have been included into the analysis, especially recent concepts of sought benefits or satisfaction. These are the points on which the further research should be focused.

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Vpogled v tržne segmente klasičnega gledališča

Izvleček

Segmentacija trženja je eden ključnih strateških elementov tržnega načrtovanja, ki pomaga prepoznati ključne skupine potrošnikov in njihove značilnosti ter omogoča prilagajanje tržne strategije različnim ciljnim potrošnikom. Namen tega prispevka je segmentirati klasično gledališko občinstvo na podlagi pogostosti njihovega obiska in prepoznati glavne socialno-demografske značilnosti vsakega segmenta. Na podlagi predhodnih študij je bil razvit vprašalnik za samoizpolnjevanje, ki je bil razdeljen prebivalstvu na območju približno 50 km okoli Osijeka. Raziskava je bila izvedena s priložnostnim vzorčenjem z uporabo osebne metode v dveh različnih intervalih: v prvem intervalu je bila raziskava opravljena z mladimi anketiranci (18–34), v drugem intervalu pa z odraslimi anketiranci (starimi 35+). V raziskavi je skupaj sodelovalo 1315 udeležencev. Uporabljene so bile statistične tehnike univariatne analize (frekvenčna porazdelitev in meritve centralne tendence), ANOVA in dvostopenjska grozdna analiza. Rezultati študije so opredelili šest klasičnih gledaliških segmentov: mladi prijatelji gledališča, mladi znanci gledališča, mladi gledališki tujci, odrasli prijatelji gledališča, odrasli znanci gledališča in odrasli gledališki tujci. Vsak segment je podrobno opisan glede na geografski položaj (oddaljenost od kraja), demografski vidik (starost, dohodek, zakonski stan, izobrazba, zaposlitev) in psihografske značilnosti (družbene dejavnosti, preživljanje prostega časa in zbiranje informacij o klasični gledališki ponudbi). Rezultati raziskave izpostavljajo razlike v občinstvu klasičnega gledališča, ki pozivajo k nenehni segmentaciji trga za zagotovitev pravočasnega prepoznavanja potrošniških trendov in sprememb preferenc. To bi vodstvu gledališča omogočilo prilagajanje in izvajanje ustreznih tržnih pobud ter strategij.

Ključne besede: klasično gledališče, segmentacija trženja, gledališko občinstvo

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Abstract

There is a growing gap between higher education systems and the needs and demands of the labor market. Many of today's students will work at jobs that just have emerged or do not even exist yet. The "newcomers" will need both digital and social-emotional skills in the coming years. These new competencies will make the new generation of employees' company goals. This article presents the results of the recent research about modern-day competencies to evaluate what exactly relevant companies' expectations are, how students see their knowledge and value in future workplaces, and how academia is coping with this new demand. For this analysis, I have conducted deep interviews with applicable entities, namely companies from the car industry and from the field of security industries (cyber security, integrated camera surveillance, financial security) to see how Industry 4.0 shapes the competencies they expect from our students entering to the job market. Engineering students - by questionnaire - were also interviewed at the Óbuda University, to examine their views about the skills gained at the university and how these competencies helping them to apply for the right position in the job market. Although the competence list showed similarities in the expected skill sets, the order of them differs. While most companies are aiming to hire team players with creative problem solving and those are capable and willing to accept changes, the students' observations showed that technical skills, expertise, and problem solving are the most important competencies for future employment. Based on all participants' answers and additional research, we aim to involve international companies to take part in our higher education system more thoroughly either by widening the practical in-site education or by inviting them to our university for lecturing future engineers. Furthermore, new courses are introduced at our university, such as information security, humanitarian response management, rehabilitation environmental planning engineering or ergonomics and human factors specialization.

