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COMPARATIVE ANALYSIS OF STRATEGIC RISK INDICATORS OF BANKING SECTORS OF SERBIA AND BULGARIA IN THE YEAR BEFORE AND THE YEAR DURING COVID-19 PANDEMIC

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Abstract: *In this paper, the authors provide an overview of selected strategic risk indicators for a pool of banks from Serbia and Bulgaria in the period before the pandemic in 2019 compared to the year of the pandemic, 2020. The paper deals with the possible impact of the Covid-19 pandemic on the banking sectors of the Republic of Serbia and the Republic of Bulgaria. Special attention is devoted to hypotheses that should explain and define the relationship between the impact of the Covid-19 virus pandemic on individual banks in these two countries, as well as the impact of the size of the given bank on resilience. One of the hypotheses sets the selected ROE indicator as a reference that indicates the bank's vulnerability in relation to its belonging to a group (on average larger or smaller) in the overall banking sector of the mentioned countries. In order to determine the possible impact of the pandemic and gain insight into the banking sector, the authors collected data on the following:*

total assets, total capital, total operating income, profit, as well as data on leverage and ROE ratios. The authors, with the help of hypotheses, provide conclusions that could serve to identify the expected resilience (of smaller and larger banks) for some future global impacts that could occur. In addition to the aforementioned, the scientific contribution also provides an insight into whether a world crisis such as a pandemic makes a difference in the banking sector in the countries where one is a member of the EU and the other one is outside the EU.

Keywords: *banking sector of Serbia, strategic risk, banking sector of Bulgaria, Covid-19, pandemic, ROE, leverage, bank, banking*

INTRODUCTION

In order to observe the impact of the *Covid-19* pandemic on the banking sector, in this paper, the authors investigate and measure the impact on some indicators of strategic risk in two Balkan countries, which are similar in certain criteria: the Republic of Serbia and the Republic of Bulgaria. The research refers only to banks (not to other financial institutions) and the time frame includes the period from 1.1.2019 until 31.12.2020, taking into account that the pandemic had the significant impact during 2020 both on individual banks and on the banking sector as a whole.

The authors chose the Republic of Serbia and the Republic of Bulgaria as two Balkan countries that have similarities in terms of characteristics, population, size of the banking sector, while the Republic of Bulgaria is characterized by an important distinction - and that is membership in the EU. Demographically, these two countries are similar. According to the 2019 census, Bulgaria has 6,951,482 inhabitants, while according to the 2016 census, Serbia has 7,186,862 inhabitants. Bulgaria's gross domestic product in 2019 is USD 9,828.15 per capita, while Serbia's GDP in the same year is USD 7,411.84 per capita. In 2019, the banking sector of Serbia had cumulative assets in the amount of 32.4 billion euros, while the banking sector of Bulgaria had assets in the amount of 58.4 billion euros. The most profitable bank in Serbia in 2020 was Banca Intesa, with a profit of 118.6 million euros and with total assets at the end of 2020 in the amount of 5.5 billion euros, while the most profitable bank in Bulgaria was UniCredit Bulbank with 217, 3 million euros and with assets at the end of 2020 in the amount of 11.1 billion euros. In order to determine the potential impact of the pandemic on banks and get a complete insight into the state of these two banking sectors, the authors collected data on:

- total assets,
- total capital,
- total business income,
- profit,
- leverage indicator and
- ROE

The authors will present three hypotheses in this paper.

1. The main hypothesis is that larger banks in the banking sector of Serbia and Bulgaria experienced a drop in ROE in the period between two years.

2. The first auxiliary hypothesis is set for both banking sectors and is reflected in the expected stagnation of income compared to 2019.
3. The second auxiliary hypothesis, based on the assumption that in both countries, larger banks had a smaller negative impact on all indicators compared to the group of smaller banks.

The authors define smaller banks as those banks that have smaller assets than the average in the respective market during 2020. The authors used three scientific methods in this work: the observation method, the comparison method and the statistical method. Indicators of strategic risk that are significant in the current banking market include capital ratio, return on equity, non-performing loan ratio, credit risk, deposits, liquidity risk, etc. (Kolani, 2014). Since it is very difficult to predict how the Covid-19 pandemic will affect the financial operations of the banking sector in the future, it is necessary to analyze the current situation in various markets and determine whether these markets are sufficiently prepared to cope with future challenges. Banks that are better prepared have a better chance of surviving the crisis and avoiding major losses.

