Zoran Grubišić *, *Sandra Kamenković* **
Tijana Kaličanin ***

* *Belgrade banking academy, Belgrade, Serbia*

E-mail:
zoran.grubisic@bba.edu.rs

** *Belgrade banking academy, Belgrade, Serbia*

E-mail:
sandra.kamenkovic@bba.edu.rs

*** *Belgrade banking academy, Belgrade, Serbia*

E-mail:
tijana.kalicanin@bba.edu.rs

Comparative Analysis of the Banking Sector Competitiveness in Serbia and Montenegro

Abstract: Central banks often use certain concentration indices in their official reports to determine the degree of intensity of competition, of which the most common are the concentration ratio and the Herfindahl-Hirschman index. It is important to emphasize that when calculating the value of these indices, the National Bank of Serbia most often uses the absolute value of assets. In addition to the mentioned indices, the values of the Gini coefficient, Entropy coefficient, Rosenblatt index and graphical representation of the Lorenz curve in the period 2015-2019 are presented in this paper, using the balance sheet position loans and receivables from customers, but not including loans and receivables from banks and other financial organizations. The results of the static and dynamic analysis of concentration indicate that, compared to Montenegro, the banking sector of Serbia is characterized by a larger number of banks, less concentration on the market, and stronger intensity of competition. Although market changes are reflected in a reduced number of banks while a change in the dispersion of market shares affected the change in the market structures of the banking sectors, instability and uncertainty of the analysed sector remained unchanged in the case of both countries.

Key words: banking sector, market concentration, market power, competition

Jel classification: G21, E58, L10

Introduction

The banking sector is the dominant part of the financial system and as such represents a significant factor in the development of the overall economic system. In the past three decades, studies of the banking sector of transition economies have become more important due to banking reforms that included liberalization, privatization, and recapitalization of the banking sectors in the region. The financial sectors of the transition countries are largely dominated by banks rather than the capital market as is the case in developed countries (Bayar, 2019). In the late 1990s and early 2000s, foreign banks played a dominant role in the region's banking sectors, and the transfer of European countries' capital to the region's CEE banking sector was accelerated.

With the beginning of the global economic crisis and the recession, a decrease in the financial activity of Western European credit institutions in the region of Central and Eastern Europe was noticed. Although the development of market banking systems is long-lasting, the transition of the banking sectors in the region is largely complete. In the past decade, there have been significant changes in the structure of the banking market as a result of the restructuring of the banking sector.

The number of factors that affect the level of competitiveness is significant, but according to the literature, three main factors that affect the degree of supply concentration are as follows: the number of competitors operating in the market, market share dispersion between competitors, and barriers to market entry and exit. When only one company exists on the supply side, there is no need to determine the level of concentration because such a market is characterized by a single market structure - a monopoly.

The number of banks on the market as well as the dispersion of individual shares determines the market or competitive structure of the banking sector, which is expressed by concentration. Market concentration is a function of the number of companies competing in the market and their individual relative market shares. Given that the degree of concentration indicates the market structure and thus the behaviour of competitors, banks, in a particular market, the analysis of market concentration levels is significant because it has an impact on users of banking services, the sector and the economy as a whole. Recently, the analysis of the impact of the concentration of the banking sector on financial stability and profitability has been especially attracting the attention of researches (Rakshit & Bardhan, 2020, Arif & Awwaliyah, 2019).

The paper analyses a wide range of indicators, as well as some indicators that are rarely used such as the Rosenblatt index, in order to get a more realistic picture of the degree of concentration of the banking market in the observed countries. The results can also be useful to economic policy makers, in order to establish appropriate control mechanisms and instruments, as well as to define the best possible legal solutions in this area.

Literature review

It is important to emphasize that previous empirical research using only one market concentration indicator has shown relatively contradictory conclusions about the level of banking market concentration, because each indicator has its advantages and disadvantages. It is necessary to use a number of indicators in order to obtain a clearer picture of the market concentration of the banking sector. Also, differences in values as well as conclusions may be the result of different periods that have been analysed, since the banking system is a very dynamic sector. Finally, differences may also arise from different variables that are used as the basis for calculating indicators. Having considered the fact that the research which analysed several indicators found contradictory conclusions, the authors found it most sensible to present previous research chronologically given the fact that the number of banks in the markets varies over time.

Miljković, Filipović & Tanasković (2013) analysed the concentration in the banking sector of Serbia for 2012 using concentration indicators such as the Reciprocity index, Concentration ratios CR3, CR5 and CR8, Gini coefficient, and the Herfindahl-Hirschman index for capital, loans, deposits, interest income, net income after tax, and net loans. Their results showed that the Serbian banking sector was characterized by a highly unconcentrated structure for all categories, except for the net profit, where results suggest moderate concentration.