Keywords: competencies for industry 4.0, university education, future curricula, Education 4.0

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Introduction

The first three industrial revolutions were determined by special technological advancements, which enabled development by leaps and bounds—the steam engine, electricity, and computers. In the 21st century, we have been witnessing the fourth industrial revolution, characterized by the development of independent technologies, each with world-changing potential. From artificial intelligence to genetic engineering, virtual reality, and digital currencies (Cséfalvay, 2017). These advances have brought substantial benefits to society (Beke, 2018). However, they also pose major challenges. The transformation in Industry 4.0 is fundamentally different from the former periods, both in terms of speed and magnitude of change. As new technologies arise from many areas, such as sensor driven manufacturing and agriculture, robotized operation systems or artificial intelligence based autonomous flying, security and surveillance, healthcare and medical imaging analysis or warehousing and logistic supply chain, it is harder than ever to foresee where the opportunities are with newly acquired skills (Andrasko & Baracska, 2020). We are in the middle of an accelerated industrial, social, and economic transformation that has brought many remarkable advances and unprecedented access to data and the Internet of Things. These innovations and technologies have impacted almost all segments of our economy, as well as a wide range of occupations including cybersecurity, communication, transportation, critical infrastructure, and manufacturing, naming only a few (Aryal et al., 2019). This transformation of technology heralded greater mobility and logistics, new trade routes, rising energy needs, and the development of renewable energy supply, shifts in global economic power, and new markets. These trends have further influenced social and cultural behavior (Oosthuizen, 2019), such as ecological awareness, smart technologies and a new way of approaching education and obtaining knowledge (Bevan et al., 2018). Education 4.0 is a prime example and a great response to all global changes to enhance employability and skills needed in digitalized smart manufacturing, production or in security industries.

If academia and higher education want to keep up with all these changes, the recent educational system needs to be reshaped and Education 4.0 or some recommendations of it must be introduced, too. Many questions need to be answered. First what would be the best curricula today that will provide adequate knowledge for tomorrow's marketplace (Szalavetz, 2018) or how should be educated tomorrow's citizens and leaders to unlock this potential (Bencsik et al., 2016). Further to the point, what will jobs be like in the future when so many of them will be lost through technical improvements or who will monitor the use of big data and the implicit distortion of data, and its consequences for

a fair society. Some of these changes are already here, so universities need to prepare rather carefully to meet these demands (Michalos et al., 2015).

The research is structured around these questions by asking both students and the relevant business entities in different ways: we have conducted deep qualitative interviews with the industry representatives and have students complete a questionnaire that will be analyzed quantitatively.

Theoretical Background

To serve society and industry for a better future, academic education must regain what it has lost: to teach the duality of science and humanities together in connection with the economy, industry, and social environment expectations. For centuries, knowledge based on ancient science and humanities, it was the basis of culture, the knowledge of Greek and Latin languages, ancient mythologies, literary, philosophical, and historical works, mathematical theories and sea navigation, and also Roman law was essential in higher education. Later in Europe, and within the scope of Western education, this was supplemented by the knowledge of the Bible and the Christian tradition. The first universities and schools were established to mediate this professional tradition. The Enlightenment twisted all of these, although it did not fundamentally change the notion of valid knowledge, however it defined all-important philosophical issues in relation to, derived from, or opposed to the ancient and Christian tradition. This critical relationship with tradition did not mean a final break with old education systems and curricula and placing the importance solely of the spirit of innovation in focus. It did not abolish the concept of tradition, but gradually transformed it. However, in the "new age", inherited patterns of knowledge have become less and less successful, and in the changed circumstances, success has already been ensured if one has been able to make independent decisions, able to accept the changes and/or even choose unusual paths. As a result, by the second half of the 20th century, Latin culture was not a basic criterion, rather the practical and scientific knowledge, as they became part of literacy among professionals with higher education. This knowledge serves a dual purpose: on the one hand, to achieve better prosperity, to serve industry, technology, constantly evolving production, technological and economic competition, and on the other hand, the importance of independent decision-making processes that underpins the self-conscious, secure and legitimate citizenship. Understandably, with the rapid development and consolidation of disciplines, it makes no sense to teach only within the older framework; especially those subjects that most likely will disappear soon, as lessens those people are interested in to study the science of classi-

cal philology, library, folk culture or literature theories, even though in the future, more than just technical and IT knowledge will be needed. Even in a technologically driven world, the study of humanities is essential to address and to resolve the great challenges of working together with robots, changing routines in manufacturing or in the transport system (Benesova & Tupa 2017). Emotional intelligence, people skills, active listening, and communication skills are appreciated more and more by employers while those technical skills which can be done by robots devalued. The distinction between human sciences and technology carries the risk of seeing technology as the ultimate solution, not as a means of improving human existence. Without the understanding of the nature and the relationship between technology and human interaction, the technology does not reflect human needs, but rather a robotized environment (Mulder, 2014). To prepare for the talents needed in the digital economy and to teach new competencies, education must adapt as the demand for IT and for social skills to grow and develop (Schwab, 2017).