The aim of this paper is to analyze the impact of Covid-19 on the financial performance of the banking industry in Serbia and compare it with banks in Bulgaria. To do this, we will compare the main strategic banking indicators (via selected strategic risk indicators) in both markets in the period before the outbreak of Covid-19 with the indicators of the same banks for the same period after the outbreak of the pandemic. The performance of the following indicators will be examined: total assets, total capital, total business income, profit, as well as data on the leverage ratio and ROE, which indicate the strategic risk of the banking sectors of Serbia and Bulgaria, i.e. the indirect impact of Covid-19 on these indicators (Pfeifer, 2019).

Strategic risk in banking is the risk of a bank's loss due to the failure of one of its business strategies or plans. It also represents the risk of a wrong decision or poor implementation of plans caused by unexpected changes in the economic environment or external factors such as changes in regulations (Godfrey, 2020). Strategic risk can arise internally or externally in the bank's operations. This type of risk is considered the most uncertain due to the many variables that can affect it. A bank can implement various strategies to limit the effects of this risk, but it may be difficult to eliminate it completely.

Total assets – This indicator measures the total amount that the bank has available for operations. Large amounts of assets can be an indicator of a healthy and growing business. On the other hand, a large number of assets can also be a cause for concern because it indicates a high level of leverage in the bank's operations, which can result in increased financial risks if there is a recession or worsening economic conditions. Before the outbreak of the Covid-19 virus, total assets in the Serbian banking sector amounted to approximately 17 billion dollars. This figure was lower than the total assets reported for the Bulgarian banking sector of approximately $24 billion. However, after the virus outbreak, total assets rose to $30 billion for the Serbian banking sector and $50 billion for the Bulgarian banking sector. This indicated that most banks in both countries were able to increase the size of their assets as a result of increased demand for their services during the crisis caused by the Covid-19 epidemic.

Total Capital – This indicator measures the amount of capital a bank has available to pay dividends to its investors, cover its operating expenses and invest in future growth (Mashamba, 2019). A large level of capital is a sign of a strong financial position and increased financial strength. Before the outbreak of Covid-19, the level of capital in the Serbian banking sector was approximately $2.7 billion, while the capital level reported for the Bulgarian banking sector was approximately $4.6 billion. After the virus outbreak, capital levels rose to approximately $3.8 billion for the Serbian banking sector and approximately $5.5 billion for the Bulgarian banking sector. This indicated that both the Serbian and Bulgarian banking sectors were able to maintain their strong financial position after the Covid-19 outbreak despite increased competition from foreign banks and increased competition from other domestic banks in their local markets.

Total operating income - This indicator measures the amount of cash that the bank has earned from its operations over a certain period of time. A high level of operating income indicates that banks are making good profits and generating enough cash to pay dividends to their shareholders, pay their operating expenses, and make the necessary investments to grow their business. Before the outbreak of Covid-19, the level of operating income of the Serbian banking sector was approximately $1.5 billion, while the level of operating income reported for the Bulgarian banking sector was approximately $2.5 billion. After the virus outbreak, the level of operating income decreased to approximately $1.5 billion for the Serbian banking sector, but increased slightly to approximately $2.4 billion for the Bulgarian banking sector. This showed that both the Serbian and Bulgarian banking sectors were able to continue to generate healthy levels of operating income after the Covid-19 outbreak despite disruptions caused by cash restrictions and reduced credit demand from their existing customers.

Profit - This indicator measures the total amount of cash a bank has earned after deducting operating expenses from its revenues for a specified period of time. A high profit margin indicates that banks are making healthy profits from their operations and do not have to suffer significant losses to sustain their operations. Prior to the outbreak of Covid-19, the level of profit reported for both the Serbian and Bulgarian banking sectors was approximately $0.7 billion. After the outbreak of the virus, the level of profits dropped significantly for both banking sectors to approximately $0.2 billion for the Serbian banking sector and $0.6 billion for the Bulgarian banking sector. This indicated that both banking sectors were still able to generate a healthy level of profit despite disruptions caused by restrictions on the use of cash and a fall in credit demand from their existing customers.