Barjaktarović, Filipović & Dimić (2013) analysed the concentration of the banking sector of 9 Central and Eastern European countries in the period from 2007 to 2012 for the banking sector data such as assets, approved loans, and collected deposits. Their results suggest moderate to highly concentrated market according to CR5 and no market concentration to moderate concentration according to HHI.

Babić, Zildžović & Lončar (2015) used Panzar-Rosse model to analyse the level of competitiveness in the Serbian banking sector in the period 2004-2012. In this period, 31 banks operated on the Serbian market and each bank had asset share lower than 15%. Although this share generally implies low market concentration,

the results of this research suggest that the relationship between revenues and costs is in line with monopolistic competition among banks. When subset of large banks is analysed, results support the existence of monopoly or oligopoly with perfect collusion.

Filipović, Avramović & Račić (2016) analysed the degree of concentration of the Serbian banking sector through indicators CR5 and HHI, applied to the balance sheet of the sector in the period 2008 to 2014. Results of CR5 indicator suggest that large domestic banks threaten to take a share in market which may jeopardize competition in future. On the other side, the results of HHI indicate that there are a large number of banks operating on the market and their market share ensure low concentration on the banking market in total.

Kaličanin & Hanić (2016) analysed the degree of concentration on the banking market through HHI, Ratio of concentration, Lorenz curve, Gini coefficient and Entropy coefficient for the categories: approved loans and the amounts of collected deposits of each bank individually in 2015. The sample consists of the banking sectors of the Republic of Serbia, Croatia, Bulgaria, Montenegro and Bosnia and Herzegovina. The results suggest that the market structures of the banking sectors in the selected countries are similar and that a high level of competitiveness is present.

In the research of Bukvić (2017), the concentration degree in Serbian banking sector is calculated using the CrN, the HH index, and relatively rarely used the Linda index. Sample included five variables: total assets, deposits, capital, bank operating income and loans, for year 2016. Results indicate low concentration degree close to moderately concentrated with note that slight growth in concentration appeared.

Marinović-Matović (2018) analysed the values of CR5 and HH indices based on the value of balance sums in the banking sector of Serbia in the period 2008-2017. The value of the CR5 indicator indicates that the sector is moderately concentrated, meaning that the number of clients in the five largest banks threatens to endanger competition in the market. The value of HHI indicates a lack of concentration, even though it shows a slight growth trend.

Mustafa & Toçi (2017) used General Method of Moments to analyse panel data for 300 banks from Central and Eastern European countries in the period 1999-2009. The sample included 16 countries, with both Serbia and Montenegro banking system. For Serbia, the results show the value of the HH index from a maximum of 5,813 in 2000 to a minimum of 0.811 in 2009. The value of HH index for Montenegro shows a significantly smaller range in the analysed period

and ranges from the maximum of 3,924 in 2005 to the minimum of 2,390 in 2009. The results of their estimation show negative H statistics, which suggest that the behaviour of banks operating in CEE countries is consistent with monopoly behaviour, which is an unexpected result having in mind the number of banks operating in these countries, especially Serbia. The findings also suggest that banks operating in non-EU countries of this region have stronger market power than EU countries in the same region.

Based on Lorenz curve and Gini coefficient, Dimić & Paunović (2019) analysed the concentration levels in the banking sectors of 8 countries in the CEE region, including both Serbia and Montenegro in the period 2007-2012. Based on total assets, the value of Lorenz curve for Serbia shows that the first 50% of the banks have 13% of total banking sector assets, while the remaining 50% have 87% of the market. In Montenegro, 90% of the participants in the banking market have a share of 75% of total assets. The results indicate a high average level of concentration measured by the Gini coefficient.

Results and discussion

The index of shares of *n* companies or the concentration ratio is an indicator that is obtained as the sum of market shares of the largest companies on the market and as such is very easy to understand (Waldman and Jensen, 2001). Due to its easy application and simplicity, it is often used in practice. When it comes to concentration ratios, CR1 is primarily calculated to see the market share of market leader. In the case of monopolies, the value of the index is 100. In addition to the market share of the leader, the sum of the shares of n companies is usually used, which ranges from 3-10, depending on the number of companies operating in the sector that is the subject of analysis. In the case of an atomized supply, when there is unlimited number of companies on the supply side, the sum of shares in the range of 3-10 may weigh zero, so there is no single threshold, but it is determined according to the number of companies in the analysed sector. Considering previous, the concentration ratio represents the cumulative market share of n companies, ranked from the highest to the lowest market share, which can be represented by the following formula:

$$CR_n = \sum_{i=1}^{n} xi$$

where 'xi' stands for the market share of the 'i' company, and 'n' is the number of companies we use when calculating the ratios.

