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Contents

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Review Paper

ANALYSIS OF MACROECONOMIC INDICATORS OF THE VISEGRAD GROUP

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Abstract: *The past two years have been largely defined by an unforeseen threat from the emergence of the COVID-19 pandemic. It has had a huge impact on the economic development of individual countries. SMEs as important contributors to the economy of individual countries felt the negative effects of the pandemic the most. Our research intends to examine the macroeconomic effects of the changes caused by the pandemic in the Visegrad Four countries using comparative analysis. The paper is based on a summary of the literature on which the topic is based, followed by the evaluation and analysis of data from secondary sources. The secondary data was collected using databases published by Eurostat, the OECD, and Statista. The analysis shows that the impact of the pandemic can be monitored for each macroeconomic indicator.*

Keywords: *Visegrad four, Macroeconomic changes, SMEs, COVID-19, Crisis.*

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1. INTRODUCTION

At the beginning of 2020, the world faced a global health problem, when COVID-19 shut down the world, and it had a significant impact on the social and economic life of the countries. As humanity entered an uncertainty of restrictions introduced by the governments, the global social and economic situation became increasingly hopeless. The most visible phenomena of the coronavirus are mass redundancies, unemployment, and insolvency in the economy.

From a social point of view, people became alienated from each other, reduced their social relationships, and a feeling of insecurity prevailed over them. Regarding the Visegrad countries of Central Europe (Poland, the Czech Republic, Hungary, Slovakia), recovery from the health, social and economic recession caused by the coronavirus is the main mission, which can be achieved as a result of responsible and dedicated behavior and cooperation on the part of citizens.

In response to minimizing the number of cases and preserving people's health, governments have tried to stop the infectious disease by introducing restrictions and controlling the spread of the virus. Nevertheless, the negative consequences of the pandemic have profoundly affected all V4 countries, both from micro-and macroeconomic perspectives.

2. LITERATURE REVIEW

The World Health Organization (WHO) announced the outbreak of the COVID-19 respiratory disease in January 2020, and soon after declared it a global pandemic in March 2020, due to the rapid and significant spread of the disease. The infectious disease minimized the functioning of economic mechanisms and undermined monetary stability. The unemployment rate has soared in V4 countries, and most of the countries experienced a financial crisis as well (Czech et al., 2020). The economic trauma caused by the pandemic was a global phenomenon (Czech, 2022), and almost immediately had an impact on the development of the labor market, resulting in shutdowns and sales problems (Karácsony et al., 2022).

Global economic activity has been slowed down by border closures and nationwide shutdowns, and unrest caused by the pandemic has resulted in market irregularities and changed consumer trends (McKibbin & Fernando, 2021). The health crisis can also be seen as an economic recession, as it has significantly intensified social and livelihood inequalities (Kowalski, 2021). As far as the Visegrad countries are concerned, the actions taken by their governments against the pandemic were similar (Nemec et al., 2020). According to the European Commission's 2022 finding, the pandemic affected the economy globally, mainly due to China's economic recession, the introduction of measures restricting mobility, the rising unemployment rate, and the weakening financial markets (Zinecker et al., 2021).

COVID-19 has posed an unprecedented challenge to the economies. Different economic activities were hit by the worsening of the pandemic situation (Papava, 2020). Numerous studies have shown that the health of the population has an impact on economic well-being and economic growth (Bhargava et al., 2006). Based on several studies, the impact of the coronavirus is expected to negatively affect food supply, inequality, democracy, human rights and development, pollution, education, urban and rural development, gender equality, poverty, trade activities, and globalization (Czech et al., 2020).

The impact of the pandemic on the macro-environment is desperate, and there are several risk factors to be taken into account for the future. Hungary in 2019 showed success in fixing the na-

tional debt, a process that was rewritten by the pandemic situation. The exchange rate of the Hungarian currency (HUF) weakened, and the rate of exports and imports also decreased. As a result of the pandemic, the Hungarian GDP decreased by 7% in the summer of 2020. Industrial production showed a decrease, while unemployment increased. Similarly, to other governments, Hungary called for late payment measures in the areas of taxation and social contributions and launched development projects to help SMEs (Nyikos et al., 2021).

In the early days of the pandemic, Hungary ranked among the countries with a balanced financial situation and economic development (Túróczi et al., 2020), as the government took appropriate steps to protect public health on time. The first coronavirus-infected patient was identified in early March 2020 (Szocska et al., 2021). Nationwide restrictions were imposed throughout the country, e.g. social distancing, limited use of certain services, and wearing face masks covering the airways both indoors and outdoors (Karácsony, 2020). Hungary experienced an economic slowdown, the markets remained passive, education shifted to online platforms and a transformation of the healthcare system was needed.

In 2020, the number of vacancies in Hungary was 1.9%, while in the Czech Republic, it reached 4.1% (Poór et al., 2021). The pandemic generated irregular and rapid changes in Hungary, but the country was able to react relatively quickly and deliberately to the unexpected situation. The macroeconomic forecasts for the future are unpredictable, as the data related to the Hungarian economic welfare index are not very favorable compared to the rest of the EU countries (Toth et al., 2021).

COVID-19 also affected the national debt in the Visegrad countries and the intention of households to borrow. In the Czech Republic, household consumption borrowing exceeded the Euro 20 million decline. The increase in the number of diseases had an impact on the increase in household debt, which remained low in Hungary (Czech & Puszer, 2021).

It can be observed that in Visegrad IV countries, national income increase is not linked to export activities (Czeczeli et al., 2020). In their study, Żak and Garncarz (2020) found that the pandemic situation in the Czech Republic did not particularly affect employment, but industrial production decreased. Before the outbreak of the pandemic, the Czech unemployment rate (1.9%) was the lowest among the EU members, however, the negative impact of the pandemic on all sectors of the industry was evident (Karácsony & Paszto, 2021).

Petrovič et al. (2021) analyzed the happiness index in the Czech Republic during the pandemic and found that the pandemic situation had triggered social and economic difficulties in addition to health problems. The country hit by the pandemic experienced despair and uncertainty. It had shown a responsible reaction in the fight against the virus, being inexperienced in tackling a problem of this kind. The restrictive measures imposed in the spring of 2020 had a negative impact on the service sector since most of the service providers had to close. The country experienced a GDP decrease as well. According to the forecasts, the Czech budget balance will be the lowest among the EU countries (Klimovský et al., 2021).

According to the World Population Review (2022), the Czech growth rate is 0.18%, and the country is threatened by its aging population. As a result, economic competitiveness is impaired, the industry sectors are losing strength and there is a shortage of skilled workers.

The first person infected with the coronavirus can be dated to the beginning of March 2020 (Nemec & Špaček, 2020), after a state of emergency was declared in the country and measures re-

stricting the free movement of people were introduced (Schmidt et al., 2021). The Czech Government tried to alleviate the rapid spread of infectious disease and its burden on healthcare by introducing strict measures (Jarský et al., 2022).

The restrictive measures respected the individual's rights. These were the compulsory face masks and limited access to certain services (Plaček et al., 2020). The most important issue was the labor market, how to treat the employees since most of the workplaces were hit by the pandemic, but in different measures (Hedvičáková & Kozubíková, 2021). The Czech government increased public spending at an astonishing rate as soon as it realized that the factors contributing to the increase in debt are strengthening (Tyniewicki & Kozieł, 2021). The country coped well with the first wave of the pandemic, but the second wave had more devastating effects (Klimovský & Nemec, 2020).

3. PURPOSE, METHODOLOGY, AND RESEARCH RESULTS

This study aims to assess and compare the macroeconomic situation of the V4 countries in Central Europe due to COVID-19, which is presented by analyzing secondary data. The secondary data used in the study were collected using databases Statista, Eurostat, UNCTAD, and the OECD. In secondary research, comparative analysis techniques are used for processing the data collected in relevant databases.

Figure 1 describes the unemployment rate development in the V4 countries for the period 2015-2021. The data are presented for all active workers over the age of 15 and are presented on an annual basis, regardless of gender. The COVID-19 infectious disease first appeared at the end of 2019 in Wuhan city, China. As a result of the pandemic situation, the unemployment rate has also increased in the Visegrad IV countries.

The data for the four countries show that from 2015 to 2019 unemployment rates fell steadily in Slovakia, Poland, and the Czech Republic. In Hungary, the indicator remained relatively stagnant from 2017 to 2019. In the Czech Republic, the unemployment rate was 2.1% in 2019, which increased by 0.7% in the last 2 years because of the pandemic to 2.8% by 2021. In Hungary, the unemployment rate is also increasing, as it increased by 0.5% during the period under review, from 3.5% to 4.0%. The Slovak unemployment rate increased by approximately 1% from 2019 to 2020, while in Poland the increase was much smaller. In the period from 2019 to 2020, the increase was 0.2%, and from 2020 to 2021 there was also an increase of 0.2%.

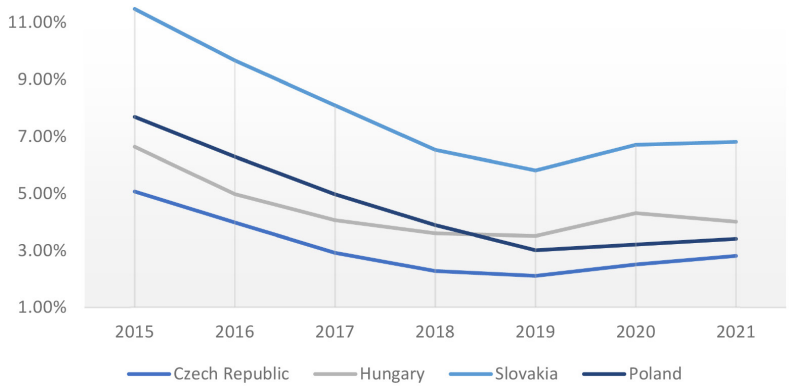

Figure 1. Unemployment rate
Source: Short-Term Labour Market Statistics (OECD)

The second figure examines the development of employment rate in terms of the V4 countries during the period 2015-2021. The table shows the development of employment during the pandemic among the respondents aged 15 - 64, regardless of gender. From 2015 to 2019, the employment indicators of the Czech Republic, Hungary, and Slovakia follow a similar curve. Over this period, employment in the three countries has increased steadily. Poland shows increased growth until 2017, followed by relative stagnation. The Czech employment rate fell by 1% in 2020, from 75.1% (2019) to 74.1% (2020), but there was an increase of 1% by 2021, so the indicator returned to the position where it was in 2019.

In Hungary, employment was not significantly affected by the pandemic. Compared to the employment rate in 2019 (72.2%) there is an increase of 1.7% in 2021 (73.9%). In Slovakia, the employment rate was 70.2% in 2019, which decreased to 69.4% by 2020, due to the impact of the pandemic. By 2021, the employment rate had risen to 70.4%. In the case of Poland, employment had been steadily increasing despite the outbreak of COVID-19. In 2019, the employment rate was 67.7%, which increased to 68.4% by 2020. In 2021, the rate continued to rise and reached 70.9%. Even though Poland recorded the largest increase in the employment rate, the Czech Republic and Hungary had the highest employment rates.

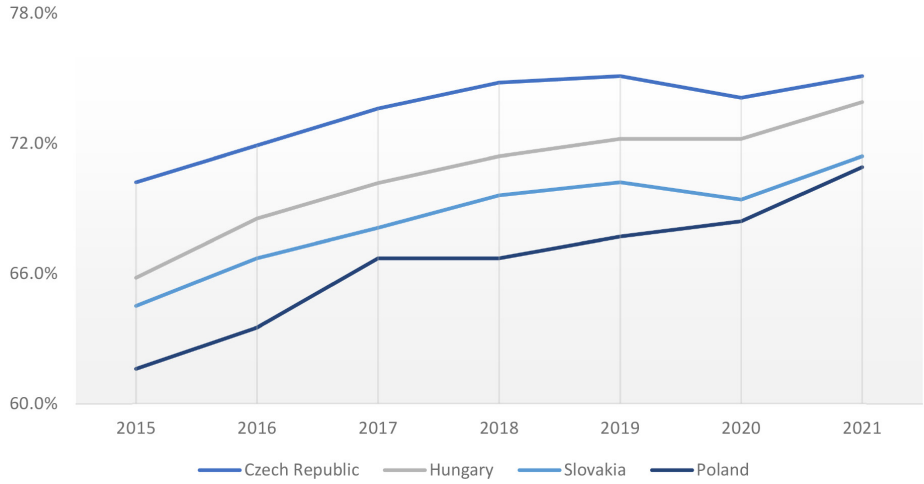

Figure 2. Employment rate
Source: Short-Term Labour Market Statistics (OECD)

Table 1 shows the evolution of GDP per capita (gross domestic product) from 2015 to 2019 in the V4 countries. In each of the Four Visegrad countries, there is an increase in the development of the indicator, which was not adversely affected by the pandemic.

Table 1. GDP per capita (US$)

	2015	2016	2017	2018	2019	2020	2021
Czech Republic	17842,87	18597,21	20666,67	23468,36	23713,89	23001,31	26849,19
Hungary	12690,17	13086,07	14608,72	16423,28	16731,47	16044,09	18732,38
Slovakia	16351,27	16521,56	17544,41	19411,8	19318,87	19254,47	21053,44
Poland	12563,61	12438,52	13868,91	15468,26	15726,88	15801,56	17945,75

Source: Statista

Table 2 shows changes in the inflation rate of the Visegrad countries. In the Czech Republic, inflation fell by 2021 (2.73%) compared to 2019 (2.85%) but was the highest in 2020 (3.16%). In Poland, the inflation rate was the highest (5.1%) in 2021. Slovakia had the lowest inflation rate in 2020 (1.53%), which increased to 2.81% by 2021.

Table 2. Inflation rate

	2015	2016	2017	2018	2019	2020	2021
Hungary	-0,07%	0,42%	2,41%	2,85%	3,37%	3,32%	5,13%
Poland	-0,93%	-0,58%	1,98%	1,60%	2,31%	3,40%	5,10%
Slovakia	-0,33%	-0,47%	1,39%	2,52%	2,77%	2,01%	2,81%
Czech Republic	0,31%	0,68%	2,45%	2,15%	2,85%	3,16%	3,84%

Source: Statista

Table 3 outlines the distribution of GDP in certain sectors of the Czech Republic for the period 2015-2021. In 2019, the service sector accounted for 56.97% of GDP, the growth of which was not changed by the pandemic, as it accounted for 57.72% of GDP in 2021. The contribution of industry to GDP decreased from 31.52% to 30.76%. The indicator for agriculture indicates a slight increase. It can be seen that the services sector is making an increasing contribution to GDP.

Table 3. Distribution of GDP across economic sectors in the Czech Republic

	2015	2016	2017	2018	2019	2020	2021
Agriculture	2,21%	2,09%	2,06%	1,94%	1,86%	1,92%	1,95%
Industry	33,78%	33,41%	32,71%	31,76%	31,52%	30,76%	31,21%
Services	54,06%	54,45%	55,10%	56,42%	56,97%	58,32%	57,72%

Source: Statista

Table 4 shows the distribution of GDP in some sectors of Hungary for 2015-2021. The service sector is the biggest contributor to GDP growth during the examined years. A slight difference between the examined years is detected in the industry sector and agriculture. Hungary has the highest share of the agriculture sector as a share of GDP among the Visegrad Four countries, but since 2015 this share decreases in favor of the services sector.

Table 4. Distribution of GDP across economic sectors in Hungary

	2015	2016	2017	2018	2019	2020	2021
Agriculture	3,79%	3,89%	3,75%	3,49%	3,34%	3,38%	3,32%
Industry	26,38%	25,49%	25,17%	25,08%	24,79%	24,63%	26,43%
Services	54,09%	55,46%	55,89%	55,89%	56,51%	56,64%	55,20%

Source: Statista

Table 5 shows Slovakia's GDP developments in each economic sector between 2015 and 2021. Similarly, to other V4 countries, the service sector contributes the most to GDP growth. Industry and agriculture experienced a slight decrease during the period considered. As in Hungary and the Czech Republic, the service sector is gaining ground in Slovakia over the period under review. However, its growth is smaller than in the Czech Republic.

Table 5. Distribution of GDP across economic sectors in Slovakia

	2015	2016	2017	2018	2019	2020	2021
Agriculture	2,20%	2,20%	2,09%	2,15%	1,67%	1,76%	1,77%
Industry	30,57%	29,34%	28,71%	29,23%	29,64%	27,36%	27,48%
Services	57,25%	58,51%	58,77%	58,15%	58,06%	60,39%	59,88%

Source: Statista

Table 6 examines GDP developments for certain sectors of Poland's economy in the period 2015 and 2021. In the case of Poland, also the service sector accounts for the majority of the GDP. During the period under review, there was a decrease in the agricultural sector and growth in the other sectors of the economy, but in 2021 there could be a significant decrease in the service sector. In Poland, growth in the services sector is less impressive. By 2021, the sector's share of GDP is restored to the 2015 levels.

Table 6. Distribution of GDP across economic sectors in Poland

	2015	2016	2017	2018	2019	2020	2021
Agriculture	2,37%	2,54%	2,87%	2,34%	2,32%	2,50%	2,37%
Industry	30,13%	29,52%	28,35%	28,54%	27,98%	27,68%	29,30%
Services	56,22%	56,28%	56,60%	56,68%	57,62%	57,84%	55,61%

Source: Statista

The third figure shows the development of FDI in each country from 2018 to 2021. The international measure of foreign working capital flows is FDI, the figure shows the net number of incoming finances in each country. Negative values can mean that foreign subsidiaries have withdrawn capital from the country. The invested amount is presented in millions of USD.

Figure 3. FDI in V4 countries, million $
Source: Self-edit based on UNCTAD, 2022

In 2018, Poland had the highest FDI at $15,996 million, Czech Republic experienced a decrease during the period under review, which may indicate that the country is becoming less and less popular for foreign investors. Hungary had the highest foreign capital influx into the country in 2020. Slovakia is the driving force among the V4 in FDI measures. In 2020, the negative value of

FDI indicates a withdrawal of capital from the country, but in 2021 the capital influx has already increased. Poland expected a record amount of foreign capital investment in 2021, with USD 24,816 million invested in the country.

Figure 4 shows the evolution of the number of SMEs in the V4 countries from 2018 to 2021. The figure is based on the official OECD and the European Commission data. The number of SMEs in the Czech Republic was approximately the same during the period considered. The number of SMEs in Slovakia, Hungary, and Poland has continuously increased. It is important to point out that the data includes all SMEs.

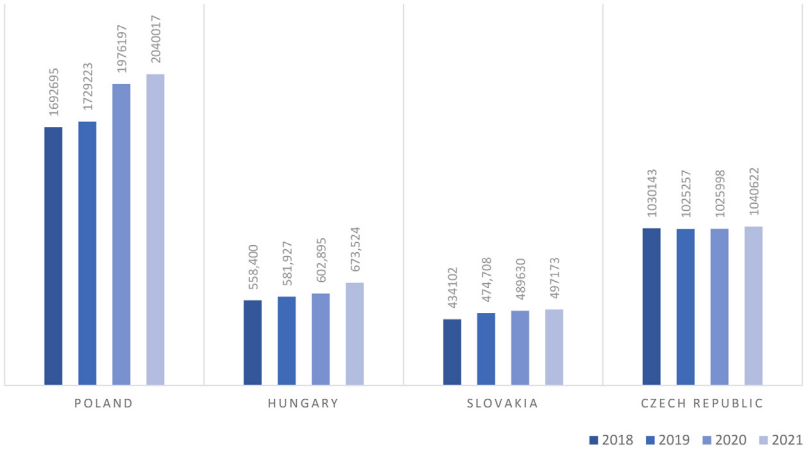

Figure 4. Evolution of the number of SMEs in the V4 countries
Source: Self-editing based on the OECD and the European Commission data

Figure 5 shows the number of people employed by SMEs in the period 2018-2021. Hungary, Slovakia, and the Czech Republic employed approximately the same number of people in the SME sector during the period under review, but a slight increase in employment can be detected. Poland, on the other hand, experienced a decline in 2019, while the number of employees employed by SMEs was the highest in 2021.