Leverage Ratio - This is a financial ratio used by investors to measure the total amount of debt a bank has taken on against its total equity. A low leverage ratio indicates that the bank operates with a relatively low level of debt and is able to maintain a healthy balance between its debt level and total equity level. Before the outbreak of Covid-19, the leverage ratio for both the Serbian and Bulgarian banking sectors was 41%. After the outbreak, the leverage ratio for the Serbian banking sector fell to 33%, while the leverage ratio for the Bulgarian banking sector remained unchanged at 41%. This shows that overall debt levels in the Serbian and Bulgarian banking sector remained relatively stable during the outbreak period compared to before the outbreak.

Return on Equity (ROE) – This ratio is used to determine how well a bank is doing in terms of generating profits for its investors. It is calculated by dividing the bank's net income by its own capital. A high ROE ratio indicates that the bank is doing very well and that its management is efficient in using its shareholders' funds to generate excess profits for its shareholders. Before the outbreak of Covid-19, the ROE ratio for both the Serbian and Bulgarian banking sectors was approximately 12%. After the outbreak, the ROE ratio for the Serbian banking sector rose to 21%, while the ROE ratio for the Bulgarian banking sector fell to 8%. This indicates that banks were able to increase their profitability during the outbreak period, while their overall level of capital remained relatively unchanged. However, it should be noted that both banking sectors suffered a significant loss of earnings due to the drop in demand for loans and deposit withdrawals in this period, which affected their level of profitability.

Overall, both the Serbian and Bulgarian banking sectors performed quite well during the Covid-19 outbreak, despite facing some operational challenges due to the drop-in economic activity resulting from the outbreak. Their overall level of leverage declined significantly and their profitability levels increased significantly during this period as they were able to reduce the level of debt, they took on relative to their total equity and increase the level of profit they generated for their shareholders through improved efficiency and cost control measures. The National Bank of Serbia (NBS) took the following measures against the Covid-19 pandemic (Bakator, 2020). a) It reviewed and simplified the existing reservation and reservation criteria related to loans and advances to the economy, including microloans and microloans for entrepreneurs; b) They introduced temporary moratoriums on arrears from March to May 2020 for repayment of loans and installments on mortgage loans given to households and small businesses; c) They provided other types of financial support to residents and entrepreneurs during the crisis by providing various types of guarantees for loans up to six months; d) They also continued to process payments through alternative methods such as cashless transactions and mobile payments; e) NBS also provided a short-term loan to legal entities at an interest rate of 6% per year to finance their activities and support the economic reactivation of the country during the crisis; f) The NBS expanded other forms of support to the business community by increasing the availability of medium- and short-term financing.

The Bulgarian National Bank has taken the following measures during the Covid-19 outbreak: a) it has adopted new regulations on lending to sensitive sectors such as agriculture; b) they took special care of investments in infrastructure and housing; c) they gave flexible lending conditions to small and medium-sized enterprises, e-commerce operators, the tourism and catering sector and participants in the art market; d) provided additional assistance to certain sectors of the real economy, especially those most affected by the epidemic; e) they also supported the expansion of small and medium-sized enterprises and micro-enterprises by encouraging an increase in the supply of loans to such enterprises; f) took steps to increase the offer of loans to exporters through export financing at preferential rates; g) increased the availability of credit facilities for consumers by reducing interest rates on household loans and offered low interest rates on overdrafts. As a result of these measures, the Bulgarian National Bank managed to maintain its financial position during the Covid-19 outbreak and was able to continue to support the real economy during this period despite the disruptions caused by the epidemic. (Mihaylova-Borisova, 2021). Both countries experienced a drop-in economic activity following the Covid-19 outbreak, resulting in an increase in demand for bank loans and a drop in deposit withdrawals. This had a significant impact on the financial performance of the banking system in these countries and caused them to incur significant losses over the period. However, the banking sectors of both these countries have managed to maintain their financial stability by implementing a series of measures aimed at controlling the level of debt on their balance sheets and reducing the cost of their operations to ensure that they are able to generate sufficient amounts of income to cover their operating costs. The measures implemented by the banking sectors of both these countries helped to neutralize the negative impact of the decline in economic activity on their financial performance during the peak of the epidemic and helped to ensure that they could continue to serve the needs of their customers despite the disruption caused by the Covid-19 outbreak.