“The Education 4.0 initiative aims to create a common agenda to transform education systems to ensure future-readiness among the next generation of talent:

- Creating a global framework for shifting the content of learning and the mechanisms by which it is delivered to more closely mirror the needs of the future.
- Shaping a model to reskill and upskill teachers as the key stakeholder whose adaptation has a multiplier effect on the next generation.
- Highlighting new policy pathways to enable Education 4.0.
- Building a marketplace for connectivity, collaboration and learning between schools and schooling systems across the world” (WEF, 2016).

According to a survey by the World Economic Forum (WEF, 2016), the competencies that were essential in 2015 will change by 2020, as shown in Table 1.

Data and Methodology

Deep interviews with relevant companies

To answer the questions raised for this research, we looked for companies that either already has adopted the transformations of Industry 4.0 or related to the studies of our students at the mechanical engineering or security engineering faculties. The international car industry, including those that produce car parts or develop new production methods, was chosen to match better our mechanical engineering students’ studies and interests from the academic side. We interviewed multinational companies and local SMEs to see and evaluate their competence preferences. We conducted interviews either in person or by telephone. We compiled a questionnaire that focused on current job market issues and worked to produce insights into the compact of future employees, their needs, and career paths (Simic & Nedelko, 2019). We also considered it important to ask industry representatives, in most cases executives or hiring professionals, what suggestions they would make for a fruitful collaboration between industry and academia and asked how they would restructure the education system accordingly.

The exploratory research with questionnaires aimed to gather more detailed and deeper knowledge-based information on the opinion of the interviewees at a relatively

Table 1. Competences’ order changes between 2015 – 2020

1. Competences’ order in 2015	Competences’ order in 2020
2. Complex Problem Solving	1. Complex Problem Solving
3. Critical Thinking	2. Coordinating with Others
4. Creativity	3. People Management
5. People Management	4. Critical Thinking
6. Coordinating with Others	5. Negotiation
7. Emotional Intelligence	6. Quality Control
8. Judgment and Decision-Making	7. Service Orientation
9. Service Orientation	8. Judgment and Decision Making
10. Negotiation	9. Active Listening
11. Cognitive Flexibility	10. Creativity

Source: WEF, 2016

small sample size. We based our research on the topic of industry-expected competencies. We asked the representatives of some of the most influential and innovative car companies in Hungary to evaluate and compare the answers on both sides: student studies and knowledge and the car industry's response. Participants represented two groups based on their workplace profile: one was for those who were developing their companies in the spirit of Industry 4.0, with robotics, innovation, process organization, modernization, or the acquisition of the most innovative production lines (Hood & Nanda 2018). The two other companies consulted were insurance companies that dealt with different parts of security insurance and liability, such as hacking, data protection, which we considered part of security science. The first group, related to the car industry, was the most relevant industrial sector for the students who participated in our survey, as most of them wish to work there either in the production of parts or in the field of design. Respondents included four international companies and two medium-sized Hungarian SMEs (Birkner et al., 2018) All respondents received the same questionnaire, and the answers were anonymous, indicating only the position occupied at the company.