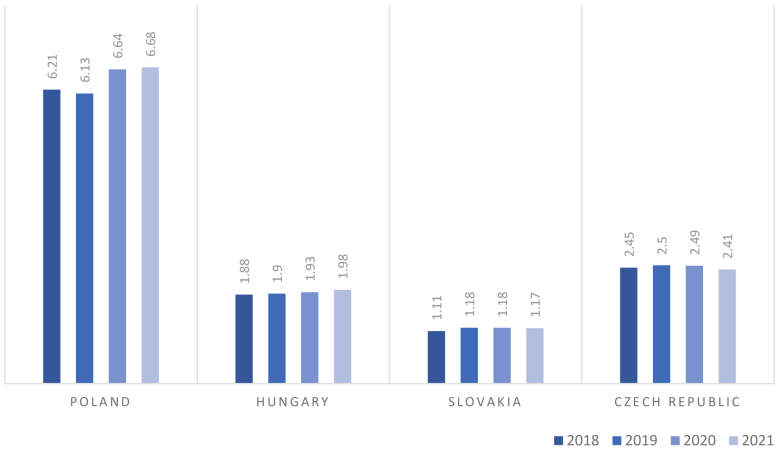

Figure 5. Number of employed in SMEs in V4 countries
Source: Own editing based on OECD and European Commission data.

To get a clear picture of the employment development in SMEs, we presented the number of people employed by SMEs from 2018 to 2021 (Figure 6). All 4 countries were found to have fewer people employed in the SME sector in 2019 compared to 2018, but in 2020 the ratio of employed was close to the ratio in 2018. Slovakia has the highest number of SMEs among the V4 countries. According to 2021 data, there was a further decline in Hungary, Poland, and the Czech Republic.

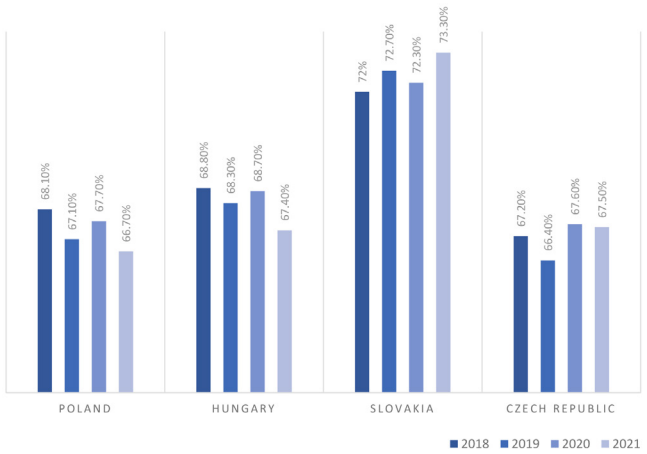

Figure 6. Evolution of the employed in SMEs
Source: Own editing based on OECD and the European Commission data

Figure 7 shows the added value of SMEs to the economy in the V4 countries for the period 2018-2021. In all four Visegrad countries, there has been a steady increase over the period under review. In Poland, the number of SMEs operating in the country had doubled during the reviewed period with a significant contribution to the country's GDP.

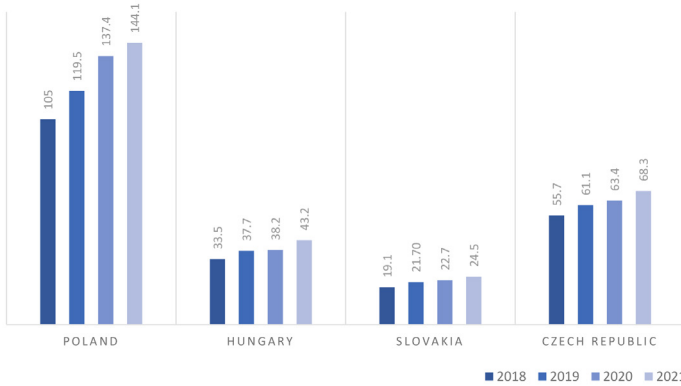

Figure 7. The added value of SMEs to the economy in V4 countries (billions, USD)
Source: Own editing based on OECD data

4. CONCLUSION

The COVID-19 pandemic emerging at the end of 2019 was not only decisive and devastating for China, but the pandemic also spread throughout the world having a significant impact on the economies. In addition to the problems affecting societies and health systems, the pandemic had an impact on the development of macroeconomic indicators as well.

This paper aimed to examine the macroeconomic changes caused by the COVID-19 pandemic in the economies of the Visegrad Four countries. The global pandemic situation had a significant impact also on the Visegrad countries. The Czech and Hungarian unemployment rates increased slightly between 2019 and 2021. The steady decline in the unemployment rate slowed in 2019 in all four countries. This may be due to the impact of COVID-19.

Employment indicators in all four countries have been rising steadily since 2015 but plateaued in 2019. In the Czech Republic, the employment rate indicated a decrease in 2020, but it bounced back in 2021 to the level measured in 2019. Hungarian employment was not adversely affected by the COVID-19 pandemic, as there was a gradual increase in the development of employment until 2021. The development of the Hungarian and Czech GDP was not negatively affected by the pandemic, as it resulted in continuous growth. The Hungarian inflation rate indicated an increase between 2019 and 2020. In Poland, the inflation rate increased in 2021.

In all 4 Visegrad countries, the service sector contributes the most to the country's GDP. During the period under review, the services sector has become an increasing share of countries' GDP. In Hungary, the agricultural sector is the most important contributor to GDP, while in the Czech Republic, the growth of the services sector is the most characteristic. There was a decline in the industry sector in V4 countries from 2019 to 2021.

The volume of foreign direct investment in the Visegrad Four countries was different. Slovakia had the lowest amount of FDI influx during the period under review, while the Czech Republic had a steady decline in FDI. The development of the FDI influx in Hungary was balanced, while Poland experienced a record amount of FDI in 2021.

The number of SMEs in Hungary, Slovakia, and the Czech Republic was growing moderately but steadily, but Poland experienced the most significant growth in the number of SMEs in the reviewed period. The number of people employed by SMEs in the Visegrad Four countries was balanced, while the ratio of SMEs decreased in Hungary, Poland, and the Czech Republic during the pandemic. Slovakia was the only country among the V4, where the number of employed people increased in the SME sector in 2019. In the period 2018-2021, the amount of value added by SMEs to the economy increased in the Visegrad Four countries.

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Original Scientific Article

UNEMPLOYMENT RATE AND GDP GROWTH RATE IN SELECTED EUROPEAN COUNTRIES

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Abstract: *GDP growth rate and unemployment rate are two crucial macroeconomic variables - their correlation is an important indicator for policymakers and it has been frequently analyzed. This research aims to analyze the GDP growth rate and unemployment rate in EU founders, Visegrad group, and Western Balkan countries and to determine if the negative correlation between these variables exists, to point to differences between developed and developing countries, and to indicate real convergence of developing countries towards developed ones. Data is analyzed on a quarterly level from Q1 2010 to Q4 2021 and the methodology of this paper consists of empirical data analysis, descriptive statistics, and panel analysis for each country group. Obtained results point to a negative correlation in all 3 country groups, but it is statistically significant only in EU founders countries, and the convergence of the Visegrad group and Western Balkan countries towards developed ones can be acknowledged.*

Keywords: *GDP growth rate, Unemployment rate, Okun's law, EU founders, Visegrad group, Western Balkans.*

JEL Classification E00 · E24 · E60 · F00 · J64 · C33

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1. INTRODUCTION

Economic growth and high employment are crucial for the development of every country and their correlation and movement are known to be important indicators for policymakers. Economic theory is trying to define the correlation between important macroeconomic indicators and present it by some conditional relation. Among two important macroeconomic indicators which have been frequently examined are the GDP growth rate and unemployment rate and their causal relation.

The subject of this research is the unemployment rate and GDP growth rate in the following 3 groups of European countries: EU founders (Belgium, Netherlands, Luxembourg, Germany, France, and Italy), Visegrad group countries (Hungary, Poland, Czech Republic, and Slovakia) and Western Balkan countries (Croatia, Montenegro, North Macedonia, and Serbia). All countries are analyzed from Q1 2010 until Q4 2021. Data is analyzed on a quarterly level: the unemployment rate has been taken from Eurostat, and it is presenting unemployment from 15 to 74 years. For Montenegro, only for 2010 and 2021, unemployment rate data has been taken from Monstat (Statistical Office of Montenegro). GDP growth rate data has been fully obtained by Eurostat, and it represents a percentage change compared to the same period the previous year.

This research aims to determine whether there is a negative correlation between the unemployment rate and GDP growth rate, to determine differences between developed (EU founders) and developing countries (Visegrad group and Western Balkan countries), and to point to real convergence between developing countries towards developed ones.

The methodology of this research consists of presenting and analyzing data for the unemployment rate and GDP growth rate for each country, descriptive statistics and panel analysis for each country group, and a comparison of obtained results. Statistical software STATA was used for econometric analysis and the significance level is at 5%.

For panel analysis, the unemployment rate is a dependent variable, whereas the GDP growth rate is an independent variable. The analyzed model can be defined as:

$$Yit = \alpha + \beta xit + \mu it \quad (1)$$

Where Y stands for the dependent variable unemployment rate, α is constant, β is the coefficient of the independent variable, x is the independent variable GDP growth rate, μ is residual, i presents a number of countries that are part of the analysis, t=time frame of analysis.

The following hypotheses are defined in this paper.

H1: *There is a negative causal relationship between economic growth and unemployment rate in analyzed European country groups.*

H2: *Developing countries are converging towards developed countries with an increase in GDP growth rate and a decrease in the unemployment rate.*

This paper is divided into five parts. The first part is the introduction, where the subject, aim, and methodology of the research are presented, as well as analyzed models and hypotheses. The second part is the literature review, with the review of GDP growth rate, unemployment rate, Okun's law,

and the results and research about these two variables and their correlation in European countries. The third part consists of presenting and analyzing empirical data for EU founders, Visegrad, and Western Balkan countries. In the fourth part are presented corresponding panel models and scatter plots for all 3 country groups and a discussion of results. The last part of the paper is the conclusion where final remarks are provided, as well as suggestions for further empirical research.

2. LITERATURE REVIEW

Two important macroeconomic variables, which illustrate the health and prosperity of an economy are GDP and unemployment rate. Gross domestic product (GDP) is one of the essential economic indicators since it represents a country's performance based on production factors located within the national territory. It represents overall performance, and what was produced and purchased in the economy, and it affects many other variables (Ivanova & Masarova, 2018, p. 270). Unemployment can be defined as a state where the working-age population has no job and they are actively searching for one (Chowdhury & Hossain, 2014). Postulate which links these two variables is known as Okun's law. Okun's law indicates that there is a negative relationship between unemployment and output. It was defined in 1962 by A. Okun for the US economy when he reported that an increase of 1% of GDP will lead to an unemployment decrease of 0,3% (Halebić, 2021).

A positive correlation between GDP and employment rate in European Union countries has been empirically confirmed by Cvijanović et al. (2019) by regression analysis during the period Q4 2017 - Q3 2018. Vladušić et al. (2019) analyzed unemployment and GDP growth rates in EU Member States in the last quarter of 2017 and the first three quarters of 2018. The unemployment rate was lowest in the Czech Republic in the EU (less than 3%) and it was followed by Malta, Germany, Hungary, and the Netherlands, which had an unemployment rate of up to 4%. The United Kingdom (part of the EU during the analysis), Poland, Romania, and Denmark had an unemployment rate below 5%; Austria, Bulgaria, Slovenia, and Luxembourg were around 5%. The average unemployment rate in the EU was 7,1% but more than two-thirds of countries had a lower unemployment rate, which is due to high unemployment in Greece (20,6%). Most EU member countries during this period had positive GDP growth on a quarterly level, but below 1%. Negative growth rates are noted in Germany, Italy, and Lithuania. Obtained results point to a regression model: *Employment = 1,76 + 0,608 * GDP.*

Belgium, which is one of the EU founders countries, had an unemployment rate which had declined in 2011, then during the euro-crisis in 2012-2013, unemployment increased at the beginning of 2012, reaching its peak in April 2013 (8,5%) and then kept on the steady level until mid-2015. As of this period, it has started to decline again. The main problem when it comes to Belgium's unemployment is that almost half of the unemployed are unemployed for more than 12 months (Bodart et al., 2018).

Visegrad Group countries have transformed from centrally planned to market economies. They have performed reforms regarding institutional systems and joined the EU in 2004. Since these economies have opened, changes in the labor market became visible as well. Poland, the Czech Republic, and Slovakia after joining the EU were constantly improving the labor market situation until the financial crisis interrupted. On the other hand, Hungary's labor market did not benefit as much from entering the EU, since the unemployment rate was still growing after 2004. The financial crisis negatively influenced all labor markets, but in Slovakia, it made the strongest negative impact. The Czech Republic is characterized as the country with the most stable labor market and lowest unemployment rate (Hadas-Dyduch et al., 2016).

Kowalska et al. (2018) conducted an analysis of the GDP growth rate in Visegrad group countries and the results have shown that the Czech Republic has the strongest position among Visegrad group countries, but it is getting weaker every year because of the slow growth rate after the financial crisis in 2008. Slovakia has been getting closer to Poland in recent years. Analysis of FDI inflow (which highly contributes to the country's GDP growth) in Visegrad group countries during 1980-2018 leads to the conclusion that 44% of FDI was directed to Poland, 23% to the Czech Republic, 21% to Hungary, and 11% to Slovakia (Kemiveš & Barjaktarović, 2021).

After 2010, Hungary made great progress and was on the right path to convergence, with a rising employment rate, decreasing unemployment rate, improving budget balance and government debt, and restoring external equilibrium. Hungary's GDP has been growing for many years, rising faster than average developed countries. Between 2013 and 2018, Hungary's GDP rose by 23% in total. In 2018, the unemployment rate was 3,7% with a significant decline in youth unemployment (Matolcsy & Palotai, 2019).

The GDP growth rate in the EU was 1,9% in 2014 and 2,7% in 2017, which is a satisfying level since those are highly developed countries. Based on Western Balkans Regular Economic Development publications, during the period 2014-2018, Serbia's GDP growth rate was below average and in 2018 on an average level (compared with Albania, Bosnia and Herzegovina, Montenegro, and North Macedonia) (Milojević, 2019).

Nikolić and Zoroja (2016) analyzed the correlation between Germany's and Serbia's economic growth during Q1 2004 – Q2 2015 by the Vector Error Correction model (VECM). They have confirmed that Serbia's economic activity, in the long run, is linked to economic activity in Germany: if the GDP in Germany had increased by 1%, Serbia's GDP would increase by 0,99%. Germany's economy is not affected by Serbia's, which is in accordance with smaller economies being dependent on larger economies, and not *vice versa*.

Structural unemployment in Serbia has its roots in collective heritage. Low output is causing long-term high unemployment, and the financial crisis has only amplified those effects. Insufficient capital mobility and inactive institutions in the labor market are additionally making a bad impact on unemployment (Ristanović & Barjaktarević, 2014).

Tumanoska (2019) conducted research on examining the validation of Ocun's law in North Macedonia, based on data from 1991 to 2017. Between total unemployment and GDP growth, there is a long-run relationship between these two variables, suggesting that an increase of 1% of GDP leads to a decrease of 2,57% in the unemployment rate. For youth unemployment, there is no co-integration between these two variables in the long run, but testing in the short run pointed to an insignificant coefficient, meaning that these two variables are not co-integrated.

Less developed European countries tend to converge towards developed countries. Convergence is a process where the difference between two or more variables over time decreases and becomes negligible. Countries with lower real GDP per capita have higher growth rates that cannot be attributed to some other characteristics of those economies (Strielkowski & Hoschle, 2016). A degree of economic convergence between European economies is needed for a well-functioning monetary union. If there are large differences between countries, achieving common goals is more difficult (Iorio & Triacca, 2022).

3. EMPIRICAL DATA ANALYSIS

For each country, empirical data has been analyzed on a quarterly level for the unemployment rate and GDP growth rate. The unemployment rate (unemployment from 15 to 74 years) has been taken from Eurostat for all countries, except for Montenegro, where data has been taken from Monstat (Statistical Office of Montenegro) for 2010 and 2021. GDP growth rate data has been fully obtained by Eurostat, and it represents a percentage change compared to the same period the previous year.

3.1. EU Founders Countries

Figure 1 presents the movement of the unemployment rate and GDP growth rate for 6 EU founders' countries from Q1 2010 until Q4 2021. What can be easily noticed is the following: (1) all countries have similar and unique movement for unemployment rate and GDP growth rate during observed years (similar movement, but on different percentage levels) except Luxembourg; (2) movement of these two variables in Luxembourg has been more volatile compared to other EU founders countries; (3) all countries have faced GDP growth rate decline as from 2011, which lasted until Q1 2013; (4) all countries have faced a decline of GDP growth rate as from Q1 2020 when COVID-19 pandemic has begun, which led to increasing of unemployment rate in following quarters; (5) as from Q2-Q3 2020, GDP growth rate has noted its increase, which resulted in unemployment decrease in quarters which have followed.

Figure 1. Unemployment rate and GDP growth rate in EU founders countries
Source: Author's calculation based on Eurostat data

Table 1. Descriptive statistics – EU founders' countries

Variable		Mean	Std. Dev.	Min	Max	Observations
Unemployment rate	Overall	7,251736	2,45219	2,9	13	N = 288
	Between		2,35882	4,35	10,63542	n = 6
	Within		1,166357	4,616319	10,00174	T = 48
GDP growth rate	Overall	1,347222	3,546986	-18,7	19,4	N = 288
	Between		,8169766	,0583333	2,6125	n = 6
	Within		3,467414	-18,50069	19,59931	T = 48

Source: Author's calculation in STATA

Table 1 presents descriptive statistics, which present the mean, standard deviation, minimum and maximum for the unemployment rate and GDP growth rate. The number of observations is 288 and the data is balanced (analyzed 6 countries during 48 quarters).

3.2. Visegrad Group Countries

In Figure 2 is presented data for Visegrad group countries. The following observations can be noticed: (1) constant decline of unemployment rate in all countries; (2) relatively uniform movement of GDP growth rate; (3) all countries have faced a GDP growth rate declined from 2011, which lasted until Q1 2013; (4) all countries have faced GDP growth rate decline as from Q1 2020, which led to increasing of unemployment rate in following quarters; (5) as from Q3 2020, GDP growth rate has started to increase, which led to unemployment decrease in quarters which have followed. An interesting observation is that Slovakia is the only country (out of all analyzed countries in this research), which did not have a negative GDP growth rate until the pandemic outburst.