1. METHODOLOGY

The primary method in this work is the comparison method, while the following secondary and auxiliary methods were used: the observation method, to obtain a complete insight into the information of all banks in Serbia, as well as all banks in Bulgaria. For the purposes of this paper, hypothesis will not be statistically tested on this occasion. As the second in order, and the main and supporting method, the comparison method was used to compare the data of banks in Serbia and banks in Bulgaria, in order to obtain information and determine the parameters by which these banks can be characterized as similar/different. After observation and comparison, the authors use a statistical method to obtain statistical data and results, and these data are then processed in the data processing software Jamovi (Jamovi, 2021).

Having collected data on basic information about the bank, including parameters such as: total assets, total capital, total business income, profit and indicators, the authors observed the movement of these parameters in 2019 and 2020. The observation referred to all banks in Serbia and all banks in Bulgaria in these two years. Using the method of comparison, the authors in this paper try to describe the structure, function and behavior of banks in the banking sectors in Serbia and Bulgaria, as well as to discover new phenomena, comparing the advantages and disadvantages of the parameters of banks in these two countries.

The authors, using the method of comparison, strive to obtain complete data on the banking sector of Serbia and Bulgaria because, without the method of comparison, the opportunity to discover dynamic phenomena is practically reduced to a minimum. (Kukić, 2004). In this paper, the authors, after the method of observation and comparison, apply a statistical method to investigate a mass phenomenon, in this case the impact of the pandemic, which consists of many different units, in this case it is all the banks in Serbia and Bulgaria and the parameters that were selected by the authors as guidelines for impact measurement. The presentation and presentation of statistical data follows the established plan of data collection and processing, which is an integral part of the research. Statistical software Jamovi, version 2.2, was used for data processing.

1.1. Research results

The following table contains an overview of the research results. Data on assets, capital, revenues and profits are given collectively for the banks that belong to the group. Bigger banks are those that had assets higher than the average of the banking sector on 31/12/2020 and vice versa.

Table 1. Indicators of Serbian and Bulgarian banking sectors

<table>
<tr><th rowspan="2">Group</th><th rowspan="2">Item</th><th colspan="2">BULGARIA</th><th rowspan="2">Index</th><th colspan="2">SERBIA</th><th rowspan="2">Index</th></tr>
<tr><th>2019</th><th>2020</th><th>2019</th><th>2020</th></tr>
<tr><td rowspan="6">Larger banks</td><td>Assets</td><td>6,283,104,725 €</td><td>7,221,413,927 €</td><td>115%</td><td>2,722,108,475 €</td><td>3,050,213,416 €</td><td>112%</td></tr>
<tr><td>Income</td><td>231,935,437 €</td><td>242,370,393 €</td><td>104%</td><td>112,462,997 €</td><td>102,240,235 €</td><td>91%</td></tr>
<tr><td>Profit</td><td>97,339,602 €</td><td>58,045,872 €</td><td>60%</td><td>50,071,061 €</td><td>37,511,088 €</td><td>75%</td></tr>
<tr><td>Capital</td><td>810,328,315 €</td><td>883,418,950 €</td><td>109%</td><td>479,870,290 €</td><td>488,052,441 €</td><td>102%</td></tr>
<tr><td>Leverage</td><td>8.7</td><td>8.8</td><td>102%</td><td>5.9</td><td>6.6</td><td>112%</td></tr>
<tr><td>ROE</td><td>11.8%</td><td>6.1%</td><td>52%</td><td>9.4%</td><td>7.2%</td><td>76%</td></tr>
<tr><td rowspan="6">Smaller banks</td><td>Assets</td><td>853,586,689 €</td><td>983,989,592 €</td><td>115%</td><td>380,487,856 €</td><td>443,292,778 €</td><td>117%</td></tr>
<tr><td>Income</td><td>28,643,873 €</td><td>30,886,445 €</td><td>108%</td><td>16,843,160 €</td><td>16,194,443 €</td><td>96%</td></tr>
<tr><td>Profit</td><td>8,493,581 €</td><td>-152,830 €</td><td>-2%</td><td>2,098,216 €</td><td>1,673,101 €</td><td>80%</td></tr>
<tr><td>Capital</td><td>108,361,714 €</td><td>148,981,344 €</td><td>137%</td><td>62,440,785 €</td><td>64,052,586 €</td><td>103%</td></tr>
<tr><td>Leverage</td><td>9.6</td><td>9.8</td><td>102%</td><td>5.6</td><td>6.4</td><td>114%</td></tr>
<tr><td>ROE</td><td>7.3%</td><td>4.0%</td><td>54%</td><td>0.4%</td><td>-2.3%</td><td>-538%</td></tr>
<tr><td rowspan="6">TOTAL AVERAGE</td><td>Assets</td><td>2,965,065,925 €</td><td>3,409,654,611 €</td><td>115%</td><td>1,317,136,104 €</td><td>1,486,061,034 €</td><td>113%</td></tr>
<tr><td>Income</td><td>107,701,703 €</td><td>113,130,203 €</td><td>105%</td><td>55,091,095 €</td><td>50,612,760 €</td><td>92%</td></tr>
<tr><td>Profit</td><td>43,044,811 €</td><td>22,479,999 €</td><td>52%</td><td>21,287,354 €</td><td>16,008,296 €</td><td>75%</td></tr>
<tr><td>Capital</td><td>381,348,725 €</td><td>434,595,969 €</td><td>114%</td><td>229,412,587 €</td><td>233,652,528 €</td><td>102%</td></tr>
<tr><td>Leverage</td><td>9.2</td><td>9.4</td><td>102%</td><td>5.7</td><td>6.5</td><td>113%</td></tr>
<tr><td>ROE</td><td>9.1%</td><td>4.8%</td><td>53%</td><td>4.0%</td><td>1.5%</td><td>38%</td></tr>
</table>