Student survey

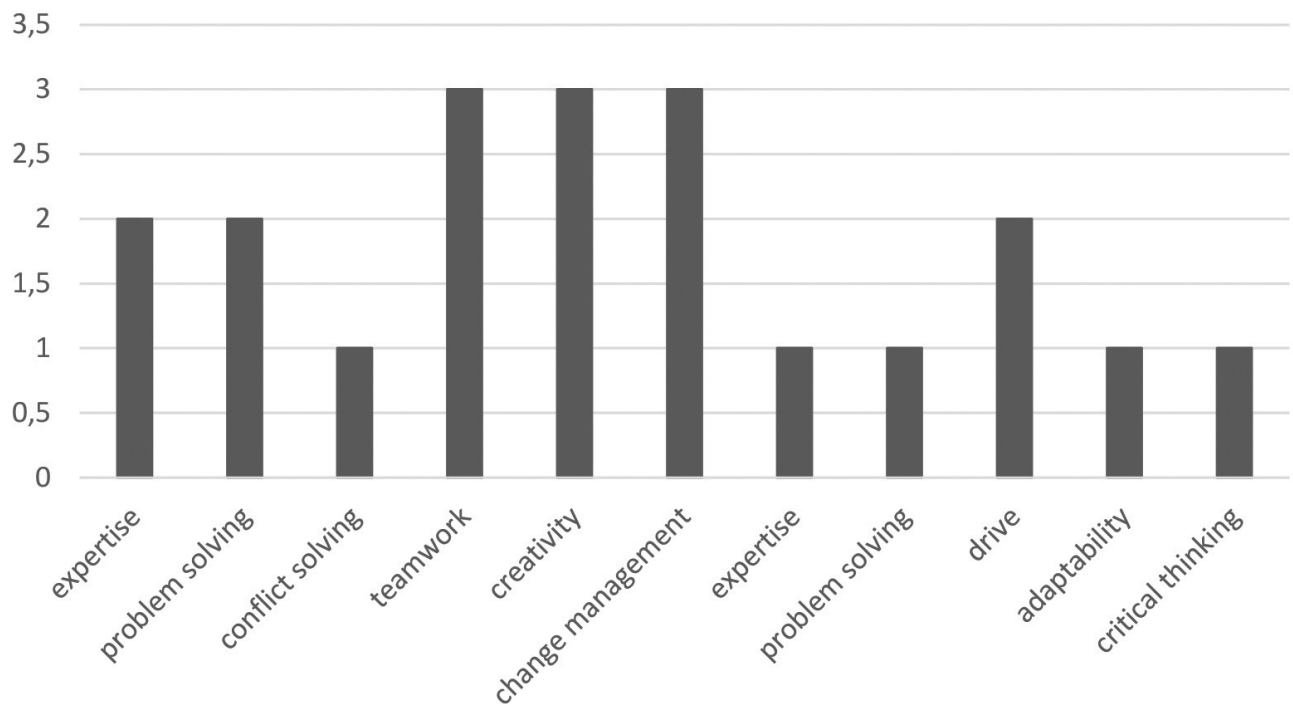
We also compiled a student questionnaire to expand and specify the responses of the competences' order. We made a quantitative field survey with BSc students of engineering at the Óbuda University in 2019. The number of completed and evaluative questionnaires was 96 out of 110. Though the survey was not considered to be fully representative, the results and the tendencies provide excellent insights into how to adopt a curriculum that was appropriate to the Industry 4 future. The average time for completion of the questionnaire was 20 minutes, so participants had enough time to decide which options would best suit them. All students received the same questionnaire, so the results were comparable. In-person, random interviews with some students revealed that many of them already had valid industry experience, whether through internships, part-time employment, or contract work, which made the responses even more valuable. We evaluated the answers by using a Pareto diagram because this method proved to be the most suitable for summarizing and interpreting the data.

Results

One of the questions addressed to ten representatives was about those competencies, which the company sought when selecting a candidate. As Figure 1 shows, the replies are grouped as follows: Two of the respondents were very