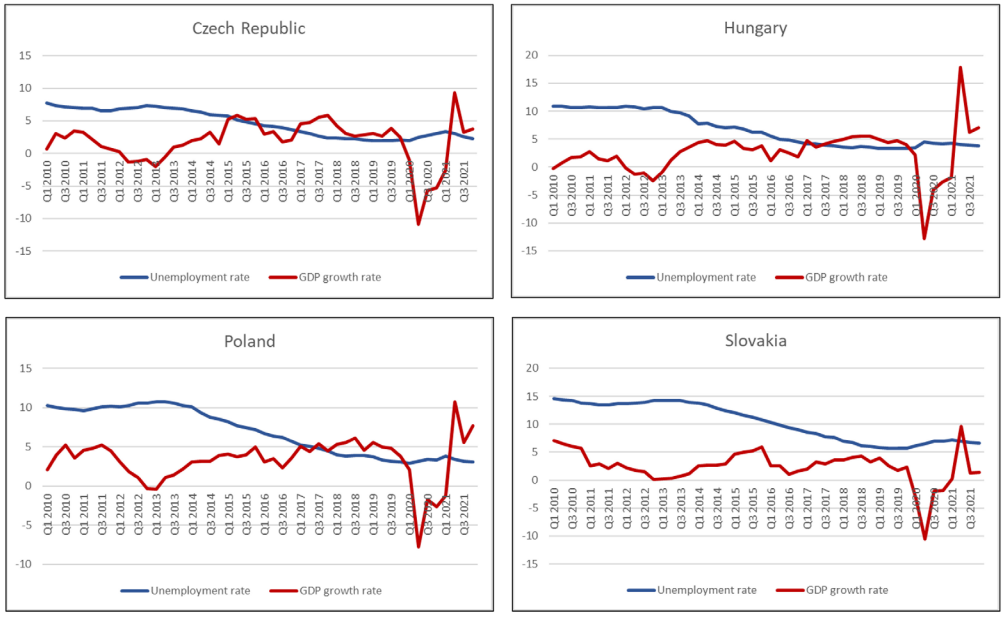

Figure 2. Unemployment rate and GDP growth rate in Visegrad group countries
Source: Author's calculation based on Eurostat data

Table 2. Descriptive statistics – Visegrad Group countries

Variable		Mean	Std. Dev.	Min	Max	Observations
Unemployment rate	Overall	7,132813	3,510451	2	14,6	N = 192
	Between		2,354038	4,6375	10,31667	n = 4
	Within		2,854012	2,516146	11,41615	T = 48
GDP growth rate	Overall	2,545052	3,365604	-12,8	17,8	N = 192
	Between		,597322	1,883333	3,329167	n = 4
	Within		3,325402	-12,81016	17,78984	T = 48

Source: Author's calculation in STATA

Table 2 presents descriptive statistics – the number of observations for Visegrad group countries is 192.

3.3. Western Balkan Countries

Movement of unemployment rate and GDP growth rate has led to following conclusions in Western Balkan countries: (1) unemployment rate in Montenegro was stable in the past 11 years and in other three Western Balkan countries that are analysed, unemployment rate has had descending path; (2) GDP growth rate had more oscillations during past years; (3) comparing to EU founders and Visegrad countries, decrease of GDP growth rate in period 2011-2013 has not been as sharp; (4) all countries have faced GDP growth rate decline as from Q1 2020 (highest decline has been noted in Croatia and Montenegro, since their economics are greatly impacted by tourism, which was one the most affected branches of economy by pandemic), which led to increase of unemployment rate in following quarters; (5) as from Q3 2020, GDP growth rate has noted its increase (GDP growth rate reached 16,5% in Croatia in Q2 2021 and in Montenegro 27,1% in Q3 2021), which led to unemployment decrease in quarters which have followed.

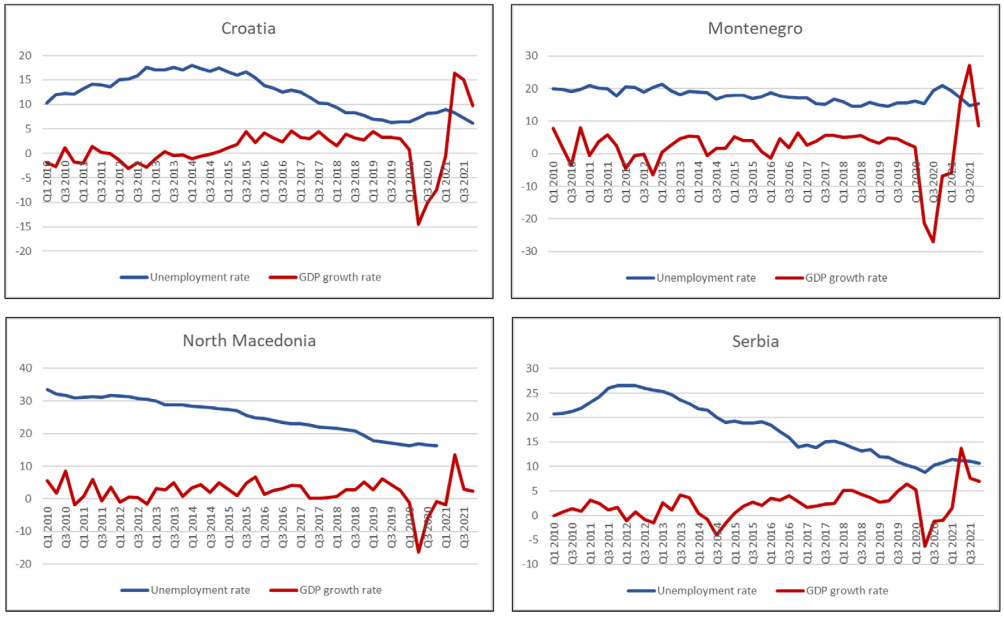

Figure 3. Unemployment rate and GDP growth rate in Western Balkan countries

Source: Author's calculation based on Eurostat data and Monstat (Montenegro unemployment rate data for 2010 and 2021)

The consequences COVID-19 has left on Western Balkan reflected decreased domestic demand and supply, decreased export, and investments (both domestic and foreign), restricted international travel, which made a huge impact on tourism-oriented countries, and a fall of remittances (Georgieva Svrtinov et al., 2020).

Panel data for Western Balkan countries are not balanced, and the number of observations for the unemployment rate is 188 (North Macedonia data is presented without unemployment rate for 2021) and for GDP growth rate 192 (4 countries during 48 quarters). Descriptive statistics is presented in Table 3.

Table 3. Descriptive statistics – Western Balkan countries

Variable		Mean	Std. Dev.	Min	Max	Observations
Unemployment rate	Overall	18,11436	6,375107	6,2	33,5	N = 188
	Between		5,367368	12,22917	25,3	n = 4
	Within		4,420321	9,014362	26,96645	T = 47
GDP growth rate	Overall	1,902083	5,267404	-26,9	27,1	N = 192
	Between		,5141094	1,139583	2,239583	n = 4
	Within		5,248455	-27,2375	26,7625	T = 48

Source: Author's calculation in STATA

When Serbia is compared to EU countries, its economic development and living standard are at the bottom. GDP per capita is half of other Central and Eastern European countries and when compared to developed Western European countries, this proportion is even lower and one third. In order to start catching up with CEE countries, Serbia's GDP growth rate should be higher, but it is the opposite since the gap is only increasing. 26 EU countries were analyzed by the panel during 1995-2017 and Serbian data has been later added to the model in order to determine how different factors affect Serbian economic growth. Serbian GDP structural gap is around 1,5-2 p.p. (for less developed EU countries, the GDP growth rate is higher than in developed countries by around 2 p.p.). The highest negative impacts on economic growth are corruption (1 p.p.), rule of law gap, low investment, and a poor educational system (1 p.p.). If dealing with corruption and improving the rule of law would increase to the level of surrounding countries, economic growth would increase by about 0,5 p.p., but if it would reach the level of all CEE countries, the growth rate would exceed by 0,9 p.p. Bad indicator regarding corruption is that as of 2014 Serbia went from gradual improvement in control of corruption and rule of law to their deterioration. Serbia's share of investments into GDP is lower compared to CEE countries, which is causing a decrease in economic growth of around 0,7 p.p. When it comes to education, it is on average 11 years of schooling, which is around 1 year less than average CEE countries (impacting 0,2 p.p. GDP loss) (Petrović et al., 2019).

4. RESULTS AND DISCUSSION

For each country group panel analysis contained OLS the model, Fixed Effects, and Random Effects Model. For EU founders countries, the corresponding model is the OLS model, since it is the only statistically significant model, whereas, for the Visegrad group and Western Balkan countries, the Hausman test has shown that Random Effects Models are more suitable than Fixed Effected Models. In Table 4 are presented corresponding models for all 3 country groups.

Table 4. Corresponding models for EU founders, Visegrad group, and Western Balkan countries

	EU founders	**Visegrad group**	**Western Balkan**
Corresponding model	OLS model	Random Effects Model	Random Effects Model
P-value	0,0323	0,2606	0,1335
GDP growth rate (coefficient)	-0,0872481	-0,0701878	-0,0930864
GDP growth rate (Std. Err.)	0,0405532	0,0623906	0,0620329
GDP growth rate (t-value)	0,032	0,261	0,133
Constant (coefficient)	7,369279	7,311444	18,43453
Constant (Std. Err.)	0,1536343	1,402901	2,86442
Constant (t-value)	0,000	0,000	0,000

Source: Author's calculation in STATA

When it comes to EU founders countries, the OLS model is the only model which is statistically significant (p=0,0323; p<0,05), and the t-value meets this criterion as well (GDP Growth rate and constant t-value<0,05). OLS Model points to ***Unemployment rate = 7,369279 – 0,0872481*GDP Growth rate***, meaning that an increase in GDP Growth rate for 1% would lead to a decrease of the unemployment rate for 0,0872481%, which is close to zero, so even though the negative correlation is statistically significant, the impact that GDP growth rate has on the unemployment rate is so low, that can be neglected.

For the Visegrad group and Western Balkan countries, Random Effects Models are not statistically significant (p=0,2606 and p=0,1335 respectively), but both models show a negative correlation between the unemployment rate and GDP growth rate.

In Figure 4 are presented scatterplots for all 3 analyzed country groups. All country groups have a negative correlation between the unemployment rate and GDP growth rate, meaning that an increase in the GDP growth rate will lead to an unemployment rate decrease.

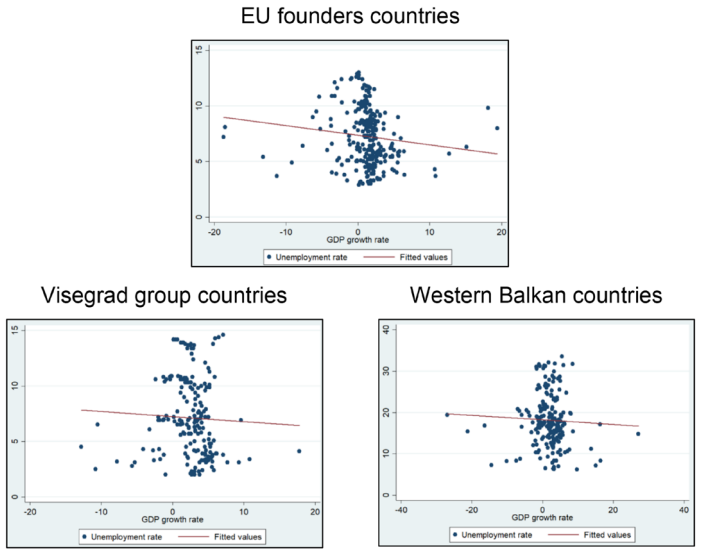

Figure 4. Unemployment rate and GDP growth rate scatter plot
Source: Author's calculation in STATA

In all analyzed countries, the unemployment rate had a more stable movement over the past 12 years compared to the GDP growth rate, which had many oscillations. There have been 2 points in time when all countries faced a similar trend regarding GDP growth rate. The first point was from 2011, when the GDP growth rate decline started, which lasted until Q1 2013. This was due to the Eurozone debt crisis which reached its peak during this period. A lower decline was noted in Western Balkan countries, compared to the other two groups of countries, since they were not part of the monetary union. The second decline in GDP growth rate started in Q1 2020 together with the global COVID-19 pandemic. Because of the closing borders, few economic branches being completely shut down (mostly tourism and related sectors), the decline in international trade, and overall fear of what future months will bring, this has led to an increase in the unemployment rate a few months after the beginning of the pandemic. After Q3 2020 the unemployment rate slowly started to decline. The employment rate increase is stimulated by economic development, and in developing countries that have been affected by global and internal crises, the negative effects of recession last much longer compared to developed countries (Vukadinović et al., 2018).

The overall standard deviation for both the unemployment rate and GDP growth rate is highest in Western Balkan countries. This points to developed countries deviating less one from another, which is the opposite for developing countries, where deviations are high.

The convergence of less developed countries (Visegrad group and Western Balkan countries) towards developed countries (EU founders) is emphasized. Visegrad group countries have noted a high GDP growth rate from 2015 (Hungary as of 2014) with an average of 4% GDP growth rate until the COVID-19 pandemic in 2020. A high GDP growth rate led to an unemployment rate decrease. When it comes to the Czech Republic, in the past few years the unemployment rate has been less than 3%, which makes it a Visegrad group country with the lowest unemployment rate. On the contrary, Slovakia has the highest unemployment rate which was caused by the lowest GDP growth rate. Visegrad states have received high FDI inflow from the beginning of the 2000s (with Poland in the first place), which led to a higher GDP growth rate, as empirically proven by Ercegovac and Beker Pucar (2021).

Western Balkan countries had a lower average GDP growth rate from 2015 until the beginning of 2020, which caused a higher unemployment rate compared to Visegrad group countries. The average GDP growth rate was lower than 3,5%. Croatia, as the most developed Western Balkan country and only EU member, has significantly lowered the unemployment rate in the past few years, whereas in North Macedonia, even though a great impact has been made regarding lowering the unemployment rate, it is still really high (16% at the end of analyzed period). Serbia cannot praise its progress in the past few years, since the GDP growth rate has not been high enough to accelerate its convergence towards EU member countries.

An important note about the unemployment rate decrease in less developed countries (Western Balkan and Visegrad group) is that unemployed citizens migrate to developed EU countries and search for a job abroad. This has been the case with Visegrad group countries and Croatia, since entering the EU has enabled those countries to open borders and much easier fluctuations. Besides new EU members, this is the case with Western Balkan countries as well, which are known for a high percentage of their citizens working abroad. This is leading to a fictive unemployment rate decrease and causing an unclear picture of the actual unemployment rate in developing countries.

For developing countries to converge, high GDP growth is needed to reach a level of developed countries and a higher GDP growth rate would lead to an increase in employment. Youth employ-

ment is an important factor since it not only stimulates employment increase but also has a positive effect on other social matters. Higher investments (foreign and domestic) would make an impact on the GDP growth rate, which would eventually lead to an increase in wages and consumption, which is also part of the real convergence.

5. CONCLUSION

GDP growth rate and unemployment rate are important macroeconomic indicators, not only for policymakers but also for all citizens, households, and the overall country's economy, since they have an impact on the prosperity of all stakeholders. The main focus of policymakers should be to encourage unemployment decrease through various subsidies, programs, etc., and to enhance the GDP growth rate through new investments and opening new jobs.

The subject of this research has been the unemployment rate and GDP growth rate in EU founders, the Visegrad group, and Western Balkan countries from 2010 until 2021. Obtained results have pointed to a statistically significant negative correlation between the unemployment rate and GDP growth rate in EU founders countries, but the impact the GDP growth rate has on the unemployment rate is close to zero. In the Visegrad group and Western Balkan countries, the correlation is negative, but not statistically significant.

Real convergence of the Visegrad group and Western Balkan countries is noticed through higher GDP growth rates and a decline in unemployment. Western Balkan countries are lagging behind Visegrad group states since Visegrad group countries had higher GDP growth rates and lower unemployment rates. In the future, if developing countries want to converge towards developed EU countries, besides focusing on GDP growth and unemployment decrease, attention should be paid to the positive current account, lowering the budget deficit and public debt, healthy fiscal policy, and public finance, stimulant towards the economy through lowering income tax and providing different types of subsidies.

Hypothesis H1 can be fully neither accepted nor declined. For EU founders, the Visegrad group, and Western Balkan countries, a negative causal relationship is presented, but it is statistically significant only within EU founders' countries and even there the effect GDP growth makes on the unemployment rate is close to zero.

Hypothesis H2 can be accepted since developing countries are converging towards developed countries. Western Balkan countries still have a long way to go to reach the Visegrad group countries' development level, not to mention the most developed EU countries.

Since the development gap between Western Balkan countries and Visegrad group countries is still significant, Western Balkan countries should focus on achieving Visegrad group countries' development level and converging towards them – these two country groups are more comparable and have more similar economic indicators.

The proposal for further research is to examine the GDP growth rate and employment rate correlation to conclude if there is a statistically significant correlation between these two variables and to analyze Western Balkan convergence towards Visegrad group countries.

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Original Scientific Article

INTERNAL AND EXTERNAL FACTORS OF NON-PERFORMING LOANS: THE EXAMPLE OF THE BANKING SECTOR IN BOSNIA AND HERZEGOVINA

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Abstract: *Non-performing loans are loans that do not generate income for banks and represent one of the most sensitive categories of a bank's balance sheet. Their increase can affect both the liquidity and the solvency of banks. This paper investigates internal (specific) and external (macroeconomic) determinants of non-performing loans of the banking sector in Bosnia and Herzegovina for the period 2008: Q1 - 2020: Q4 including correlation and regression analysis. The results of the research showed that the following independent variables have the strongest impact on non-performing loans as a dependent variable: unemployment rate, provisions to non-performing loans, and real GDP growth rate. On the other hand, the independent variable return on equity had the weakest impact on non-performing loans.*

Keywords: *Non-performing loans, Unemployment rate, Provisions to non-performing loans, Fixed effect model, Random effect model, Return on equity.*

JEL classification B22 · G20 · G21

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1. INTRODUCTION

Despite the strong expansion of innovation in the financial services sector at the end of the past and the beginning of this century, credit risk is still the main reason for bank insolvency. In modern business conditions, over 80% of the bank's balance sheet relates to this aspect of banking risk management. Unlike traditional commercial banking, the strong expansion of investment banking in modern conditions has affected the expansion of the range of risks to which banks are exposed in their operations. Credit risk is defined as the risk of default based on debt incurred, i.e., non-payment of principal and interest by the debtor.

Among the types of risks faced by banks, credit risk is the most important if the focus is on the source of potential losses. Non-fulfillment of obligations by the banks' clients as the other party in the credit business results in the loss of the entire receivable. If several key clients of the bank are not able to service their obligations properly, this can cause large losses to the bank, which can cause insolvency of the bank (Đukić, 2011). The non-performing asset is an asset that does not bring income and those items are principal and interest due. If not collected for more than 90 days from the date of their maturity they are classified as categories C, D and E (Plakalović & Alihodžić, 2015).

This study examines the trend of non-performing loans in the banks of Bosnia and Herzegovina during the period 2008-2020. The analysis shows that non-performing loans are primarily the result of the influence of external and internal determinants. The decline in economic activity in the country affects the decline of bank assets and consequently leads to an increase in non-performing loans. On the other hand, in a period of stable and positive economic trends, bank customers are financially able to settle their debts, which affects the quality of non-performing loans to be stable and even declining. Therefore, the main goal of this research is to investigate the impact of internal and external variables on the growth/decline rate of non-performing loans in the banking sector in Bosnia and Herzegovina for the period 2008-2020.

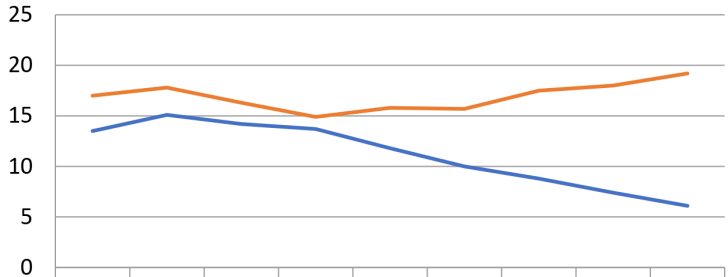
This research is structured in six parts. The first part deals with introductory considerations. Part two refers to the analysis of selected indicators of the financial health of banks in Bosnia and Herzegovina. Part three consists of a review of the literature and research hypotheses, as well as the dimensions of various studies conducted on the topic of non-performing loans. Part four of the methodological approach discusses the sample, data collection, and research model. The empirical findings of this study are presented in part five. Part six consists of conclusions and recommendations.

2. ANALYSIS OF CERTAIN HEALTH INDICATORS OF THE BANKING SECTOR IN BOSNIA AND HERZEGOVINA

The financial model in Bosnia and Herzegovina is bank-centric and characterized by a high level of competition. Observed on the other hand, in addition to competition in the banking system of Bosnia and Herzegovina, there is a moderate concentration. Figure 1 shows the linear trend of non-performing loans and capital adequacy ratio for the period: 2012 - 2020.