Considering that the banking sectors of the Republic of Serbia and Montenegro differ significantly in the number of banks operating on the markets, the following are the results of four concentration ratios in the observed period - CR1, CR3, CR5, and CR10.

Figure 1: Concentration ratios of the banking sector of Montenegro, 2015-2019
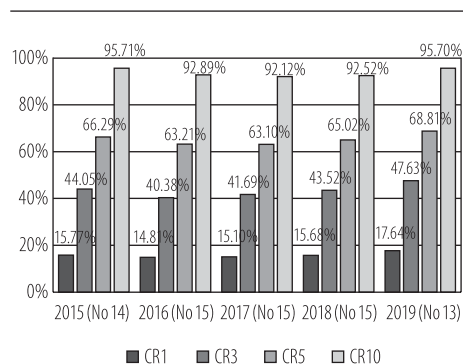
Source: Authors` calculations based on data from the Central Bank of Montenegro (https://www.cbcg.me) and the National Bank of Serbia (http://www.nbs.rs)

Figure 2: Concentration ratios of the banking sector of the Republic of Serbia, 2015-2019
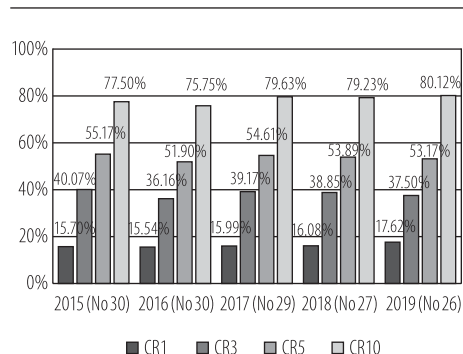
Source: Authors` calculations based on data from the Central Bank of Montenegro (https://www.cbcg.me) and the National Bank of Serbia (http://www.nbs.rs)

In the observed five-year period, the number of banks operating in the banking sector of Montenegro did not change significantly, except in 2019 when there was a decline to 13 banks compared to the previous year, given that two banks went bankrupt. Information on the number of banks is given in Figure 1 next to each year. The leader in the mentioned market is CKB bank AD Podgorica, whose share increased in 2019 to almost 18% compared to the previous observed years when the market share of the leader was around 15%. The concentration ratio of the first three banks ranged from 40.38 to 47.63%, as it was in 2019. Based on Figure 1, it can be concluded that one third of the banks with the largest market share, have a share of about 2/3 of the total market, which will later be represented by Lorenz curve. The mentioned changes related to the number of banks had a significant impact on the growth of the participation of leaders, which can be concluded based on the growth of all analysed concentration ratios and their values in 2019 compared to previous years.

In terms of market share, there is no significant difference in the banking sector of Serbia in relation to Montenegro - Banca Intesa AD Belgrade was ranked first in the five-year observation period. The market share of this

bank ranged from 15.54 to 17.62%, which is close to the market leader CKB bank AD Podgorica. However, the values of the CR3 and CR5 ratios differ significantly compared to the Montenegrin banking sector and these values are far lower. It is important to mention the difference in the number of banks operating in the banking market of the Republic of Serbia in relation to the banking market of Montenegro. Although there is a declining trend in both markets in the number of banks operating in the analysed market, the number of banks operating in the Republic of Serbia is almost twice as high. Having in mind the values of the CR10 ratio shown in Figure 2, it can be concluded that the first ten ranked banks by market share have a share of 80.12% of the total market, and the remaining 16 banks "share" 20% of the remaining market share. The conclusion for both markets is that there is one bank that has taken a strong market position in the past five years with about 15% market share, there is a growth of the CR1 index, the number of banks is declining, and there is a possibility of continuing this trend.

The Herfindahl-Hirschman index is a measure of the size of a company in relation to the sector to which the company belongs and as such is an important indicator of the degree of competition between companies from the observed sector. The market share of each participant in the market is squared, and the resulting amounts are then totalled (Calkins, 1983). In the banking sector, this index is the sum of the squares of individual market shares of banks and is widely used in central bank reports, but it is important to note that central banks take into account the total value of assets to obtain the value of this index and this paper does not. The high value of the Herfindahl-Hirschman index indicates a high level of market concentration, which further implies a weaker intensity of competitiveness and greater economic power of market participants. It can be presented by the following equation (Šaj, 2005):

$$HHI = \sum_{i=1}^{N} x_i^2$$

Where 'xi' stands for market share of 'i' firms, and 'N' stands for a total number of firms in the market. The importance of this index is reflected in the fact that even though it looks at individual market shares of all firms in a branch, it recognizes separately presence of firms with large market shares, significantly increasing its value (Lipczynski, Wilson & Goddard, 2001). This index is widely applied in competition law, antitrust and technology management (Kola, Gjipali & Sula, 2019).