specific about wanting to know the students' knowledge of "mechanical engineering," while another two considered "effective problem-solving" as more important than purely technical skills. Half of the respondents, a total of three companies, said that "teamwork," "creativity," and "change management" had a decisive influence on their choices, as they have on-site training and were willing to further coach the right employee. Two of them stated that it was important for the candidates to have the drive for the work, especially that which drives innovation and better solutions for these companies. One respondent indicated that "mental balance," "adaptability," and "critical thinking" played an important role in whom they would hire. Adaptability was emphasized mainly because the rapidly changing environment requires it. Given the differences between generations, one respondent considered "mixed-age" important, meaning that more than one generation should be working together at all phase of production, what would give a more dynamic working environment with the option to learn from each other, while another respondent considered "conflict-solving" crucial in an Industry 4.0-based production line. Two professionals noted that common projects between academia and industry would be beneficial for both sides, and two others mentioned that some of the young applicants' lack of communication, presentation skills, and self-awareness was poor, although these competencies play an important role in teamwork. One multinational company's representative signaled that they would invite and educate university lecturers on-site to see the newest technology developments – those driven by Industry 4.0 - and have a series of lectures for those in their last semester at the university and would like to work in the car industry. Presently, the university curriculum does not keep up with the newest technological advancements, although plenty of new subjects were incorporated in academic studies, some even for post-graduates: eg. biometric studies, cyber-security and project management, or information security and occupational rehabilitation human and technical consultant continuing studies. Further enhancements in education would result in better-suited and more prepared employees. One suggestion offered by a multinational company was to use case studies for students to learn how to develop a project, or how important self-development and personal drive are in teamwork. All these recommendations can be implemented in university curricula. At the same time, universities can offer special research groups, analyses, or marketing advice for companies in need.

The results of the student surveys can be seen in Figure 2. Twenty-two percent of the respondents considered problem-solving critical, while 19.52% sought expertise in the related field, and 9.93% found technical/IT skills important. The first three most important attributes represented

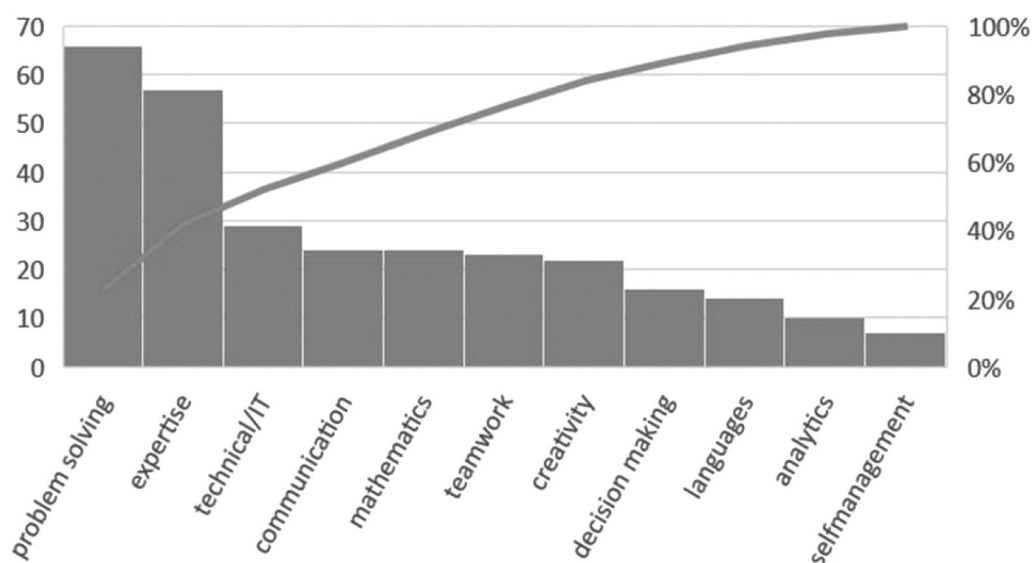
Figure 1. Competence order expected by companies

52.05% of the total responses, so more than half of the students considered these three competencies as essential skills to succeed in their future workplaces. Surprisingly, communication skills rank fourth, while teamwork and creativity placed only sixth and seventh places, indicating that those competencies for engineering students are less important than those closely related to the industry. Foreign language skills (English or German have been the two most chosen languages in Hungary) had a surprisingly low ranking, even though at most international companies the working language is not Hungarian, but English or, in some cases, German. So, speaking and understanding these languages can still be a decisive factor in hiring (Gunnarsson, 2014). To support this demand, we introduced subjects taught in English or German and made some of them obligatory. We also encouraged foreign internships not only to widen industry experience but also to develop a solid knowledge of these languages (Portera & Grant 2017). Decision-making and consequent responsibility was not a highly desirable skill on the students' list, as they have only entered the job market. Those skills will weigh more in later years when they have more experience and are in higher positions.