Figure 1 illustrates the linear trend of non-performing loans and capital adequacy ratio of banks in B&H for the period 2012 - 2020. Both NPLs and CAR had the same pattern from 2013 to 2015. From 2014 NPLs begin to decrease and from 2015 CAR starts to grow again, much more than the legal minimum of 12%. For the observed period, the highest value of non-performing loans was recorded in 2013 (15.1%), the lowest in 2020 (6.1%), and the average value of 11.18%. The decrease

in the value of non-performing loans was influenced by the following essential factors: write-offs of non-performing loans, monitoring measures, growth in lending activity, and decline in interest rates. Unlike non-performing loans, the capital adequacy ratio recorded the highest value in 2020 (19.2%), the lowest value in 2015 (14.9%), and an average value of 16.91%.



	2012	2013	2014	2015	2016	2017	2018	2019	2020
Non-performing loans - NPLs	13.5	15.1	14.2	13.7	11.8	10.0	8.8	7.4	6.1
Capital adequacy ratio - CAR	17.0	17.8	16.3	14.9	15.8	15.7	17.5	18.0	19.2

Figure 1. The linear trend of non-performing loans and capital adequacy ratio in B&H for the period: 2012 - 2020

Source: Calculation by the author based on data from the Banking Agency of the Federation of Bosnia and Herzegovina and the Banking Agency of the Republika Srpska

Profitability indicators are practically surrogates for the value of the bank's shares. The behavior of stock prices is the best indicator of the banks' operations because it reflects the assessment of the banks' operations by the market. However, this indicator is often not reliable in banking. The reason is that bank shares are often not traded on official stock exchanges because the banks are small in size (Plakalović & Alihodžić, 2015). The table below illustrates the linear trend of profitability indicators of banks in Bosnia and Herzegovina for the period: 2012 - 2020.

Table 1. The tendency of profitability indicators of banks in Bosnia and Herzegovina for the period: 2012 - 2020

Indicators	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average
ROA	0.7	-0.1	0.8	0.3	1.1	1.5	1.3	1.4	0.8	**0.9**
ROE	5.1	-0.5	5.4	2.0	7.3	10.2	9.6	10.4	6.0	**6.2**

Source: https://data.imf.org (adjusted by the author)

As can be seen from table 1 both indicators of bank profitability had a very volatile and fluctuating trend. The first ROA profitability indicator recorded the highest value in 2017 (1.5%), the lowest value in 2013 (-0.1%), and an average value of 0.9. Unlike ROA, the second ROE profitability indicator had the highest value in 2019 (10.4%), the lowest value in 2013 (-0.5%), and an average value of 6.2%. The decline in the value of both indicators of bank profitability from 2019 to 2020 is primarily the result of a significant reduction in profits that banks reported at the end of 2020 as well as the impact of the global pandemic COVID-19.

3. REVIEW OF RELEVANT LITERATURE AND RESEARCH HYPOTHESES

Babouček and Jančar (2005) analyzed the links between credit quality and macroeconomic shocks in the Czech banking sector in the period 1993-2006. The results of the research showed that there is a significant positive link between non-performing loans, unemployment rates, and consumer

price inflation. Therefore, economic growth affects the stability of the banking sector. Godlewski (2005) investigated the relationship between NPLs and return on assets (ROA) and concluded that the lower the ROA rate the higher the NPLs will be and vice versa.

Quagliariello (2007) investigated the performance of banks and the riskiness of bank loans in Italy using a large sample of banks observed between 1985 and 2002. The results show that non-performing loans and loan loss provisions are generally low in growth periods and increase in periods of downturn.

Glogowski (2008) investigated the factors of credit losses for 108 Polish banks in the period from 1996 to 2006. He concluded the importance of a set of macroeconomic variables that make up real GDP growth, real interest rates, and unemployment. Marcucci and Quagliariello (2008) investigated the effects of the economic cycle on the rate of default on loans at the national level in the period 1990-2004. The results of the research showed that standard rates follow a cyclical pattern, especially decreasing during periods of economic expansion and increasing during periods of decline.

Nkusu (2011) investigated the relationship between non-performing loans (NPLs) and macroeconomic performance between 1998 and 2009. The results emphasize that in advanced economies, unfavorable macroeconomic developments affect credit quality and that this in turn leads to higher problem loans and declining GDP growth.

Vaskov et al. (2012) presented the first empirical analysis of macroeconomic determinants of non-performing loans in the Macedonian banking system, based on a panel assessment, i.e., on a sample of 16 banks. The results showed that the variables with the greatest strength of explanation are the inflation rate and the REER, both of which have positive signs in the equations that explain the movement of non-performing loans. They found weak power to explain the GDP ratio and the interest rate ratio.

Dash and Kabra (2010) investigated non-performing loans in the Indian banking sector from 1998-99 to 2008-09. They used data both at the bank level and at the macroeconomic level, where they found evidence of the importance of credit growth, credit-to-asset ratios, economic growth, and the rate of loan losses.

Louzis et al. (2010) used the dynamic data panel method to examine which determinants affect NPLs for the Greek banking sector and for each credit category. They studied a set of basic macroeconomic indicators, namely the real GDP growth rate, the unemployment rate, and the real interest rate for each type of loan. They used a set of data from the new major Greek banks for the period: 2003-2009. The results showed that non-performing loans are related to the following variables: GDP, unemployment rate, interest rate, and quality of management.

Rachman et al. (2018) examined various banking factors that have affected problem loans in Indonesia and concluded that the high profitability of banks has lower NPLs due to their better performance and efficiency of the credit supervision system. Kumar and Kishore (2019) concluded that in terms of banking factors, NPLs and CARs have a negative correlation in the banking sector.

Based on the goal set in the introductory part of the paper, the following hypotheses will be tested with the help of random and fixed effect models.

Null Hypothesis

H_0I: There is no significant statistical impact of the following variables (capital adequacy ratios - CAR, provisions for non-performing loans - PNPL, return on assets - ROA, return on equity - ROE, real GDP growth rates and unemployment rates - UN) on the growth rate of non-performing loans - NPLs at significance level $p \leq 0.05$. The first null hypothesis consists of the following sub-hypotheses:

H_0I-1 There is no significant statistical impact of the capital adequacy ratio on the growth rate of non-performing loans at the significance level $p \leq 0.05$.

H_0I-2 There is no significant statistical impact of provisions for non-performing loans on the growth rate of non-performing loans at the significance level $p \leq 0.05$.

H_0I-3 There is no significant statistical impact of return on assets on the growth rate of non-performing loans at the significance level $p \leq 0.05$.

H_0I-4 There is no significant statistical effect of return on equity on the growth rate of non-performing loans at the significance level $p \leq 0.05$.

H_0I-5 There is no significant statistical effect of the real GDP growth rate on the growth rate of non-performing loans at the significance level $p \leq 0.05$.

H_0I-6 There is no significant statistical effect of the unemployment growth rate on the growth rate of non-performing loans at the significance level $p \leq 0.05$.

An Alternative Hypothesis

H_0I: There is a significant statistical impact of the following variables (capital adequacy ratios - CAR, provisions for non-performing loans - PNPL, return on assets - ROA, return on equity - ROE, real GDP growth rates and unemployment rate - UN) on the growth rate of non-performing loans - NPLs at the significance level $p \leq 0.05$. The first alternative hypothesis consists of the following sub-hypotheses:

H_0I-1 There is a significant statistical impact of the capital adequacy ratio on the growth rate of non-performing loans at the significance level $p \leq 0.05$.

H_0I-2 There is a significant statistical effect of provisions for non-performing loans on the growth rate of non-performing loans at the significance level $p \leq 0.05$.

H_0I-3 There is a significant statistical impact of return on assets on the growth rate of non-performing loans at the significance level $p \leq 0.05$.

H_0I-4 There is a significant statistical effect of return on equity on the growth rate of non-performing loans at the significance level $p \leq 0.05$.

H_0I-5 There is a significant statistical effect of the real GDP growth rate on the growth rate of non-performing loans at the significance level $p \leq 0.05$.

H_0I-6 There is a significant statistical impact of the unemployment growth rate on the growth rate of non-performing loans at the significance level $p \leq 0.05$.

4. DATA AND METHODOLOGY

4.1. Data

The sample of this research is the total banking sector of Bosnia and Herzegovina (22 banks in total). Data on banking performance indicators were collected from the websites of the Banking Agency of the Federation of B&H, the Banking Agency of the Republika Srpska, the Central Bank of Bosnia and Herzegovina, and the International Monetary Fund. Indicators on macroeconomic indicators were collected from the websites of the Agency for Statistics of Bosnia and Her-

zegovina and the Labor and Employment Agency of Bosnia and Herzegovina. The growth rate of non-performing loans was used as a dependent variable in this study. As independent variables in the model were used the following: capital adequacy ratio, provisions for non-performing loans, return on asset, return on equity, real GDP growth rate, and unemployment rate. Table 2 shows the variables and the expected effects of the dependent and independent variables.

Table 2. A Brief Description of the Dependent and Independent Variables in the Model

Variable	Short definition	Expected sign
NPLs	Non-performing loans as % of total loans	-
CAR	It represents the ratio between the net amount of capital and the assets that are exposed to risk.	+
PNPLs	Provisions to non-performing loans	+
ROA	Profit to total assets	+
ROE	This ratio is obtained by dividing the net profit of the bank by the capital	-
RGDP	Gross domestic product per inhabitants % change over the previous period (real)	**+ or -**
UN	The unemployment rate in % of the labor force	+

Source: Calculation by the author

Non-performing loans (NPLs) - NPLs are loans that remain unpaid. The IMF stated that a loan is considered uncollectible if it does not generate interest and the amount of principal for at least 90 days. Loans become NPLs if full payment of principal and interest is not made on time, and is no longer expected in future dates (Alton & Hazen, 2001). In this study, NPLs were measured as the ratio of non-performing loans to total loans

Capital adequacy ratio (CAR) - is determined by comparing the net amount of capital with the asset that is exposed to risk. This applies not only to the banks' balance sheet assets but also to the banks' off-balance sheet items. Therefore, the capital adequacy ratio is calculated based on the net capital ratio (adjusted capital) whose amount is determined as the difference between the amount of capital and deductible items (Plakalović & Alihodžić, 2015).

Provisions to non-performing loans (PNPLs) – each bank must prepare for a loss on its loans. To compensate for this credit risk, the bank estimates the expected future loss on the loan and records the appropriate reserve. Posting provisions means that the bank recognizes the loss on the loan in advance. Banks use their capital to absorb these losses by posting provisions, the bank takes over the loss and therefore reduces its capital by the amount of money it will not be able to collect from the client (www.bankingsupervision.europa.eu). In this study, provisions for non-performing loans will be used as an independent variable.

Return on assets (ROA) - is considered the most appropriate measure to assess the performance of the bank. ROA is obtained by sharing the banks' income before interest with its assets. Therefore, ROA measures the efficiency of management in using the banks' resources to make a profit. It also assesses the banks' efficiency in using actual investments for interest and other fees. This measure of bank profitability is especially important when comparing the operational efficiency of banks (Sinkey, 1989).

Return on Equity (ROE) – expresses how much a bank earns based on the book value of its investments. This ratio is obtained by dividing the banks' net profit by capital, which reflects reve-

nue generation, operational efficiency, leverage, and tax planning. For some banks, the ROE may be high because the banks do not have an adequate capital ratio. Banks with low returns can increase their return on investment, by using additional leverage, i.e., by increasing the ratio of assets and capital (Koch & MacDonald, 2009).

Real GDP growth rate (RGDP) - measures economic growth expressed in the gross domestic product (GDP) from one period to another adjusted for inflation or deflation. In other words, it reveals changes in the value of all goods and services produced by the economy - the economic product of a country, taking into account price fluctuations (www.investopedia.com).

Unemployment rate (UN) - the unemployment rate is the number of unemployed workers divided by the total working-age population (https://hr.wikipedia.org). In this research, it will be used as an independent variable and we will assume that there is a positive relationship between the unemployment rate and the growth rate of non-performing loans.

4.2. Methodology

The following general regression model was used to assess the impact of internal and external variables on the movement of non-performing loans in the banking sector in Bosnia and Herzegovina:

$$Y_{i,t} = \alpha + \beta' X_{i,t} + \mu_{i,t} \quad (1)$$

Where in:

$Y_{i,t}$ dependent variable;
α represents a constant, ie the mean value of Y;
β' is the kx_1 parameter vector estimated on the explanatory variables;
$\mu_{i,t}$ is a random error.

By including all independent and dependent variables in equation (1), equation 2 is formulated as follows:

$$NPL_{i,t} = \alpha + \beta_{i,t} (CAR_{i,t} + PNPL_{i,t} + ROA_{i,t} + ROE_{i,t} + RGDP_{i,t} + UN_{i,t}) \quad (2)$$

If the p – value is statistically significant, the fixed effect model should be used. On the other hand, if the p – value is not statistically significant, a random effect model should be used. The significance test was performed for all variables using the t-test at the significance level of 95% (Chmelarova, 2007). The null and the first alternative hypothesis will be tested using the Hausman test.

5. FINDINGS AND DISCUSSION

Before hypotheses testing, the results of correlation and regression are shown in tables 3-7. The total number of observations is 52, which is a relatively representative sample both in terms of the banking sector and in terms of the time frame.

A strong positive correlation between the dependent variable in the model (NPLs) was observed with the following independent variables: unemployment rate (0.551) and provisions for non-performing loans (0.427) at significance ($p<0.05$). With the increase in the unemployment rate, there

may be a problem of debt repayment, i.e., an increase in the default rate, given that more and more people are losing their jobs, and consequently credit risk increases in both households and companies that reduce production. Therefore, the relationship between the unemployment rate and non-performing loans is directly proportional: with an increase in the unemployment rate, there is a consequent increase in non-performing loans (Diaconaşu et al., 2014).

Table 3. Correlation matrix (Pearson coefficient of correlation) between dependent and independent variables of the banking sector of B&H for the period: 2008: Q1 - 2020: Q4

		NPLs	CAR	PNPLs	ROA	ROE	RGDP	UN
NPLs	Pearson Correlation	1.000	-0.048	0.427	0.326	0.262	0.290	0.551
	Sig. (2-tailed)	-	0.735	0.002	0.018	0.060	0.037	0.000
	N	52	52	52	52	52	52	52
CAR	Pearson Correlation	-0.048	1.000	0.394	0.045	0.065	-0.290*	-.0379
	Sig. (2-tailed)	0.735	-	0.004	0.750	0.648	0.037	0.006
	N	52	52	52	52	52	52	52
PNPLs	Pearson Correlation	0.427	0.394	1.000	0.772	0.751	0.368	-0.434
	Sig. (2-tailed)	0.002	0.004	-	0.000	0.000	0.007	0.001
	N	52	52	52	52	52	52	52
ROA	Pearson Correlation	0.326	0.045	0.772	1.000	0.993	0.503	-0.308
	Sig. (2-tailed)	0.018	0.750	0.000	-	0.000	0.000	0.026
	N	52	52	52	52	52	52	52
ROE	Pearson Correlation	0.262	0.065	0.751	0.993	1.000	0.494**	-0.348
	Sig. (2-tailed)	0.060	0.648	0.000	0.000	-	0.000	0.011
	N	52	52	52	52	52	52	52
RGDP	Pearson Correlation	0.290	-0.290	0.368	0.503	0.494	1.000	-0.138
	Sig. (2-tailed)	0.037	0.037	0.007	0.000	0.000	-	0.328
	N	52	52	52	52	52	52	52
UN	Pearson Correlation	0.551	-0.379	-0.434**	-0.308	-0.348	-0.138	1.000
	Sig. (2-tailed)	0.000	0.006	0.001	0.026	0.011	0.328	-
	N	52	52	52	52	52	52	52

Source: Calculation by the author

According to Cohen (1988), the obtained values of coefficients of correlation can be interpreted as follows:

- When r = 0.10 to 0.29 then the correlation is small.
- When r = 0.30 to 0.49 then the correlation is medium.
- When r = 0.50 to 1.0 then the correlation is large

Table 4. Summary Correlation Statistics Between Dependent and Independent Variables of Banks in the Western Balkans for the Period: 2008:Q1 – 2020:Q4

Dependent variable	R	R Square	Adjusted R Square	Std Error of the Estimate	Durbin-Watson
NPLs	0.940	0.883	0.867	1.377	0.851

Source: Calculation by the author

The obtained results from the Table 4 indicate that there is a strong and large correlation between dependent and independent variables. This research is focused on the analysis of internal and external variables that affect the increase/decrease in non-performing loans in the banking sector in Bosnia and Herzegovina. The results of the regression are presented in tables 5-7.

The total number of observations is 52, which makes the model relatively representative. The empirical value of the F - test for 10 degrees of freedom in numbering and 42 in the denomination was 58.78. Also, the probability based on the regression of fixed effects is 0.000, which explains that the model is very significant.

Table 5. Regression of Fixed Effects Model Between Dependent (NPLs) and Independent variables of the banking sector of B&H for the period: 2008: Q1 - 2020: Q4

				Number of obs = 52		
				Number of groups = 4		
				Obs per group	min = 13	
R – sq	within = 0.8936				avg =13.0	
	between = 0.0174				max = 13	
	overall = 0.8816			F (10,42)= 58.78		
				Prob>F = 0.000		
	Coef.	**Std. Err.**	**t**	**P>|t|**	**|95% Conf.Interval|**	
CAR	0.190915	0.27864	0.69	0.493	-0.35522	0.73705
PNPLs	0.176320	0.025664	6.87	0.000	0.12601	0.22662
ROA	5.48182	3.238171	1.69	0.090	-0.86487	11.8285
ROE	-0.86259	0.43177	-2.00	0.046	-1.70885	-0.01633
RGDP	0.20343	0.07285	2.79	0.005	0.06064	0.34622
UN	0.82068	0.06237	13.16	0.000	0.69842	0.94293
_cons	-36.6473	5.24435	-6.99	0.000	-46.9261	-26.3686
sigma_u	0					
sigma_e	1.3573689					
rho	0					

Source: Calculation by the author

By testing the first six sub-hypotheses, it can be concluded that the strongest causality, i.e., correlation with the growth rate of non-performing loans was recorded by the following variables: provisions for non-performing loans (0.000), unemployment rate (0.000), return on equity (0.04) and real GDP growth rate (0.005). The obtained results lead to the conclusion that the null hypothesis was rejected and the alternative hypothesis was accepted. Independent variables: capital adequacy ratio and return on asset do not have a significant impact on the growth rate of non-performing loans of the banking sector in Bosnia and Herzegovina. Therefore, in the first and third sub-hypotheses, the null hypothesis was accepted and the alternative hypothesis was rejected. The previous table also shows a positive correlation between the real growth rate of GDP and NPLs. This is typical for countries that have a changing and volatile trend of economic activity such as Bosnia and Herzegovina. In many studies, the relationship between GDP and NPLs is inversely related. The primary cause of high levels of non-performing loans is slow economic activity, as evidenced by statistically significant and economically high GDP ratios, unemployment, and inflation rates (Škarica, 2014).

The results from Table 6 showed that generalized least squares regression (GLS) better describes the impact of independent variables on the growth rate of non-performing loans. The strongest positive impact on the dependent variable (NPLs) was achieved by the following independent variables: pro-

visions for non-performing loans (0.186) at a significance of 0.000, then unemployment rate (0.829) at a significance of 0.000 and real GDP growth rate (0.224) at a significance of 0.004. On the other hand, the variable return on equity (-0.848) had the weakest impact on NPLs. In terms of testing the first six sub-hypotheses, the obtained results are the same as in the fixed effects model with the only difference being the better prediction of the real GDP growth rate variable. Banks use provisions for loan losses in order to cover various types of credit losses such as non-performing loans. A minimal part of them is spent on problem loans since banks have a significant part of NPLs every year. Higher provisions for loan losses are an indicator of management inefficiency and are often positively associated with actual losses. Banks with poor credit quality face higher risk in their loan portfolios which affects the higher growth of NPLs (Beck et al., 2015). In the banking sector of Bosnia and Herzegovina, the highest provisions for non-performing loans were recorded in the second quarter of 2020 (80.4%), while the lowest provisions were achieved in the first quarter of 2010 (32.7%).