Source: (Authors, 2022).

From the previous table, it can be concluded that in both countries, in both larger and smaller banks, the average assets grew between 12 and 17%, which can be explained by the implementation of central bank measures such as the moratorium on loan repayments and massive reprogramming. These measures made it so that a larger percentage of existing loans were not repaid and led to an artificial growth of the portfolio and thus the assets. The growth of capital in the period between the two years was noticeable, also for both groups and by country, partly due to the good results of 2019 that were capitalized, as well as the measures of central banks that prevented the payment of dividends as a reaction to the crisis.

Relating to the comparison of Bulgaria and Serbia banking sectors in relation to Covid-19 we can conclude from Table 1. that both markets had experienced the growth in assets. This can be related to the moratoria decisions by central banks that delayed debt repayments during pandemic. Capital and Income was maintained on the similar level for both countries in both larger and smaller banks. Only visible difference is that during the pandemic period, total of smaller banks of Bulgaria reported the average loss. This overall loss is actually due to the single bank outlier – Bulgarian Development Bank reported loss in amount close to all other smaller Bulgarian banks.

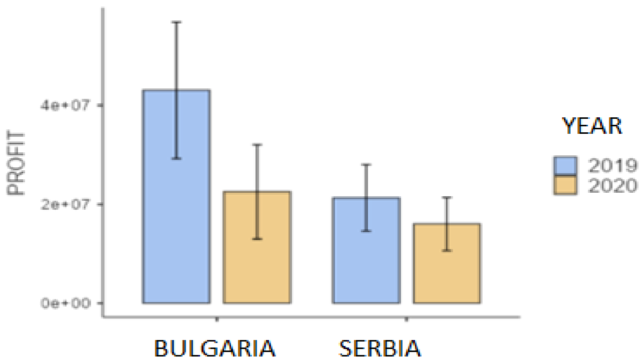

Illustration 1. Profit by year and country. Source: (Authors, 2022).

In Serbia, income fell in both categories between 4 and 9%, with larger banks recording a greater decline in income. While in Bulgaria the picture is reversed - those banks achieved an average higher income compared to 2019. Profits in both countries fell significantly (as presented in Illustration 1.), in Bulgaria with a larger decline in profits, especially at smaller banks. While in Serbia, the drop in profit ranged between 20% and 25%, with smaller banks having on average less negative impact on profit than larger banks.

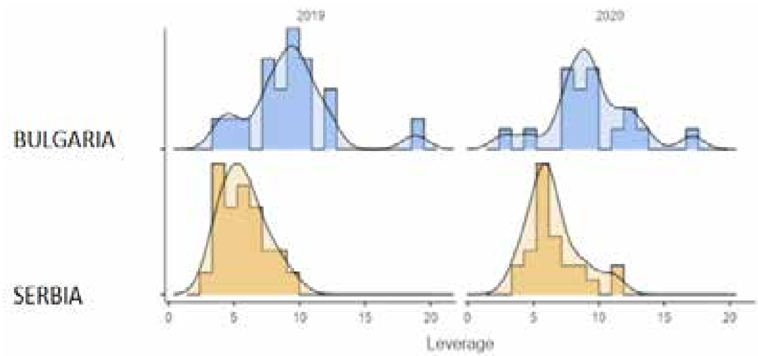

Illustration 2. Leverage by market
Source: (Authors, 2022).