Comparing these data with the responses from companies, the first three places are not shared in common, as half of the surveyed corporate representatives indicated teamwork, creativity, and change management as the most sought-after skills (Schwartz et al., 2019). Self-knowledge

is a skill that would facilitate better orientation in the world and later in the profession, was on less than 10% of the students' list as a valuable skill. If we compare our results with both the companies and the students to larger international research with a representative number of samples and taking into account the entire list of competencies from these surveys, we can say that our results were comparable to international trends and validated our research. The further development of these competencies has importance, as Industry 4.0 next generation is already here with artificial intelligence (AI) collecting an enormous amount of data in real-time. The use of AI also requires better teamwork to have a better insight into the production process and flexibility in problem-solving to avoid any operational inefficiency (Byström et al., 2017). Understandably, creativity in technical solutions and the ability to accept changes are also important for future candidates (Wagenaar, 2014). Using cloud computing allows data to be accessed anytime, anywhere, which is also critical in manufacturing. Furthermore, in the global market, proper distribution and logistics are essential, as are data exchange, information sharing, and consequent data management and communication skills (Miller & Marsh 2014). With a new generation of robots, there is a new demand for people to operate them (Črešnar & Jevšenak, 2019). Therefore, the above-mentioned skills and expected competencies not picked randomly, but rather selected by experienced company representatives who all work in related fields and face day-to-day operational, technological issues (Mohle, 2012).

Figure 2. Competence order by students' survey



Source: Authors' own survey

Future Research and Limitation

We are seeking to extend our research to students from the business and economic faculty at our university to compare how their responses with the present competencies. Furthermore, we seek to have the engineering students enrolled this year to retake the same test next year to see if time has influenced their views on the same topics (Takács-György & Takács, 2017). We also are planning to have an English version of our questionnaire available to ask students with very similar, if not the same curricula abroad, to take the text to sample international trends and attitudes, as well.

The research has several limitations. First, the companies who were interviewed, are not representative of the entire car industry in Hungary, as more SMEs and larger entities could reshape the competence list and order. International companies not only do not have the same profile, but they differ in income, trade, and manufacturing methods as well, which means that the listed order of competency cannot be generalized for the entire car industry, even here in Hungary. The study has not queried any purely foreign entities residing in Hungary as well, nor has it queried any Hungarian businesses working abroad in the same field, that offer opportunities for future employees.

Conclusion

As educators, we believe in the power of education. Universities need to rethink how basic research, education, and other services are transforming applied research, curricula, and practices into real solutions (Dobbins & Knill, 2009). Universities have been the depositaries of science for hundreds of years and have been skills, active participation in teamwork, problem-solving, and creative approaches are necessary for this new, interconnected, and innovation-driven environment using group assignments, but also encouraging verbal and written self-expression. As of 2018, Óbuda University, Bánki Faculty has introduced two new subjects into their curriculum: Project and Teamwork and Project Management. These are offered in English and the first step for students is to form groups of students who together will present a chosen project at the end of each semester (Oberst, Gallifa & Farriols, 2009). Effective communication modules and problem-solving cases are also being offered to better prepare our students for future employment. (Beke & Kolnhofer-Derecskei, 2018).

Higher education is trying to adapt to new norms by reforming its educational structure, increasing the use of digitized textbooks, and providing non-place-based learning

modules (Pepper, 2011). In line with industry expectations, the introduction of new subjects such as robotics or cybersecurity, in addition to the old ones, is as essential as studying abroad, working in teams or developing international projects, as is joining or forming research hubs or inviting foreign universities to cooperate.

Together, with support from higher education institutions, industry and governments can assist in these processes for

training students that best meet the demands of the newest labor market trends.