Table 6. Random Effect Regression (GLS) Between Dependent and Independent Variables of the banking sector of B&H for the period: 2008: Q1 - 2020: Q4

				Number of obs = 52		
				Number of groups = 4		
				Obs per group	min = 13	
R – sq	within =0.8927				avg =13.0	
	between=0.0047				max = 13	
	overall= 0.8827			Wald chi2(6) = 338.59		
				Prob>chi2= 0.0000		
	Coef.	**Std. Err.**	**t**	**P>|t|**	**|95% Conf.Interval|**	
CAR	0.21695	0.2755	0.79	0.435	-0.33906	0.77298
PNPLs	0.18652	0.02679	6.96	0.000	0.13245	0.24059
ROA	5.06258	3.29965	1.53	0.132	-1.59638	11.7215
ROE	-0.84862	0.43444	-1.95	0.057	-1.72536	0.02811
RGDP	0.22460	0.07305	3.07	0.004	0.07716	0.37203
UN	0.82993	0.06188	13.41	0.000	0.705042	0.95483
_cons	-37.8172	5.20547	-7.26	0.000	-48.322	-27.3122
sigma_u	0.47836					
sigma_e	1.35736					
rho	0.11047					

Source: Calculation by the author

Table 7. Results obtained using the Hausman test

	(b) fixed	**B(random)**	**(b-B) Difference**	**Sqrt(diag(V_b-V_B)) S.E.**
CAR	0.1909154	0.2169578	–0.0260425	0.0416436
PNPLs	0.1763201	0.186521	–0.0102009	–
ROA	5.481828	5.062588	0.4192401	–
ROE	–0.8625951	–0.8486258	–0.0139693	–
RGDP	0.2034354	0.2246002	–0.0211648	–
UN	0.8206826	0.8299389	–0.0092564	0.0077876

Source: Calculation by the author

$$\chi^2(6) = (b–B)'[(V_b-V_B)^{-1}(b-B) = 3.34; \text{Prob} > \chi^2 = 0.7651$$

The results of the Hausman test showed that the value of Pro > χ^2 = 0.7651 is greater than 5%, i.e., that the random effect model (GLS) gives greater significance than the regression of the fixed effect.

6. CONCLUSION

There are a large number of empirical studies that emphasize the issue of non-performing loans since the increase in non-performing loans has been particularly monitored in terms of weakened economic activity and financial crises. Determining the percentage increase in non-performing loans in banking systems is of capital importance in order to maintain the financial and creditworthiness of banks. Weakened economic activity and the global financial crisis have re-emphasized the importance of the banking system in most advanced economies as well as emerging market economies. In recent years, banking systems have had certain structural weaknesses that manifest in the form of non-performing loans, moral hazards, poor governance, etc. These problems can weaken the banking system and overall financial stability. In this regard, the solution to these problems is necessary for sustainable economic development, good economic performance, job creation, and overall financial stability. If certain measures and activities are not taken to reduce the given structural problems, potential risks in the banking system can cause a decline in economic growth, rising unemployment, and possibly a banking crisis.

This paper tests the impact of internal (specific) and external (macroeconomic) variables on the growth rate of non-performing loans of banks in Bosnia and Herzegovina in the sample of the total banking sector, which makes 52 observations during the period: 2008 - 2020. The study used the effects of independent variables on the dependent variable using the unified OLS regression model (FE), and the GLS random effects regression model using the Hausman test. The following variables had the most significant impact through the OLS and GLS regression models: unemployment rate, provisions to non-performing loans, and real GDP growth rate. Therefore, the findings of this study indicate that the following sub-hypotheses were confirmed within the null hypothesis: the first, third, and fourth sub-hypotheses, and the second, fifth, and sixth sub-hypotheses were rejected. In contrast to the null hypothesis, the following sub-hypotheses were confirmed in the alternative hypothesis: the second, fifth and sixth. The following variables had the strongest impact on the NPLs variable: unemployment rate, provisions to non-performing loans, and real GDP growth rate.

Several determinants of non-performing loans can be used for future research. Many other macroeconomic and banking indicators can influence the development of non-performing loans. The strength of the financial system, proper regulation, and monetary policy should also be considered as one of the variables of non-performing loans. Therefore, a larger set of data on bank operations as well as a larger number of determinants that would be included in the model would give a better understanding of the impact of internal and external factors on non-performing loans. The author's new research on this issue can certainly be expanded depending on the choice and inclusion of a large number of independent variables.

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Review Paper

BANKING MARKETING PRACTICES DURING THE COVID-19 PANDEMIC: A SYSTEMATIC LITERATURE REVIEW

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Abstract: *The emergence of the COVID-19 pandemic in early 2020 has left a mark in every industry and every sector globally. Its impact has been largely researched, measured, and evaluated. Current banking literature mainly focuses on the impact of COVID-19 on banks' performance, efficiency, or profitability. However, studies on the impact of COVID-19 on banking marketing are limited. Therefore, this systematic review has the objective to fill in this gap and investigate the impact of COVID-19 on banking marketing practices. A systematic search of the online Scopus scientific database has been conducted, with no restrictions to language, date of publication, or study design. The keywords „BANK", „MARKETING" and „COVID-19" have led to 20 papers published in Scopus-indexed journals. A total of 9 academic literature articles regarding banking marketing during the COVID-19 pandemic were identified and analyzed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) principles. The findings of a total of 9 papers are presented in a narrative synthesis. The review aims to gain new insights into the impact of COVID-19 on the banking industry and especially on banking marketing. The main goal of this paper is to identify all the relevant published studies in this area thus far, as well as to present and analyze the findings regarding the impact of COVID-19 on banking marketing practices. Finally, specific literature gaps are identified, and suggestions and guidelines for future work are provided. However, there is a need for further studies at a later stage to understand the overall effect the COVID-19 pandemic had on banking marketing.*

Keywords: *Bank, Marketing, COVID-19, Review, Banking sector.*

JEL Classification E59 · M31

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1. INTRODUCTION

In 2020, the world faced one of the most challenging crises in its history, namely the COVID-19 pandemic. This resulted in an unprecedented stop in global economic activity and a global economic shock, contraction, and disruptions in economic and social activities. The COVID-19 pandemic impacted all industries and economic sectors as well as people's lives, lifestyles, and habits. Moreover, it impacted the marketing practices and PR in many industries.

This study surveys all the relevant papers regarding banking marketing practices during the COVID-19 pandemic. The conducted systematic literature review on the impact of COVID-19 on bank marketing has followed the PRISMA guidelines. Therefore, a search has been initiated with the keywords „BANK", „MARKETING" and „COVID-19".

Its main objective is to survey the globally significant scientific database Scopus in search of papers exploring the impact of COVID-19 on bank marketing practices. The main contribution of this paper is in the notion that current literature mainly focuses on the impact of COVID-19 on a bank's performance, efficiency, or profitability. However, studies on the impact of COVID-19 on banking marketing are limited. Therefore, this study would provide new insights regarding the effect of COVID-19 on banks' marketing practices and would summarize past findings in this area that would be beneficial to many bank stakeholders and marketers.

This study is structured as follows. In the second section, theoretical background on bank marketing and the impact of COVID-19 on the banking industry is given. Section 3 presents the research approach used for this study, whereas Section 4 presents the results from the systematic literature review and summarizes past findings in a narrative synthesis. Section 5 opens a discussion and concludes the paper.

2. LITERATURE REVIEW

2.1. Bank Marketing

The development of bank marketing started in the early 2000s and it has been evolving ever since, beginning with public relations (PR) as a primary focus, shifting afterward to advertising and sales promotion, followed by the development of a sales culture and ending with all elements of the marketing concept (from customer satisfaction, profit integrated framework, and social responsibility) being equally vital and represented (Kumar, 2013). In banking, the interaction between the client and the seller (bank) is based on self-reliance and trust, and it is indeed a specific relationship. Moreover, e-banking provides opportunities for new and rapid changes in the marketing of financial services. However, the vital question that arises is whether e-banking can be considered and used as a marketing tool for banks and other financial institutions (Nso, 2018).

Bank marketing represents a set of bank operations that are primarily focused on financial markets' research to meet the needs of existing and potential clients on one hand, and the realization of the business objectives of the bank, on the other hand. In the challenging pandemic times, bank marketing has focused on novel and improved opportunities for existing and potential clients and additional digitalization of your business (Fotova Čiković, 2020). Chen (1999) defines bank marketing as „the willingness and skill to work effectively with others and goal setting implies the need for goal achievement". According to Turkes (2010), bank marketing is also called marketing

for services or intangible goods. The specificity of the banking services and products is mirrored in their complexity and the low understanding by most consumers.

According to Guzovski et al. (2022), the specificity of banking marketing is that it "arises from (un)attractiveness and undesirability and is a special challenge in approaching and orienting to the client and designing marketing strategies for positioning, differentiation, recognition, and image creation in the market of financial products and services". They furthermore claim that the main strategy to achieve long-term prosperity and competitive advantage is by approaching each client with a developed marketing mix strategy with added value for the client.

2.2. COVID-19 and the Banking Industry

The global coronavirus pandemic has completely changed the world in 2020. It has "pushed all economic sectors into a complex and unpredictable situation", challenging most of them to identify or create new business opportunities in domestic and international markets (Almaslukh et al., 2022). Moreover, it has shifted the world towards internet banking "with the purpose to continue routine transactions for paying bills, purchasing groceries, and shopping of brands" (Naeem & Ozuem, 2021).

Financial and banking industries faced business uncertainty due to the COVID-19 pandemic (Wongsansukcharoen, 2022). The COVID-19 pandemic influenced "an unprecedented stop in global economic activity but has represented an unusual crisis for the banking system", due to the modest bank losses as the lending experienced strong (Ikeda et al., 2021). Moreover, the introduction of epidemiological measures globally „led to a sudden stagnation of economic and social activities and consequently, a sharp decline in the gross domestic product" (Fotova Čiković et al., 2022). Furthermore, the COVID-19 pandemic has caused "a global economic shock, contraction, and disruptions in economic and social activities", a noticeable deterioration of the economic climate, which eventually led to a "significant increase of the overall exposure of the financial system and a systemic risk to the stability of the global financial system" (Fotova Čiković et al., 2022; Hladika, 2021).

In terms of the banking sector, the direct effects of COVID-19 were the reduction of the scale of social financing, the exacerbation of the vulnerability of financial institutions, the increase of the operational risk of banks, and the decrease of their profitability (Yan & Jia, 2022). In these challenging times, banking marketers need to adapt and extend communication with potential and existing customers, while the banking industry as a whole must find a way to deliver financial products and solutions that users can rely on, while many physical locations are temporarily closed (Fotova Čiković, 2020).

The COVID-19 pandemic „created an opportunity" for many countries to digitalize their economies faster in many industries, especially the banking industry (Ngo et al., 2023). Moreover, the COVID-19 pandemic has transformed banking customers' preferences, "thereby forcing banks to change their business models, e.g. depending more heavily on digitalization" (Alharthi et al., 2021). The demand for banking products and services was "significantly reduced" during the COVID-19 pandemic, and studies show that, in the case of Croatia, "an increase of expected credit losses in certain banks occurred", and the profitability of the overall banking sector "significantly decreased due to lower level of revenues and a higher level of provisions for non-performing loans" (Hladika, 2021).

Moreover, the study by Tonković Pražić (2022) showed that the pandemic affected many aspects of consumer life and behavior, including the way they use banking services and their banking

preferences, as consumers showed "a greater propensity to use mobile and online banking services than before the pandemic".

After the initial changes in behavior related to stockpiling of essential products, the long-term pandemic and the lockdown have influenced changes in behavior related to the increased use of online food and other product delivery services by using online banking services (Hladika, 2021).

Yan and Jia (2022) claim that the COVID-19 pandemic has pushed many traditional bank clients to the fintech sector, which "acts as a competitor to the banking sector". However, they believe the impact of COVID-19 on these two sectors will diminish over time. But the increased competition, strategies used and lessons learned in the COVID-19 pandemic would help bank marketers to develop sustainable marketing strategies for the future.

3. RESEARCH METHODOLOGY

The research approach used in this study is a systematic literature review (SLR) in compliance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines and recommendations for systematic review reporting from 2009. After reviewing the PRISMA guidelines, this systematic literature review has been divided into four phases, as shown in Figure 1: identification, screening, eligibility, and inclusion.

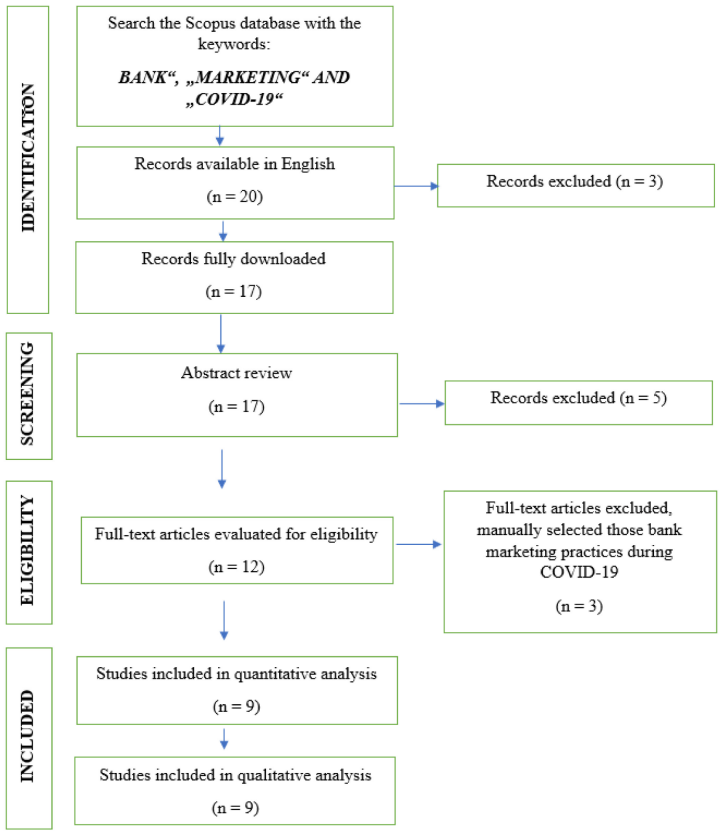

Figure 1. The PRISMA-compliant research approach to systematic literature review (SLR)
Source: Author's work

In the first phase (identification), a survey of the Scopus database has been conducted in search of published papers and studies regarding banking marketing during the COVID-19 pandemic. Therefore, three keywords have been applied to the search as follows „BANK“, „MARKETING“ and „COVID-19“, with no restriction to the date of publication or the design study. This resulted in a total of 20 hits, out of which only 17 were fully downloadable and entered the second phase (screening).

The screening phase included abstract screening and review and five papers have been excluded due to their irrelevance and low connection to the subject review. The third phase of eligibility includes full-text screening and evaluation of eligibility for further quantitative and qualitative analysis. In this phase, three papers were excluded, which left a total of nine papers that have been identified as relevant in the last, inclusion phase. In this phase, a more detailed quantitative and qualitative analysis of these nine papers has been conducted.

4. RESEARCH RESULTS: SURVEYED PAPERS

In this section, the surveyed relevant nine papers are qualitatively analyzed and presented in detail. Moreover, the findings of these studies are also elaborated together with the insights they have gained. In Table 1, the authors, year of publication, and the titles of these nine papers have been stated, and an in-detail presentation has been given thereafter.

Table 1. Authors, year of publication, and title of the surveyed papers

Author/s and year of publication	Title of the paper
Ngo et al. (2023)	*Factors Influencing the Consumer Adoption of Digital Banking Services During the COVID-19 Pandemic in Vietnam*
Almaslukh et al. (2022)	*The Impact of Internal Marketing Practices on Employees' Job Satisfaction during the COVID-19 Pandemic: The Case of the Saudi Arabian Banking Sector*
Nugraha et al. (2022)	*Factors Influencing Bank Customers' Orientations toward Islamic Banks: Indonesian Banking Perspective*
Farrag et al. (2022)	*Influence of category attitudes on the relationship between SERVQUAL and satisfaction in Islamic banks; the role of disruptive societal-level events*
Hilal and Tantawy (2022)	*Entrepreneurial marketing and bank performance in Egypt: is environmental turbulence a missing link?*
Wongsansukcharoen (2022)	*Effect of community relationship management, relationship marketing orientation, customer engagement, and brand trust on brand loyalty: The case of a commercial bank in Thailand*
Naeem and Ozuem (2021)	*The role of social media in internet banking transition during COVID-19 pandemic: Using multiple methods and sources in qualitative research*
Jegerson and Ahmad (2021)	*National bank of Fujairah's digital platform "NBF Connect"*
Alharthi et al. (2021)	*Satisfaction of Pakistan's Islamic banking system during the COVID-19 pandemic Logistic model-based identification of the determinants to improve customer*

Source: Author's work

Ngo et al. (2023) focus on the main determinants impacting the digital banking service adoption of Vietnamese people during the COVID-19 pandemic. For this reason, they have conducted an online survey on a sample of 513 respondents during the fourth pandemic wave in order to discover whether people would transfer to digital banking services as a means of staying safe and put. Their study showed five key determinants that impact the "adoption of digital banking services in Vietnam in the

context of COVID-19 spreading, as follow: banking service safety, online shopping preference, recommendation, bank marketing and acceptant of perceived risk". Their main findings reveal that people in Vietnam are willing to adopt digital banking services in order to stay safe and continue to use online shopping. This study contributes greatly not only to the scientific community but to bank management and it gives new insights into consumer behaviors in crises such as the COVID-19 pandemic.

Almaslukh et al. (2022) investigated the impact of internal marketing practices on employees' job satisfaction in the Saudi Arabian banking sector during the COVID-19 pandemic. Moreover, they developed and tested a conceptual model that "integrates the relationships among internal marketing dimensions (i.e., supportive and participative leadership, training and development, information and communication, and the selection and appointment) and job satisfaction in the banking sector of Saudi Arabia". Their sample consisted of 329 employees working in various private and public banks in Riyadh, Saudi Arabia. The overall results showed the "significant and positive effects of supportive and participative leadership, training and development, information and communication, and the selection and appointment on employees' job satisfaction". Moreover, they found that "a supportive leadership style positively impacts employees' job satisfaction". The greatest contribution of their paper is the development of a theoretical model to investigate the direct relationships between internal marketing practices and employees' job satisfaction, as well as an emphasis on the importance of internal marketing practices in banking.

Nugraha et al. (2022) have examined the factors that prevent consumers from becoming clients of Islamic banks, "in particular the factors that influence consumer decisions not to become Sharia bank customers" for Indonesian Muslim consumers. This is a rather interesting study, especially considering it revolves around Islamic banking and the lack of such empirical research makes it a very contributional study for both practitioners and academics. In this empirical research, they applied descriptive qualitative methods and in-depth interviews to confirm and obtain input from industry representatives regarding Islamic banks, whereas the purposive sampling technique was implemented for primary data collection. They found that there is a "passive resistance of consumers to become customers of Islamic banks" in Indonesia. Moreover, they found obstacles and so-called blocking effects for potential customers of Islamic banks such as "the perception of risk, image, and weak marketing reach".

Farrag et al. (2022) investigate the influence of category attitudes on the relationship between the service quality scale (SERVQUAL) and satisfaction in Islamic banks and focus in particular on the role of disruptive societal-level events. For this purpose, they interviewed focus groups consisting of managers of Islamic banks and applied exploratory factor analysis and CFA to test the validity of the developed scales and questionnaires. Their findings reveal that devotion to customers can be harmed by societal-level disruptive events, which makes it difficult to gain high satisfaction even with superior customer service. They furthermore tackle the impact of COVID-19 on Islamic banking, taking the COVID-19 pandemic as a large societal disruptor. Moreover, they claim that the walk-in banking services "will be in turmoil and highly salient" and brand managers "need to develop creative ways to strengthen not just brand attitudes but also to re-stabilize category attitudes".