The leverage indicator mostly stagnated in both countries as presented in Illustration 2., except for the group of smaller banks in Serbia, where it grew by 15%. Looking at the structure, banks in Serbia are concentrated in the leverage zone of 5, while a much larger leverage dispersion of banks in Bulgaria is noticeable in terms of this indicator, however, broadly more leveraged than Serbian banks.

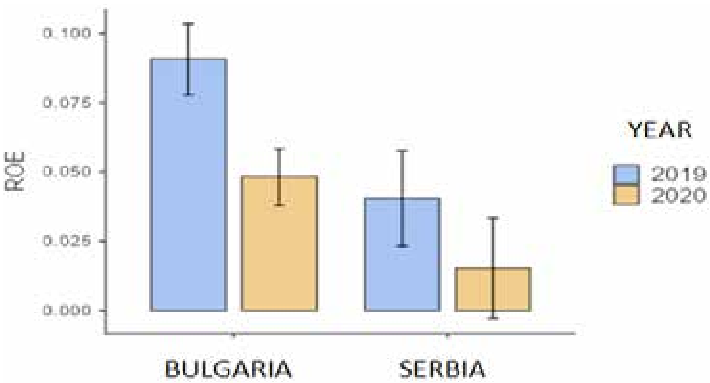

Illustration 3. ROE by market and year
Source: (Authors, 2022).

The ROE indicator visible in Illustration 3. decreased in all categories in both countries, with the fact that it is lower in Serbia compared to Bulgaria in both groups of banks. However, bearing in mind the starting points, in which, on average, the entire banking sector of Bulgaria had almost twice the ROE of banks in Serbia.

CONCLUSION

In general, we can conclude that the illustrations, based on the research, indicate that the proposed hypotheses are logical. The larger banks in the banking sector of Serbia and Bulgaria experienced a decline in the ROE indicator in the period between two years. On average, ROE has been halved as a direct and indirect result of the Covid-19 pandemic through central bank measures and the decline in customer activity during the lockdown period. Compared to 2019, in Serbia, banks revenues on average fell, while in the same period they grew in Bulgaria (for both groups of banks). The research indicate that, based on the assumption that in both countries larger banks had a smaller negative impact on all indicators compared to the group of smaller banks. It is partially observable for the area of Bulgaria, where larger banks maintained the levels of profitability, and was not visible in Serbia, where according to all indicators smaller banks experienced less influence on the indicators in the period during the pandemic.

Larger banks in the banking sector of Serbia and Bulgaria experienced a drop in ROE in the period between two years. Bulgarian banking sector average ROE for larger bank dropped by 48% and in Serbian banking sector by 24%. This is somewhat expected bearing in mind that regulatory bodies in both countries focused on the banking system stability, of which larger banks is most important part (systemic banks) and profitability was not priority. Also, the bank's shareholders and management in both markets rightly opted for conservatively bolstering the provisions for credit risks that could arise from the pandemic which reduced the average profit returns.

For both banking sectors there is an observable stagnation of income compared to 2019 as presented in Table 1. However, on average banks income dropped for 8% in Serbia, and grew for 5% in Bulgaria. It is not documented whether Table 1. data proves or disproves the hypothesis; however, results seem logical and indicative that Bulgarian banking sector clients were more resilient to the pandemic impact than Serbian banking sector clients.

In both countries, larger banks had a smaller negative impact on all indicators compared to the group of smaller banks. This hypothesis is neither proved nor disproved but the finding of the authors is indicative while bearing in mind that, with exception of average profit in Bulgaria, and average ROE in Serbia, all other indicators visible in Table 1 had larger negative impact in larger banks. This is an interesting finding bearing in mind that it is expected that larger banks, with more capital and larger portfolio would (on average) be able to weather the negative impact of a larger crisis. However, for both countries, most of the strategic indicators were less negatively impacted in smaller banks.

The findings offer ground for further research on the causes of the smaller bank's resilience during pandemic in Serbia and Bulgaria compared to larger banks. One of hypothesis for future research may be that there is a reverse correlation between the presence of agile approach by management of smaller banks during pandemic and the level of negative impacts.

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