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Industria 4.0 in trenutne kompetence

Izvleček

Vrzel med visokošolskimi sistemi in potrebami ter povpraševanjem na trgih dela je vedno večja. Mnogi današnji študentje bodo delali na delovnih mestih nove vrste, ki so se šele začela oblikovati ali sploh še ne obstajajo. Zaradi tega bodo delavci v naslednjih letih potrebujejo tako digitalne kot socialno-čustvene veščine. Ta nova usposobljenost bo omogočala, da bo zaposleni uspešen na delovnem mestu, kjer bo moral za doseganje ciljev podjetja sodelovati v skupinah – tudi z različnimi generacijami. Namen tega prispevka je predstaviti rezultate raziskave o sodobni usposobljenosti, ki proučuje dva vidika: na eni strani ugotavlja, kakšna so pričakovanja zadevnih podjetij, na drugi strani pa, kako študentje vidijo svoje znanje in vrednost na prihodnjih delovnih mestih ter kako se z novo zahtevo spopadajo akademski krogi. Za to analizo smo opravili poglobljene pogovore z ustreznimi subjekti in na osnovi vprašalnika pridobili mnenja inženirstva na Univerzi Óbuda. Na podlagi njihovih odgovorov in nadaljnjih raziskav si prizadevamo, da bi vključili mednarodna podjetja, ki bi temeljiteje sodelovala z našim visokošolskim sistemom bodisi s širitvijo praktičnega izobraževanja na kraju samem bodisi s povabilom na našo univerzo za predavanje prihodnjim inženirjem.

Ključne besede: zmožnosti industrije 4.0, univerzitetna izobrazba, prihodnji učni načrti

NAVODILA AVTORJEM

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Morebitne tabele in slike naj bodo črno-bele in oštevilčene ter naslovljene nad, opombe in viri pa pod tabelo oziroma sliko. Vse tabele in slike pošljite tudi v izvornih datotekah (.xls, .ppt in podobno).

Vire v tekstu in v seznamu virov je potrebno urediti skladno z APA standardom – navodila na <http://www.apastyle.org/learn/tutorials/basics-tutorial.aspx>.

Nekaj osnovnih napotkov:

Navedbe virov v tekstu

Primer 1a: Another graphic way of determining the stationarity of time series is correlogram of autocorrelation function (Gujarati, 1995).

Primer 1b: Another graphic way of determining the stationarity of time series is correlogram of autocorrelation function (Gujarati, 1995, p. 36).

Primer 2a: Engle and Granger (1987) present critical values also for other cointegration tests.

Primer 2b: Engle and Granger (1987, p. 89) present critical values also for other cointegration tests.

Navedbe virov v seznamu virov

Primer 1 – Knjiga: Gujarati, D. N. (1995). Basic Econometrics. New York: McGraw-Hill.

Primer 2 – Članek v reviji: Engle, R. F., & Granger, C. W. J. (1987). Co-integration and Error Correction: Representation, Estimation and Testing. *Econometrica*, 55(2), 251-276.

Primer 3 – Poglavje v knjigi, prispevek v zborniku: MacKinnon, J. (1991). Critical Values for Cointegration Tests. In R. F. Engle & C.W. J. Granger, (Eds.), Long-Run Economic Relationships: Readings in Cointegration (pp. 191-215). Oxford: University Press.

Primer 4 – Elektronski vir: Esteves, J., Pastor, J. A., & Casanovas, J. (2002). Using the Partial Least Square (PLS): Method to Establish Critical Success Factors Interdependence in ERP Implementation Projects. Retrieved from <http://erp.ittoolbox.com/doc.asp?i=2321>

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Some elementary directions:

References in the text

Example 1a: Another graphic way of determining the stationarity of time series is correlogram of autocorrelation function (Gujarati, 1995).

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References in the list of references

Example 1 – Book: Gujarati, D. N. (1995). Basic Econometrics. New York: McGraw-Hill.

Example 2 – Journal article: Engle, R. F., & Granger, C. W. J. (1987). Co-integration and Error Correction: Representation, Estimation and Testing. *Econometrica*, 55(2), 251-276.

Example 3 – Book chapter or article from conference proceedings: MacKinnon, J. (1991). Critical Values for Cointegration Tests. In R. F. Engle & C.W. J. Granger, (Eds.), Long-Run Economic Relationships: Readings in Cointegration (pp. 191-215). Oxford: University Press.

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