Hilal and Tantawy (2022) tackle the interrelatedness of entrepreneurial marketing (EM) and bank performance in Egypt during the COVID-19 pandemic, adding environmental turbulence (ET) to the thus far relatively stable environmental situation. Their sample consisted of 358 employees from 20 banks, and the data collection methods used were online surveys and self-administered questionnaires. Their findings indicate that "EM and bank performance are positively related", and "ET and technological turbulence positively moderates this relationship, i.e. this relation-

ship is more robust in highly turbulent business environments than in more stable environments". Their study contributes greatly to the scholarly literature since it adds the environmental turbulence in the form of COVID-19 into the research.

Wongsansukcharoen (2022) investigated the impact of community relationship management (CoRM), relationship marketing orientation (RMO), customer engagement (CE), and brand trust (BT) on brand loyalty (BL) in the case of one commercial bank in Thailand. They apply SEM (structural equation modeling) to identify variables impacting the brand loyalty of a Thai commercial bank on a sample of 1650 bank customers. The obtained results show that "CoRM and RMO's key success factors indirectly affected BL by mediating CE and BT". They furthermore explore "modern business approaches such as community relationship management (CoRM) and relationship marketing orientation (RMO) and consider CE as an essential element". The main contribution of this paper is that it investigates the impact of CoRM, RMO, CE, and BT on BL, within a commercial bank context, which has not been thus far decidedly analyzed, and the context of the COVID-19 pandemic has been tackled as well.

Naeem and Ozuem (2021) explored the role of social media in the internet banking transition during the COVID-19 pandemic. Moreover, they explored how the COVID-19 pandemic impacted the social practices of internet banking and tackled the different customers' challenges in internet banking. For conducting this study, multiple qualitative research methods: Gibbs reflection cycle, semi-structured interviews with internet banking users, and focus group interviews with executives of public and private sector banks were conducted. Their findings reveal the crucial part of social media technology as it is considered "interactive, collaborative, and integrated into nature; therefore, customers are more engaged and informed compared to the past". More importantly, the results give new insights into the "understanding of collective and individual meanings extracted from information shared through social media which shifted people's behavior toward a cashless society during the COVID-19 pandemic". Their study contributes greatly to both the social practice theory and affordance of technology theory since it merges them when it comes to internet banking. The study offers "a framework of social practices of internet banking adoption". Additionally, their study provides practical implications for many bank stakeholders, especially for marketers and system developers of retail banks.

Jegerson and Ahmad (2021) have conducted a case study for practical use in order to assess the success of the launching of the new digital platform for SMEs in the United Arab Emirates (UAE) titled "NBF Connect". The main goal of this paper is to emphasize the importance of digitalization and redefining banking services and operations for the SME sector. This case study "looks at managers' journey as NBF refined and evolved its SME banking platform, including developing and positioning the digital platform in the market, identifying competitive advantages, and developing the right commercial strategy to monetize NBF's investment in the digital platform's development".

Alharthi et al. (2021) have investigated the state of Pakistan's Islamic banking system during the COVID-19 pandemic and predominantly focused on the potential determinants of customers' satisfaction with Islamic banking. In their empirical study, they gathered data from six Islamic banks in Pakistan and applied a binary logit methodology. Their findings reveal that „internal factors such as hand sanitisation facilities, strict compliance with wearing a mask before entering the bank, the distance between customers and dealing officers, an organised network of branches (in terms of health safety protocols), the behaviour of dealing officers and extended banking hours contributed significantly to enhancing the satisfaction with Islamic banking customers during the pandemic in Pakistan". However, high service charges on loans appeared to have adverse impact

on customer satisfaction. Concerning the external factors affecting the customer satisfaction, the "mass media platforms that inform customers about new services and customer transactions' processing timing, the number of operational branches in the pandemic period, available parking space in front of a bank and recommendations from family and friends to open an account with a particular bank" impact positively and significantly the customer satisfaction levels in the sample.

5. DISCUSSION AND CONCLUSION

Banks are one of the most vital financial institutions and financial intermediaries, especially in underdeveloped and developing countries with underdeveloped financial systems. Thus, the subject of bank marketing is appealing to many bank stakeholders as well as marketing professionals. In 2020, bank marketers faced one of the greatest challenges ever since the inception and development of bank marketing, i.e. the COVID-19 pandemic. Other than impacting banks' profitability and increasing global instability, COVID-19 has made bank marketers adapt more easily and become more flexible. Some of the lessons learned from the pandemic are presented in the findings of this review.

Therefore, the main goal of this study is to present the impact of COVID-19 on banking marketing practices. For this reason, a systematic literature review compliant with the PRISMA guidelines has been conducted, starting with an exploration of the online Scopus scientific database with no restrictions to language, date of publication, or study design. The keywords „BANK", „MARKETING" and „COVID-19" have led to 20 papers published in Scopus-indexed journals. A total of 9 academic literature articles regarding banking marketing during the COVID-19 pandemic were identified and later on in detail presented together with their findings.

The findings reveal interesting new insights that would bring benefit to policymakers, government officials as well as bank management, and especially banking marketers. However, this systematic literature review and its applied methodology could also bring new insights to scholars from different research areas, especially considering the very modest applications of the PRISMA guidelines in areas other than medicine.

All of these nine surveyed papers are published after the COVID-19 emergence (i.e. after 2020). Three of them have been published in 2021, most of them (five) in 2022, and one paper has been accepted for publication in 2023 (published online in July 2022). The most interesting finding from this systematic literature review is that no paper has been published regarding the European and/or American banking industry. Namely, as shown in Table 2, two studies revolve around Pakistan, three papers explore COVID-19's impact on Islamic Banking and other countries have been analyzed such as Vietnam, Saudi Arabia, Egypt, UAE, and Thailand. However, no paper has been published in regard to the developing and developed countries from Europe or the developed world.

Many issues have thus far been explored, such as the potential determinants of customers' satisfaction with Islamic banking (Alharthi et al., 2021); an assessment of the success of the launching of the new bank digital platform for SMEs (Jegerson & Ahmad, 2021); the role of social media in the internet banking transition during the COVID-19 pandemic (Naeem & Ozuem, 2021); the impact of community relationship management (CoRM), relationship marketing orientation (RMO), customer engagement (CE), and brand trust (BT) on brand loyalty (BL) in a commercial bank (Wongsansukcharoen, 2022); the interrelatedness of entrepreneurial marketing (EM) and bank performance (Hilal & Tantawy, 2022); the influence of category attitudes on the relationship between the service quality scale (SERVQUAL) and satisfaction in Islamic banks (Farrag et al., 2022); the factors that prevent consumers from becoming clients of Islamic banks (Nugraha et

al., 2022); the impact of internal marketing practices on employees' job satisfaction (Almaslukh et al., 2022) and the main determinants impacting the digital banking service adoption during the COVID-19 pandemic (Ngo et al., 2023).

Table 2. Analyzed countries in the surveyed papers

Author/s and year of publication	Country
Ngo et al. (2023)	Vietnam
Almaslukh et al. (2022)	Saudi Arabia
Nugraha et al. (2022)	Indonesia (Islamic Banking)
Farrag et al. (2022)	Islamic Banking
Hilal and Tantawy (2022)	Egypt
Wongsansukcharoen (2022)	Thailand
Naeem and Ozuem (2021)	Pakistan
Jegerson and Ahmad (2021)	United Arab Emirates (UAE)
Alharthi et al. (2021)	Pakistan (Islamic Banking)

Source: Author's work

However, many issues and perspectives regarding bank marketing practices during the COVID-19 pandemic have been left untackled. Therefore, this study sheds light on the explored aspects of bank marketing, thus highlighting the aspects that need to be explored in the future.

This study, however, is not without limitations. First and foremost, the only database that has been surveyed is the Scopus database. Even though Scopus is one of the currently most popular and relevant scientific databases globally, there still is a possibility that other relevant papers have been published and have been indexed in other scientific databases, but have not been presented in this review. Secondly, this study revolves only around the impact of COVID-19 on bank marketing and does not involve other bank operations. Finally, a repetition of this study in a few years is recommended, in order to detect any future guidelines and perspectives regarding banking marketing during crises such as the COVID-19 pandemic.

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Original Scientific Article

INNOVATION CAPACITIES AS THE KEY TO SURVIVAL – A CASE STUDY IN SERBIA

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Abstract: *The innovation of companies is of vital importance because it allows them to penetrate markets and provides better connections with emerging markets, which can lead to greater opportunities. Measuring innovation is an important activity both for theoretical and practical tests. This paper presents research on the innovation capacities of small and medium enterprises in Serbia according to the model consisting of 21 dimensions. The observed sample consists of 106 companies, of different sizes, whose activities are grouped into production and service activities. Similarities and differences in the innovative capacities of companies concerning their activity and in relation to their size were analyzed. The results of the research indicate the main problems that small and medium-sized enterprises are facing in order to improve their innovative capacities such as the market horizon, inadequate management systems, short-term planning, and insufficient connectivity with partners and academia.*

Keywords: *Innovation, Innovation capacities, Attitude towards change.*

JEL Classification O33 · L16

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1. INTRODUCTION

Innovation can be seen as a management process with the systematic exploitation of new ideas in an effort to survive in the market and achieve competitive advantages. Since innovation has become a condition for survival in an extremely competitive market, several tools have been developed that companies can use to assess the current state of innovation capacity, for comparison purposes, and to plan necessary changes.

This paper presents the results of the research on the innovation capacities of small and medium companies in Serbia. The main objective of the research was to determine up to which level the innovation capacities of Serbian companies were developed and to reveal the main problems that companies face in order to encourage innovation. Concerning the determinants defined in previous studies, it was assumed that the capacities for innovation development were different in production and non-production activities, and **hypothesis one** was investigated: *there are differences between the levels of innovation capacity in production and service companies*.

Innovation implies constant changes. These changes require different tasks and resources in productive and non-productive activities, which was investigated by proving **hypothesis two**: *the attitude towards change depends on the company's size and activity - production or service*.

In order to determine the companies' innovation capacity level, the specialized diagnostic tool was used to define the innovation management aspects related to innovation capacity.

The research results showed that, when it comes to innovation capacity, there are differences between companies in Serbia, and that these differences are conditioned by the size of the company and the activity the company is engaged in. The main contribution of this research is to provide guidelines for the companies' innovation capacity improvement. At the beginning of the paper, the theoretical framework is given, in order to provide insight into the importance of innovation for overall national economic growth, as well as to indicate the determinants of the innovation capacity measurement. In the continuation, the research methodology is explained. Further, the results of the empirical research are presented, including the sample description, followed by the discussion and conclusion.

2. THEORETICAL FRAMEWORK

"In the economic sense, innovation consists of scientific, technical, commercial and financial steps necessary for the successful development of new or improved products, processes or services" (Neely & Hii, 2014, p. 48). Innovation encompasses three broad dimensions: (i) "the renewal and enlargement of the range of products and services and the associated markets"; (ii) "the establishment of new methods of production, supply and distribution"; and (iii) "the introduction of changes in management, work organization, and the working conditions and skills of the workforce" (Neely & Hii, 2014, p. 49). It has been stated that "research is the transformation of money into knowledge, innovation is the transformation of knowledge into money" (Schramm, 2017, p. 5). Different studies have shown that innovativeness enables companies to "improve performance, increasing exports, generating a competitive advantage, and/or contributing to business growth" (Sancho-Zamora et al., 2021, p. 4).

A company's capacity to produce innovation can be seen "as the potential of that firm to generate innovative output" (Neely & Hii, 2014, p 47). The innovation capacity has been defined as the propen-

sity of a company to spot new developments and technologies and use this knowledge and information. A company's innovative capacity is considered to be "a critical factor in the evolution and survival in the current changing environment" (Silva, 2021, p. 395). Other definitions refer to innovation as the "ability to continuously transform knowledge and ideas into new products, processes, and systems for the benefit of the company and its stakeholders" (Silva, 2021, p. 395). Further, regarding the market demands, it is considered that "innovation capacity is a company's capability to progress its resources and take advantage of opportunities to better satisfy customer needs (Mogashoa & Selebi, 2021, p. 3). Innovation capacity is, at that point, "the capacity of an undertaking to effectively actualize and apply new plans to items, administrations, and procedures" (Idewele et al., 2021, p. 2645).

Since the contemporary economy includes the globalization of innovation, production, and trade, innovation has become the essential source of competitive advantage for companies, providing better connections with emerging markets, and for national economies as well. In every society, especially in developing countries, the implementation of innovation in entrepreneurship is considered a precondition for social, cultural, and economic development. "The ability of the national economy to create and to valorize innovations on the market represents its national innovation capacity, which is at the same time a key determinant of countries' economic progress" (Cvetanović et al., 2021, pp. 297). A national innovative capacity is "the ability of a country to produce and commercialize a flow of innovative technology over the long term" (Andrijauskiene et al., 2021, p. 2). Therefore, it is important to establish a valid tool for measuring the innovation capacity of companies, in order to determine the advantages and flaws of innovation management, so it can be improved by developing new management strategies in accordance with national innovation policies.

Measuring innovative capacity provides "important insights on the dynamics of any economic activity, nation or geographical area" (Lukjanska, 2010, p. 43). Despite the importance of innovation capacity, there is no consensus in the literature on its determinants or its measurement. Based on one study analysis and supported by later studies, these seven determinants of the innovation capacity were generated: "transformative leadership, strategic intention to innovate, weight management for innovation, customer and market knowledge, strategic technology management, organizational structure, project management and innovation performance" (Silva, 2021, p. 397). According to another study, the other seven elements of the innovation capability were defined: "capabilities for knowledge exploitation, entrepreneurial capabilities, risk management capabilities, networking capabilities, development capabilities, change management capabilities, and market and customer knowledge capabilities (Mogashoa & Selebi, 2021, p. 4). "A systematic approach to innovation could guide the organization in a better way to identify gaps in its innovation capacity by estimating and evaluating the results of innovation" (Silva, 2021, p. 391).

The results of the previous studies have shown that "innovation management methods affect the innovation capacity of companies, obtained in different contexts, industries and company sizes" (Silva, 2021, p. 391), and demonstrated, as well, the existence of "the relationship between innovation capacity and financial performance" of a company (Walter et al., 2021, p. 2).

3. RESEARCH METHODOLOGY

In order to shed light on the innovative capacities of companies in Serbia, empirical research based on the INNOVATE tool was conducted in 2021. INNOVATE is a diagnostic tool for innovative capacities that was created with the support of the ICIP and SECEP projects funded by the European Union. This tool applies to companies of all sizes and stages of development, including micro-enterprises and start-ups. INNOVATE tool gives information about how successful a com-

pany is in managing twenty-one aspects, or "dimensions", of innovation management, by comparing its existing practices to one of four pre-defined statements. Answers were simply entered through a series of pre-defined "drop-down menus". The following dimensions of innovative capacities were observed: Innovation strategy, Management of ideas, Attitude towards change, Product development cycle, Application of technology, Intellectual property rights, Database of clients and products, Market horizon, Expectations regarding the growth of the company, Market awareness and perception, Planning, Decision making, Management systems and information technology (IT), Acceptance of external advice, Internal investment in innovation, Financing growth, Qualifications of employees, Training of employees, Relationships with the academic environment, Business networking, and Reputation. The assessment was carried out on a scale from 1 to 4, where 1 indicated the lowest level of the evaluated variable, and 4 the highest level.

For research purposes, the Google questionnaire based on the INNOVATE tool was constructed and sent to 150 companies in Serbia, selected by random choice. 106 companies responded to the request to participate in the research, and they were of various sizes and activities.

The innovation capacities of companies were analyzed in relation to the activity of the company - whether it is a production or service company, and the annual capital turnover. The data was processed with the IBM SPSS Statistics 25 software package.

The descriptive statistical methods were used to display mean values for 21 observed dimensions of innovation management.

Since the first goal of the research was to compare innovation capacities in production and service companies, a statistically Independent Samples t-Test was used to determine statistically significant differences between companies in regard to their activities. The second goal of the research was to determine whether the attitude towards change depends on the company's size and activity, and a two-way ANOVA statistical method was applied to analyze the impact of the company's activities and its annual capital turnover on the company's readiness for change.

The results were prepared in the SPSS and the MS EXCEL 2013 software.

4. Empirical research of innovative capacities of companies in Serbia

4.1. Sample description

The sample consisted of 106 companies engaged in production or service activities (Table 1), which differ in size in terms of the number of employees and the annual capital turnover (Table 2 and Table 3).

Table 1. The activity of companies - production or service

		Frequency	Percent	Valid Percent
Valid	**Production**	45	42,5	42,5
	Services	61	57,5	57,5
	Total	106	100,0	100,0

Source: Own elaboration

It can be seen that there are slightly more service companies in the sample, 57.5%, compared to 42.5% of production companies.

Table 2. The number of employees

Number of employees	Less than 10	10-49	50-249	250-700	More than 700	In total
Number	45	28	21	7	5	106
%	42.5	26.4	19.8	6.6	4.7	100.0

Source: Own elaboration

Most of the companies in the sample are those with less than 10 employees (42.5%).

Table 3. The annual capital turnover

Annual capital turnover (in 1000 EUR)	Less than 10	10-200	200-500	500-1000	More than 1000	In total
Number	11	22	32	12	29	106
%	10.4	20.10	30.2	11.3	27.4	100.0

Source: Own elaboration

The annual capital turnover in regard to the company's activity - production or service, is shown in Table 4 and Table 5.

Table 4. The annual capital turnover of production companies in EUR

Annual capital turnover[a]

Thousands Euro		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**Less than 10**	4	8,9	8,9	8,9
	10 - 200	7	15,6	15,6	24,4
	200 - 500	11	24,4	24,4	48,9
	500 – 1000	6	13,3	13,3	62,2
	More than 1.000	17	37,8	37,8	100,0
	Total	45	100,0	100,0	

[a] Activity = Production

Source: Own elaboration

Table 5. The annual capital turnover of services companies in EUR

Annual capital turnover[a]

Thousands Euro		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**Less than 10**	7	11,5	11,5	11,5
	10 - 200	15	24,6	24,6	36,1
	200 - 500	21	34,4	34,4	70,5
	500 – 1000	6	9,8	9,8	80,3
	More than 1.000	12	19,7	19,7	100,0
	Total	61	100,0	100,0	

[a] Activity = Services

Source: Own elaboration

It can be seen that the sample includes a slightly higher percentage of production companies with an annual turnover of over one million EUR (17%), compared to service companies (12%).

4.2. Research results

In order to test hypothesis one, the 21 dimensions of innovation capacities of production and service companies were observed, and the obtained results indicated the differences in the levels of innovation capacity in regard to the activity of the company(Figure 1). It is shown that there is a significant difference in innovative capacities between production companies and service companies.

On a scale from 1-4, the obtained mean values of the innovation capacities dimensions are in the range between values 2 and 3. The smallest differences in the levels of innovation capacities among production and service companies were obtained for the dimension "Attitude towards change", while the biggest was obtained for "Links with the academy".

The highest values of innovation capacity in production companies were obtained for "Market awareness", while in service companies for "Management of ideas".

The lowest values of innovation capacity in production companies were obtained for "Links with the academy", and in service companies for "Market horizon".

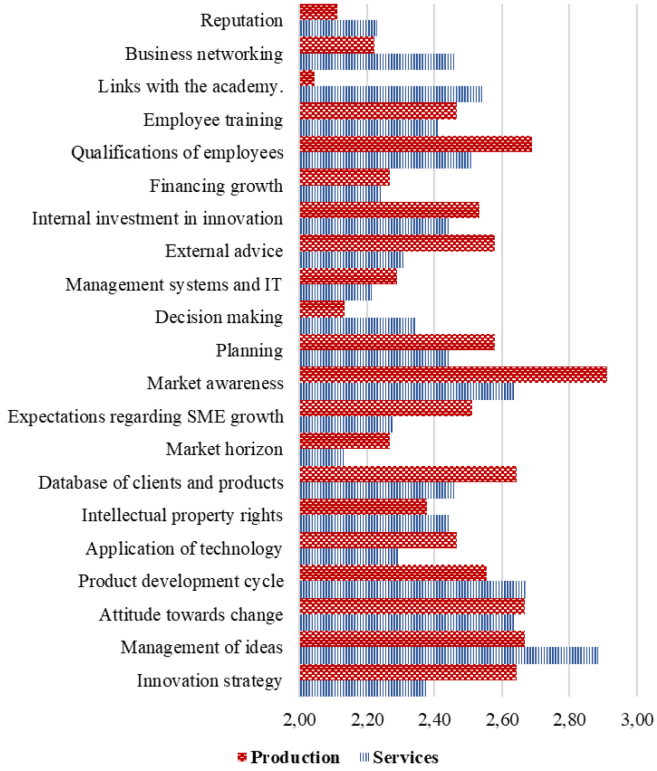

Figure 1. Innovation capacities of production and service companies
Source: Own elaboration

By applying the Independent Samples t-Test, the 21 dimensions of innovation capacities were observed in order to determine whether there is a statistically significant difference between companies engaged in production activities and companies engaged in service activities. Statistically

significant differences in favor of service companies were obtained for the "Links with the academy" innovation capacities dimension (Sig:=0.046<0.95), as shown in Table 6 and Table 7. Since the t-Test is very sensitive to variance differences, with Levene's Test for Equality of Variances showing that the condition of Equal variances was not met, the second row with adjusted values was observed for the case when Equal variances were not assumed.

Table 6. Independent Samples t-Test - Links with the academy

		Levene's Test for Equality of Variances		t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
		F	Sig.						Lower	Upper
Links with the academy	EVA	4,93	0,03	1,98	104	0,05	0,507	0,25	0,00	0,99
	EVNA			2,02	100,41	0,05	0,50	0,25	0,01	0,98

EVA-Equal variances assumed, EVNA-Equal variances not assumed

Source: Own elaboration

The obtained results showed that service companies are more open to collaboration with the academy than production companies, which is an important piece of information in the assessment of innovation and which confirmed hypothesis one, that there are differences in innovation capacities among companies in regard to the activities they are engaged in.

Table 7. Links with the academy - Descriptive

Activity		N	Mean	Std. Deviation	Std. Error Mean
Links with the academy	**Services**	61	2,54	1,336	0,171
	Production	45	2,04	1,186	0,177

Source: Own elaboration

In order to test hypothesis two, the statistical method of two-factor analysis of variance was applied. The company's attitude towards change was observed in relation to the company's activity - production or service, and the company's size, in terms of the annual capital turnover. Attitude towards change was considered as a dependent variable, and two independent variables - the company's activity and the annual capital turnover, as predictors. The obtained results showed that the annual capital turnover significantly affects the company's attitude towards change (Sig=0.019<0,05), while the company's activity (Sig.= 0.615) and the combination Activity * Turnover (Sig=0.761) do not affect the company's attitude towards change significantly (Table 8).

Furthermore, it was shown that the company's attitude towards change, for both production and service companies, depends on the company's size in relation to the annual capital turnover, but the activity the company is engaged in proved to be irrelevant for its openness to change.

The previous results (Figure 2 and Independent Samples t-test) showed that the company's activity, in terms of whether it is production or service, does not affect the propensity to change, and in the two-factor analysis of variance, it is shown that the combination of company activity and annual turnover does not affect the propensity to change, as well.

It was demonstrated that the company's attitude toward change depends on the company's annual capital turnover, Figure 2.

Table 8. Tests of Between-Subjects Effects, Dependent Variable: Attitude towards change

Tests of Between-Subjects Effects

Dependent Variable:	Attitude towards change							
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	11,971[a]	9	1,330	1,875	0,065	0,149	16,872	0,795
Intercept	630,219	1	630,219	888,231	0,000	0,902	888,231	1,000
Activity	0,180	1	0,180	0,254	0,615	0,003	0,254	0,079
Turnover	8,813	4	2,203	3,105	0,019	0,115	12,421	0,796
Activity * Turnover	2,161	4	0,540	0,761	0,553	0,031	3,046	0,237
Error	68,114	96	0,710					
Total	825,000	106						
Corrected Total	80,085	105						

R Squared = ,149 (Adjusted R Squared = ,070); Computed using alpha = ,05

Source: Own elaboration

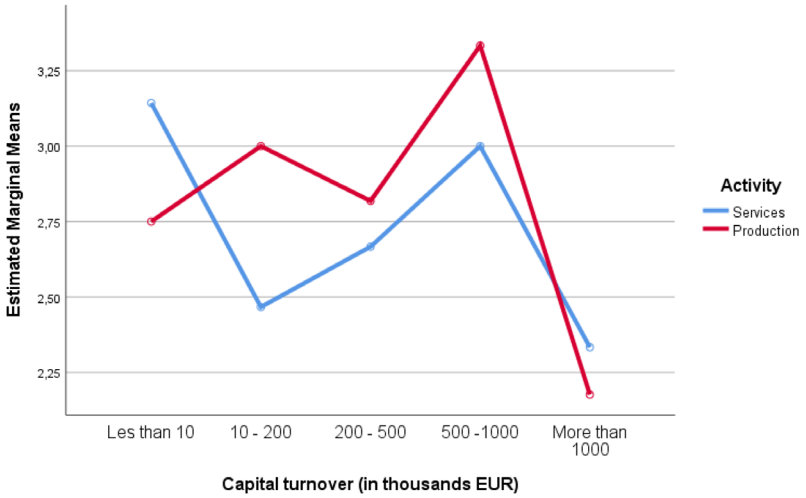

Figure 2. The attitude towards change depends on the annual capital turnover for production and service companies

Source: Own elaboration

The highest level of attitude toward change was obtained in production companies with an annual turnover of around one million Euros. For service companies, the highest readiness for change was obtained in companies with the lowest annual capital turnover. The surprising result is that production companies whose annual capital turnover is between 10 thousand and one million Euros are more open to change than service companies, as shown in Figure 2 and Table 9. For companies with an annual turnover of fewer than 10 thousand Euros, which are assumed to be beginners in business, service companies showed more readiness to change. It was also unexpected that the initial readiness to change service companies dropped significantly when the turnover of companies increased. The results showed that both service and production companies with higher annual capital turnover (over one million Euros) show the lowest level of attitude towards change.

According to the results, hypothesis two was only partially confirmed, since no significant dependence of attitude toward change was obtained in relation to the company's activity, but a significant dependence of attitude towards change was obtained concerning the company's turnover.

Table 9. Attitude towards change - Descriptive

Thousands Euro	N	Mean	Std. Dev.	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
< 10	11	3,00	0,775	0,234	2,48	3,52	2	4
10-200	22	2,64	0,848	0,181	2,26	3,01	1	4
200-500	32	2,72	0,888	0,157	2,40	3,04	1	4
500 - 1000	12	3,17	0,577	0,167	2,80	3,53	2	4
1000 <	29	2,24	0,872	0,162	1,91	2,57	1	4
Total	106	2,65	0,873	0,085	2,48	2,82	1	4

Source: Own elaboration

5. DISCUSSION

The research aimed to give a clearer and more complete answer to the question "Why do companies differ". The research results showed that, in general, production companies have the weakest innovative capacities related to connection with the academic community, reputation, and decision-making methods. The most developed proved to be innovative capacities related to market awareness, employee qualification, attitude towards change, product innovation cycle, management of ideas, and innovation strategy. In service companies, in general, the lowest level of innovation capacity was obtained for the market horizon, and the highest level of innovation capacity was obtained for idea management, market awareness, attitude towards change, and product development cycle. It was also demonstrated that the company's attitude towards change is not significantly affected by its activity, but that it is significantly dependent on the company's size, in regard to the annual capital turnover, and that the production companies with annual capital turnover lower than one million Euros are most open to change. Generally, it was shown that companies with a large annual capital turnover are less ready for change. These findings are in consent with the results of the previous studies that have shown that the innovation capacity depends on the company's size and activity (Silva, 2021, p. 391), as well as the company's financial scope (Walter et al., 2021, p. 2).

6. CONCLUSION

Most of the scientific research on the innovations of small and medium-sized enterprises has approached the topic in a general way, without a deeper analysis including the company's features. In this paper, the difference between the innovation capacities of companies, small and medium-sized, was observed concerning their activity - service or production, and size, in regard to the annual capital turnover.

The research results indicated that the levels of innovation capacities differ between companies engaged in production and companies engaged in services and that the most significant difference is related to the links with the academic environment, where service companies proved to have better collaboration with academia. It can be concluded that, in order to increase innovation capacity, production companies should improve their relations with academia.

When it comes to the attitude towards change, it was shown that the company's attitude towards change depends on the company's size in relation to the annual capital turnover, but the activity the company is engaged in proved to be irrelevant to its openness to change. The companies with high annual capital turnover showed the lowest level of attitude towards change. It can be concluded that to increase innovation capacity, companies with high annual capital turnover should be more open to change.

It is to be stated that there were some limitations of the research, first of all regarding the research sample, since not all of the contracted companies agreed to participate in the research. This should be taken into account for future research. The contribution of this research should be observed primarily regarding the innovation capacity improvement strategies in accordance with the national innovation policies. Due to the importance of innovations for the development of a country, national development strategies must take into account and support companies' development, in order to improve the national economy. Future research on innovations should examine the structure of the company's activities in more detail, to shed light on the aspects important for improving the innovation of specific activities.

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Review Paper

SPORT MANAGEMENT MATURITY ASSESSMENT: APPLICATION TO COSMA COMPETENCIES SCALE

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Abstract: *The results of a literature survey on the application of management science fields to sport management are presented. The most prominent Critical Success Factors and Enablers for their achievement, identified in the SM maturity assessment frameworks are specified. Existing published work in sport management per critical success factor and enabler category is also presented thus providing a theoretical basis for their significance in the sport management field. A novel holistic sports management maturity assessment framework is proposed. The framework is based on and includes, a ten-by-ten matrix, the most prominent critical success factors and enablers identified in the literature survey. The proposed framework is then applied to the most known sport management competencies accreditation framework called COSMA. The result of this application is a proposed novel "tracking matrix". Both the proposed maturity frameworks and the tracking matrix can be used by both academics and practitioners in the SM field.*

Keywords: *Sport management, Maturity assessment, Maturity frameworks, COSMA, Tracking matrix, Human resources management, Operations management.*

JEL Classification M12 · M54 · C44

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1. INTRODUCTION: DEFINING SPORT MANAGEMENT AND APPLIED THEORIES

The definition of sport management (SM) has been causing serious debates among scholars during the last decade. SM has not been defined properly and many definitions do not take into account the required abilities and competencies SM professionals should possess. Stokowski et al. (2018) have backtracked to ancient Greece to discover SM origins. More recently Stokowski undertook one of the most notable research efforts to define the SM field. The authors identified more than 505 SM undergraduate and postgraduate programs internationally. Their survey involved 154 academics working in these programs who were asked to define SM. Future SM professionals should combine competencies of management-related subjects and some more subjects that are specifically related to sports. One of the most important outcomes of Stokowski's study is that SM is maturing and can be developed to become an academic discipline rather than a field. Wohlfart et al. (2022) elaborated on the importance of the application of performance analysis techniques.

During the last two decades, researchers have attempted to elaborate on the relationships, overlapping areas, and interconnections of management-organizational theory and SM (Adair, 2017; McDowell, 2015; Slack et al., 2006). The vast majority of them argue that SM-specific management theories, frameworks, and methodologies should be developed based on well-established sub-disciplines and theories of management (Cunningham, 2013). There exist numerous examples of successful applications of management theories, methodologies, and concepts to SM. Institutional analysis has been used in many publications (Nite & Edwards, 2021; McSweeney et al., 2019; Nite, 2017; Washington & Patterson, 2011). In recent approaches analysis concentrates on organizational actors in SM organizations that undertake activities that add value and trigger changes.

Laurell and Soderman (2018) analyzed the relationship between SM and the remaining core management disciplines. A literature survey on the most influential journals related to marketing, organizational studies, and strategy was presented. The focus was on the analysis of the "*interplay*" between SM and the subfields of management science and business studies. The shortcomings identified in the literature on the Laurell and Soderman (2018) "*interplay*" emerge from the issue that management science applications are encountered in quite diverse SM topics, ranging from a vast variety of amateur or professional sports (team or individual e.g. football, basketball, swimming, tennis, etc.) to a large variety of social or professional event types (local, international, touristic e.g. marathons, triathlons, etc.).

Many authors have additionally highlighted the need for holistic theoretical approaches (Thomson et al., 2019; Bocarro et al., 2018; Pentifallo & Van Wynsberghe, 2015; Brown et al., 2015; Girginov & Hills, 2009; Rogerson, 2016; Mair & Whitford, 2013). During the last two decades, there is a growing interest in sport event legacies (SEL). The repetitive nature of the events and the large number of direct (athletes) or indirect (visitors) participants require considerable investment by both the event organizers and the local authorities in both infrastructure and human resources. Researchers have highlighted the need for theoretical SEL frameworks (Clark et al., 2016; Rogerson, 2016).

A pre-COVID-19 literature review (Thomson et al., 2019) of the period 2000-2016, revealed that although there exists a growing interest in the subject there is very limited published work on SELs theoretical approaches. There are only very few that have started developing conceptual underpinnings and even these are at their primitive stages (Doherty, 2013; Cunningham, 2013) in the field of sports management in general. The frameworks identified in the literature in Thomson et

al. (2019) study were based on the social exchange theory, process theories, stakeholder theory, event leverage, critical urban theory, and governmentality.

These very few approaches have been applied only in one SEL case and therefore none of them can be considered as an established framework by any means. Therefore, the authors suggest that theoretical approaches and frameworks should be developed and applied in the field (Thomson et al., 2019, pp. 308-309). Robust program management and organizational structures should be in place and under strategic and operational plans. The needs and interests of stakeholders should be taken into consideration.

2. LITERATURE REVIEW: HOLISTIC ASSESSMENT FRAMEWORKS IN SPORTS MANAGEMENT

The need for holistic SM implementation assessment has been elaborated by many authors. One of the first SM assessment models was the legacy cube (Gratton & Preuss, 2008). Parent et al. (2011) proposed an SM assessment framework that is composed of 16 assessment categories (five contextual-based and eleven generics).

Cserháti and Polák-Weldon (2013) attempted to capture the critical success factors of international SELs of different European regions. Plumley et al. (2017) proposed a variation of the ForNex (Football Organization Nexus Index) model for the measurement and assessment of clubs' organizational performance. In 2017 the same authors proposed a holistic model for professional football clubs and stressed the need for holistic performance measurement and appraisal approaches to SM. Chalip et al. (2017) developed an SEL assessment model that assesses sport participation. Other researchers (Bocarro et al., 2018; Koenigstorfer et al., 2019) have highlighted the need for a more robust organizational focus. Chen et al. (2018) developed an organizational lifecycle approach to SEL assessment. Byers et al. (2020) attempted to provide a holistic theoretical approach developed for SELs and SM. The proposed approach is based on the wicked problem framework (Alford & Head, 2017) and the Critical Realist perspective. The approach considers SEL and SM assessment as a holistic concept rather than a holistic assessment framework (Byers et al., 2020, pp. 179) but by no means proposes an approach to be used in SEL assessment holistically.

Kittikumpanat (2021) presented a model that assesses the success of digital transformation in sports organizations. Chutiphongdech and Kampitak (2022) conducted an extensive literature survey on critical success factors for successful SELs. They identified many different perspectives in the definition of SELs success. They applied the RBV approach in classifying the identified critical success factors. They identified two major categories of tangible and intangible resources.

The UK Chartered Governance Institute in association with Sport England has developed the Governance Maturity Matrices for Sports Organizations (2020). The matrices developed refer to each governance maturity level proposed. These governance maturity levels are *Compliant, Developing, Mature, Advanced, and Vanguard*. The aim is that SM organizations reach the highest possible maturity level and the desired goal of continuous *improvement*.

Sport New Zealand has developed and proposed a maturity model called the Insights and Evaluation Maturity Model (2017). The model assists sports organizations to evaluate the maturity level they have attained. The model is assessing sports organizations in four dimensions: *knowledge, processes, attitudes, and behavior*. They have proposed four levels of maturity: *Emerging, Developing, Consolidating, and Highly Developed*.

3. CRITICAL SUCCESS FACTORS AND ENABLERS FOR SPORTS MANAGEMENT IMPLEMENTATION

Table 1 presents the CSFs proposed by all SEL and SM assessment frameworks and approaches presented in the previous section. The aim is to identify the most prominent CSFs proposed in the literature mainly during the last decade.

Table 1. Literature Survey of SM Maturity Frameworks

Reference	Critical Success Factors
Gratton and Preuss (2008)	Infrastructure-resources, Knowledge, Performance measurement, Customer-tourist,
Parent et al. (2011)	Resources, customers-participants, funding-capital, stakeholder management, strategy-planning, operations-processes, knowledge management, organizational structure-authority
Cserháti and Polák-Weldon (2013)	Strategy, Planning, Leadership, Human Resources, Stakeholder Management, Partnerships
Chalip et al. (2017)	Strategy-Goals, Managerial Systems, Organizational Structures, Stakeholder Management, People-Culture, Organizational Resources, Human Resources, and Knowledge Resources
Plumley et al. (2017)	Strategy, People, Process-Operations, Structures, Infrastructures, Performance measurement, and assessment of clubs
Insights and Evaluation Maturity Model (2017)	Competencies, Leadership, Organizational structures, Technology, Knowledge, Stakeholder management, and Managerial systems
Bocarro et al. (2018)	Customer-Participant, Stakeholder Management, Performance Measurement, Managerial Systems, Resources, and Infrastructure Management
Chen et al. (2018)	Strategy, Customer-Participant, Process-Operations, Performance Measurement, Change Management, Organizational Structure, Managerial Systems, Resources, and Infrastructure
Koenigstorfer et al. (2019)	Customer-Participant, Knowledge Management, Performance Measurement, Managerial Systems, Organizational Structure, Resources, and Infrastructure Management
Byers et al. (2020)	Stakeholder management, Customer-participants, Process-operations, Strategy, People-human resources, Organizational structures, Organizational resources, Managerial Systems,
Governance Maturity Matrices for Sports Organizations (2020)	Processes, Organizational structures-Accountability, Job descriptions, Managerial systems, Organizational resources, Strategy, Human resources, Performance measures, Change management, Knowledge management, Stakeholder management, Corporate social responsibility, Technology, Continuous improvement
Kittikumpanat (2021)	Strategy, Performance measurement, Operations, People, Technology, Fans/ customers
Pianese (2021)	Sports resources, Infrastructure (buildings, equipment), Organizational structure, Processes, Environmental and Corporate Social Responsibility, Human resources, Stakeholder management, Knowledge management, Financial-Capital, Managerial Systems
Chutiphongdech and Kampitak (2022)	Human resources, Financial resources, Physical resources (Land, Buildings, Equipment, Inventories) Organizational Structure, Processes, Managerial Systems, Technology

Source: Authors' research

From the Table 1 it is evident that there is confusion identified in the SM and SEL literature regarding CSF and enablers definitions and or assessment. One of the contributions of the research presented in this paper is related to the classification of CSFs and enablers that should be included in future SM assessment frameworks. The most prominent CSFs identified in the literature survey as presented in the table above are *Strategy, Customer-Spectator, Process, People, Leadership, Performance Measurement, Change Management, Continuous Improvement, Knowledge Management, Stakeholders, and Corporate Social Responsibility.*

The most prominent enablers identified are divided into two categories: governance and organizational resources. Governance-related enablers are *Organizational Structure, Processes (designs, costing, measures), Job Descriptions, and Managerial Systems*. Organizational Resources are subdivided into six further elements: *land buildings, equipment, inventories, human resources, capital (finance), and technology.*

Laurell and Soderman (2018) proposed that in future publications there must be a selection and determination of which specific management subfields-disciplines should be applied to specific sports management areas. We follow their suggestion and in this section, we extend our literature survey in an attempt to present published management theories, frameworks, approaches, or methodologies related to each CSF or groups of CSFs that have already been applied to SM. We also present existing published research outcomes related to the aforementioned identified enablers.

3.1. Strategic Management – Leadership CSFs

The application of strategic management to SM has been a research focus of many researchers. A recently edited volume contains a very useful insight into the advances in the application of strategic management theories, methodologies, and tools to SM (Varmus et al., 2021). Leadership also plays a vital role in the success of SM-related initiatives. The leadership style is considered vital for successful strategic management implementation (Martínez-Moreno et al., 2021).

Martínez-Moreno et al. (2021) applied the four identified leadership styles (traits and roles of the leader, situational, transformational, transactional) to sports organizations. Recent research efforts have combined the aforementioned two concepts (strategic management and leadership) and advocate that the leadership style and approach are considered key elements for successful strategic management in SM (Martínez-Moreno et al., 2021).

Strategic sports sponsorship has been a research issue in SM in the last decades. Koronios et al. (2021) developed the "*Strategic Sport Sponsorship Scale"*. The proposed scale included 11-factor categories and 38 items.

3.2. Customer Focus CSFs: Spectatoritis and Sportainment

Some strategic management approaches have concluded that analyzing and acquiring competitive advantage are not suitable for SM and propose a customer-focus-oriented approach called "*spectatoritis*" based on the spectators' perspective (Agha & Dixon, 2021). Sports and entertainment have been mixed in recent years thus forcing sports organizations to focus more on the added value they provide to their fans. New schools of thought and practical considerations have emerged in the area of "sportainment". Richelieu and Webb (2021) have proposed a strategic sportainment mix (Biscaia et al., 2021).

3.3. Process and Knowledge Management CSFs

Bamford et al. (2018) elaborated on the need for applying operations management principles to sports management. They concentrated on the application of quality management principles to sports management that requires process-based approaches. They concluded that process performance management is the most significant factor in sport management implementation. Meier et al. (2019) elaborated on the use of additive manufacturing methodologies and 3D printing technologies on sports equipment. Herold et al. (2019) conducted a thorough survey of the literature on the application of logistics in the SM field. They proposed the Sports Logistics Framework (SLF) that assesses the organizational structure, processes, and resources of sports logistics.

The researchers have concluded that research in modeling, analyzing, and measuring sport event logistic processes is still limited (Herold et al., 2019, p. 347). One of the identified reasons for this limitation *is the lack of specification in the field of sports logistics.* According to García-Vallejo et al. (2020), there is still no clear definition of processes that should be executed in sports events, and have identified a lack of application of process management methodologies, process maps, and process simulation tools in SM.

The issue of knowledge management (KM) is becoming of central importance in both academia and the practice of SM with many publications focusing on KM *performance management* (Delshab et al., 2022), knowledge translation (Bartlett & Drust, 2021), customer KM (Behnam et al., 2022), one of the dimensions of corporate social responsibility (Tabar et al., 2022), etc.

3.4. People CSF

Human Resources Management (HRM) theories have been applied to SM since it emerged as a discipline. Santos et al. (2022) published a literature survey of a period of nine years (2010-2019) in an effort to capture a generic job description of the sport manager. The study defined the required competencies of the sport manager. Nová (2021) has applied a competency-based model in SM professionals training. The most well-known sports managers' competency model called COmmission on Sports Management Accreditation (COSMA) was developed by Toh and Jamieson (Toh & Jamieson, 2000).

3.5. Stakeholder Management and Corporate Social Responsibility CSF

Stakeholder Management has been a central research theme since the origins of SM. During the last two decades, research in the area has been expanding as its importance has been appreciated by the academic community. Recently, edited volumes dedicated to the field have been published (Strittmatter et al., 2021) as well as extensive literature review papers covering the last two decades (Wood et al., 2021).

Some researchers have highlighted the importance of stakeholder management and inclusion in elite sports (De Bosscher et al., 2021; van der Roest & Dijk, 2021). Others have applied stakeholder theory in analyzing and classifying football fans' behavior and needs (Jaeger, 2021; Perechuda & Čater, 2022) and others to basketball (Leiñena & Merino, 2021). Neto et al. (2022) elaborate on the concept of stakeholder leadership in soccer clubs.

Corporate Social Responsibility (CSR) applications also gain significant attention in sports management in recent years (Carlini et al., 2021; Zeimers et al., 2021; Breitbarth et al., 2019). Ashraf et al. (2021) provide a critical review of the issue of strategic CSR during the crisis era.

Ebadi Barbain et al. (2022) highlighted the role of ethics in (CSR). Chen and Lin (2021) provided a comparison of CSR initiatives based on spectators' preferences and attitudes. Zamanidadaneh et al. (2021) stressed the impact of CSR on sports branding and the supportive behavior of fans for their clubs. Herold et al. (2022) assess the impact of CSR in professional football. Raimo et al. (2021) advocate that CSR can be applied as a legitimation strategy in football clubs. Anagnostopoulos et al. (2021) argue that sports can be used as a means for CSR implementation.

3.6. Performance Measurement and Change Management CSFs

Performance measurement in SM is not related to the assessment of athletes and coaches. On the contrary, it is related to anything else apart from these two categories. The stakeholder analysis approach has been used in SM performance measurement (Thompson & Parent, 2021).

In some cases, stakeholder analysis has been based on agency theory to analyze performance (Sanchez et al., 2017). Thompson and Parent (2021) have classified the *value factors* and how these are measured. These value factors influence performance from the perspective of the stakeholder. Accounting theories were analyzed that provided methods and techniques that SM measures performance.

Performance measures were classified into three groups: *Economic Value Added, Market Value Added, and Shareholder Value Added*. Change Management (CM) is also gaining interest in the academic community of SM. Cruickshank and Collins (2012) elaborate on CM in the case of Elite Sports Performance. Fahlén and Stenling (2019) have used institutional analysis for CM in sports organizations. Babaei et al. (2020) analyze the process of CM and its contribution to policy-making in Olympic sports. Gibson and Groom (2021) elaborated on organizational change in youth football.

3.7. Sport Governance and Organizational Resources Enablers

Sports governance has been a research topic in SM for decades. Research has focused on its application to organizational structures and processes (Kerwin & Doherty, 2019), job descriptions and levels of authority, and process designs and performance metrics (Nowy et al., 2015). Recent literature survey papers (Chappelet & Mrkonjic, 2019; Zintz & Gérard, 2019) have provided indicators for governance assessment as well as managerial systems for capturing and analyzing real-time data in information and reporting systems.

Parent et al. (2021) provided a review of sports governance research efforts and a thorough comparison of the widely appearing indicators in sport governance assessment. These indicators were used in the development of governance design archetypes based on: structures and processes as well as stakeholder and institutional dimensions. They concluded that sports governance should be further expanded and researched by academics and scholars and research outputs should be further developed.

Resource management in sports has also been attracting attention during the last two decades in both academia and practice. Research has been concentrated at the level of sports clubs, leagues, sports authorities, sports organizations, etc. (Robinson & Minikin, 2012). We follow Ray et al. (2004) that consider resource management as a prerequisite or precondition for developing competitive advantages and achieving success. One of the most prominent approaches used in sports management is called Resource Based View (RBV) based on the aforementioned theories (Byun & Leopkey, 2021; Jensen et al., 2022; Chutiphongdech & Kampitak, 2022).

Pianese (2021) conducted a thorough literature survey on resources used in sports events and applied RBV to sports events. The following resource types were identified as being the most prominent in SELs: sports resources (athletes, teams, etc.), infrastructure (buildings, equipment, organizational structure, processes, etc.), environmental (landscape, local community resources), event reputation, human resources, relational (stakeholder management), and financial. The study (Pianese, 2021) concludes with two key findings that future research and practice should take into consideration and closer focus on an event governance model and organizational knowledge.

4. A PROPOSED HOLISTIC FRAMEWORK IN SPORT MANAGEMENT MATURITY ASSESSMENT

In the previous section, we presented the most prominent enablers that should be included in a holistic SM maturity assessment framework. The most prominent CSFs identified are *Strategy, Customer-Spectator, Process, People, Leadership, Performance Measurement, Change Management, Continuous Improvement, Knowledge Management, Stakeholders, and Corporate Social Responsibility.* The most prominent enablers identified are divided into two categories: governance and organizational resources. Governance-related enablers are *Organizational Structure, Processes (designs, costing, measures), Job Descriptions, and Managerial Systems.* Organizational Resources are subdivided into six further elements: *land buildings, equipment, inventories, human resources, capital (finance), and technology.* The holistic SM maturity assessment matrix framework proposed in this section is based on previous research outcomes created by the authors (Glykas et al., 2015; Glykas & George, 2017; Glykas, 2019a; Glykas, 2019b) that proposed and applied a maturity assessment framework called Glykas Quality Compass (GQC) to a variety of industrial sectors.

The resulting SM-specific maturity framework is called Glykas Sport Management Compass (GSMC) and is composed of the CSFs and enablers identified in our literature survey presented in the previous section. The proposed GSMC maturity assessment framework is a 10X10 matrix that contains all the identified CSFs (vertical axis) and enablers (horizontal axis) as shown in Figure 1.

	ENABLERS									
	Organizational Governance				Organizational Resources					
Critical Success Factors	Organizational Structure	Job Descriptions	Processes	Managerial Systems	Land and Buildings	Equipment	Inventories	Human Resources	Capital	Information Systems
Strategy										
Customer										
Process										
People										
Leadership										
Performance Measurement										
Change Management										
Continuous Improvement										
Corporate Responsibility										
Information Knowledge Management										

Figure 1. The proposed Glykas Sport Management Compass maturity assessment framework
Source: Authors

The proposed GSMC maturity assessment matrix is similar to the Governance Maturity Matrices for Sports Organizations (2020) developed by the Chartered Governance Institute in association with Sport England. However, the contribution of our research is that the matrix is expanded to include all management concepts, governance concepts, and organizational resources and there is theoretical justification for its composition based on our literature survey.

The division of enablers into organizational governance and organizational resources follows the research outputs of Parent et al. (2021), Pianese (2021), Kerwin and Doherty (2019), Nowy et al. (2015), Chappelet and Mrkonjic (2019), Zintz and Gérard (2019), Ray et al. (2004), for the former and Pianese (2021), Robinson and Minikin (2012) work on RBV analysis of organizational resources for the later.

The GSMC framework follows the "Governance Maturity Matrices for Sports Organizations" maturity levels. These governance maturity levels are Compliant, Developing, Mature, Advanced, and Vanguard. The GSMC matrix is used for the assessment of the current state of SM maturity of a sports organization. The result of the current state assessment is the specification of the FSMC maturity levels classified as shown in the upper part of Figure 2.

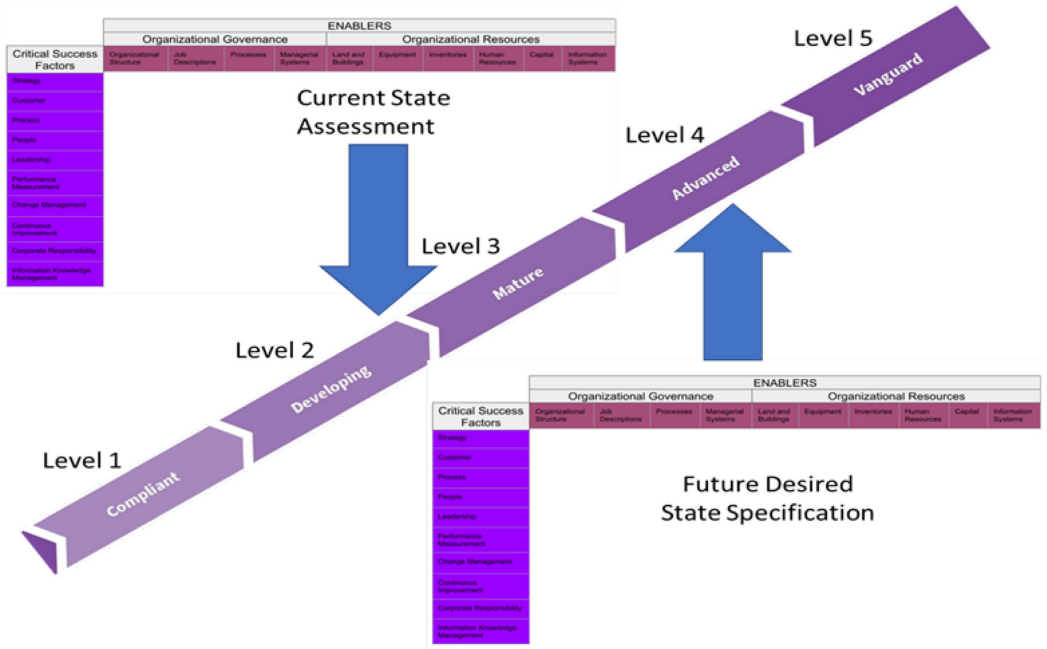

Figure 2. The maturity levels of GSMC framework
Source: Authors

The GSMC matrix can also be used for the specification of the future desired state of the organization's maturity level. An action plan created includes all actions that should be undertaken by the organization for the improvement of SM implementation.

5. GSMC COSMA TRACKING MATRIX

The COSMA model provides a competency skills scale that is composed of six-factor categories: *Governance, Sports Foundations, Budgeting, Risk Management, Computer Skills,* and *Communications,* and 30 individual competencies (called items) belonging to these six categories repre-

senting SM skills that both university graduates and employees should possess. The COSMA categories and items are shown in Table 2.

In the last two decades, the COSMA model was applied in different countries, to many industries and contexts. One of the most notable recent applications was published by Duclos-Bastías et al. (2021) who suggested a smaller number of factors-categories, namely: *Sports and Facilities Use-Regulation, Budget Management, Communication Skills (personnel management)* and 22 competencies (items). It demands justification of modeled processes for their implementation and the job descriptions and personnel responsible. It also requires a "tracking matrix" that specifies the use of organizational resources (financial, human, physical) that monitors strategic plan execution in real-time (COSMA Accreditation Manual, 2022, p. 13).

Table 2. The COSMA Competency Skills. Six Categories and 30 Items

Factor	Item No	
Governance	G1	Implements sound procedures for postponements, rescheduling, and forfeiture of games
	G2	Handles disciplinary action, accidents, game protests, and eligibility status reports
	G3	Implements appropriate sport rules and regulations
	G4	Implements appropriate system of procurement and evaluation for officials
	G5	Utilizes procedures to regulate the conduct of participants and spectators
	G6	Uses sound procedures for settling protests
	G7	Establishes eligibility guidelines for participants
Sport Foundations	SF1	Applies updated knowledge in recreational sport research to practice
	SF2	Articulates the benefits and values of recreational sport to individuals
	SF3	Demonstrates an understanding of the sociological and psychological aspects of sport
	SF4	Demonstrates an understanding of human limitations in sport
	SF5	Applies leadership theories applicable to recreational sport.
	SF6	Applies theories of cooperative and competitive play
	SF7	Demonstrates an understanding of the organizational and operational aspects of different types of sport programming
Budgeting	B1	Identifies sources of revenue and expenditures for the budget
	B2	Defends a budget proposal.
	B3	Prepares a budget proposal.
	B4	Monitors the budget
Risk Management	RM1	Coordinates training for staff on legal and safety issues (e.g., first aid and CPR training)
	RM2	Establishes a safety program to prevent injuries and accidents
	RM3	Conducts routine inspections of facilities and equipment
	RM4	Designs strategies/policies to prevent misuse of facilities and equipment
	RM5	Exercises effective decision making in dealing with accidents
Computer Skills	CS1	Utilizes computer software for word processing, spreadsheet, presentation, etc.
	CS2	Utilizes computer operating system (e.g., Windows 95, Mac OS, etc.)
	CS3	Utilizes customized computer software programs for such purposes as scheduling, reservations, registration, etc.
Communications	COM1	Promotes harmony among personnel
	COM2	Uses good verbal communication skills
	COM3	Maintains effective communications with staff
	COM4	Motivates staff or volunteers

Source: Toh and Jamieson (2000)

In this section, we present a generic GSMC COSMA tracking matrix. We have allocated the COSMA items presented in Table 2 to GSMC matrix cells as presented in Table 3.

By relating COSMA items-competencies to GSMC cells we associate them with the corresponding critical success factor and the corresponding organizational governance or resource enabler that should be provided by the organization for its achievement. For example, the item-competency G4 "Implements an appropriate system of procurement and evaluation for officials" appears in three cells of the GSMC COSMA tracking matrix, namely: "People (CSF) - Managerial Systems (Enabler)", "People (CSF) - Inventories (Enabler)", "People (CSF) - Human Resources (Enabler)".

The G4 competency belongs to the governance factor category of the COSMA competency skills scale. It contributes to the achievement-improvement of the people CSF. As its description im-

plies, it requires a managerial system for procurement (People-Managerial Systems) that refers to purchasing inventories (People-Inventories) as well as a managerial system (People-Managerial Systems) for the evaluation of officials (People- Human Resources).

Table 3. The GSMC COSMA Tracking Matrix

	Enablers									
Critical Success Factors	Organizational Governance				Organizational Resoures					
	Organizational Structure	Job Descritpions	Processes	Managerial Systems	Land and Buildings	Equipment	Inventories	Human Resources	Capital	Information Systems
Strategy	SF7		SF7		RM4	RM4		RM2, RM4		
Customer			G5, G6	G7						
Process		RM5	G1, G6		RM3	RM3		G5, G6		
People		SF3, SF4, RM5	G1,G5	G2, G3, G4, G7, B2, B3, B4	RM3	RM3	G4	G2, G4, G5, SF2, SF3, SF4, SF6, RM1, COM1, COM2, COM3, COM4	B1, B2, B3, B4	CS1, CS2, CS3
Leadership	SF5, SF7	SF3, SF4, SF5, SF6, SF7		SF3, SF4, SF5, SF6, SF7				SF3, SF4, SF5, SF6, SF7		
Performance Measurement										
Change Management										
Continuous Improvement										
Stakeholders and CRS			G6, G7							
Information Knowledge Management	SF7	SF1, SF6	SF7	SF1, SF6				SF1. SF2, SF3, SF6		

Source: Authors

6. CONCLUSION AND FUTURE RESEARCH

In section two we presented a literature survey on the application of management science fields to sport management. Based on our survey we identified research gaps based on the recommendations of respected SM scholars and formulated our research questions. In section three we focused our literature survey on the identification of the most well-known SM maturity assessment frameworks.

A summary table of these identified frameworks was presented in section four. In the summary table, we highlighted the CSFs used by each framework to specify the most prominent ones. In the same section, we presented existing applications of management science concepts to SM and thus provided the theoretical underpinnings for the validation of each CSF. We also identified a classification of enablers in two categories, namely: *organizational governance* and *organizational resources*. In section five we presented a holistic SM maturity assessment framework called Glykas Sport Management Compass (GSMC). Assessment in the proposed framework is performed with the use of a 10 by 10 matrix composed of the 10 most prominent CSFs identified and validated in the previous section and ten enablers - four for organizational governance and six for organizational resources. We also presented the application of the proposed framework to the COSMA items-competencies. The resulting proposed *tracking matrix* is requested by the COSMA accreditation. The matrix was created by associating COSMA items-competencies to GSMC cells and thus associating them with the corresponding critical success factor and the corresponding organ-

izational governance or resource enabler. Both, the proposed GSMC maturity assessment framework, and the GSMC COSMA tracking matrix are novel approaches and we have not identified any similar approach in the literature to date.

The major limitations we experienced are related to the immaturity of the field of SM implementation maturity assessment frameworks as well as the vast variety of existing applications to different SM event types and SM sports organizations. The limitations we experienced justify the shortcomings identified by Laurell and Soderman (2018) who argued that the lack of "*interplay*" between management theories and SM is due to their application to quite diverse SM topics, ranging from a vast variety of sports and sport event types. Our imminent research efforts focused on developing a full set of metrics per the GSMC COSMA tracking matrix cell presented in Table 3. The authors commenced applying the proposed GSMC COSMA tracking matrix and the GSMC framework in various SM-related organizations for the purpose of further research.

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