Division into five types of markets according to the value of the Herfindahl-Hirschman index is generally accepted (Begović et al., 2002):

- if the value of the HHI index is less than 1000, the market is characterized by an unconcentrated supply;
- if the value of the index is in the range of 1000-1800, the market is characterized by a moderately concentrated supply;
- if the value of the index is in the range of 1800-2600, the market is characterized by a highly concentrated supply;
- if the value of the index is in the range of 2600-10000, the market is characterized by a very highly concentrated supply;
- if the value of the index is higher than 10000, the market is characterized by a monopolistically concentrated supply.

Figure 3: Herfindahl-Hirschman index, Serbia and Montenegro, 2015-2019
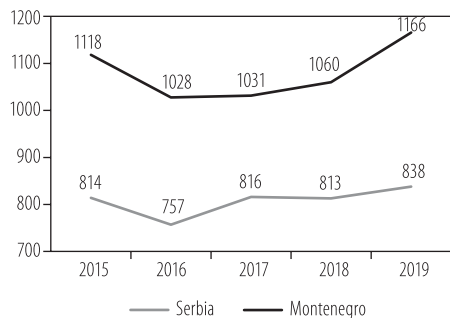
Source: Authors` calculations based on data from the Central Bank of Montenegro (https://www.cbcg.me) and the National Bank of Serbia (http://www.nbs.rs)

A comparative analysis of the value of the Herfindahl-Hirschman index for the banking sector of Serbia and Montenegro is shown in Figure 3, where a significant difference in the value of the index in the observed period 2015-2019 is noticeable. What is characteristic for both countries is a decline in value in 2016 compared to 2015, followed by a growing trend in the value of the Herfindahl-Hirschman index in the case of both countries. The value of the HHI index of the banking sector of Montenegro ranged from 1028-1166, which indicates a moderately concentrated supply. The value of the HHI index of the banking sector of the Republic of Serbia ranged from 757-838, which indicates an unconcentrated supply. Taking into account the values, it can be concluded that the banking sector of Montenegro is characterized by weaker competition and greater economic power of banks compared to the banking sector of Serbia, where there is stronger competition and less economic power of operating banks.

Gini coefficient as a concentration measurement tool has been based on Lorenz curve's underpinning logic. Starting from the given Lorenz curve chart, Gini coefficient can be defined by the following equation (Kaličanin & Hanić, 2016):

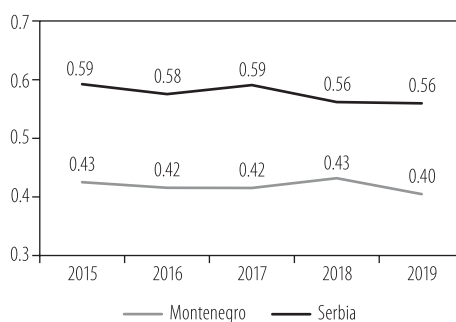$$G = \frac{2}{\mu n^2} \sum_{i=1}^{n} \left(r_i - \frac{n+1}{2} \right) q_i$$

where 'n' stands for a number of firms, 'μ' is an average firm's sale on the given market, 'ri' is a rank an 'i' firm is holding (firms are ranked by sale scale or market share from the smallest to the biggest) and 'qi' is sale scale of an 'i' firm. The Gini coefficient ignores the number of companies in the relevant market and exclusively observes the inequality of market shares, which is the main disadvantage of this indicator. The minimum value that this coefficient can have is zero, which implies that the distribution of market shares is completely equal in the market, while the maximum value that has a value of 1 corresponds to the monopoly market.

Figure 4 shows a comparative analysis of the value of the Gini coefficient for the period 2015-2019, for the banking sector of Serbia and Montenegro. The balance sheet position loans and receivables from customers was used to calculate the value as previously stated, not including loans and receivables from banks and other financial organizations. The Gini coefficient on the Montenegrin banking market ranged from 0.40-0.43, and recorded far lower values compared to the banking sector of the Republic of Serbia. The lowest value of the Gini coefficient in the banking sector of Serbia is 0.56 in 2019. This value of the index classifies the banking sector of Serbia in

Figure 4: Gini concentration coefficient, Serbia and Montenegro, 2015-2019

Source: Authors` calculations based on data from the Central Bank of Montenegro (https://www.cbcg.me) and the National Bank of Serbia (http://www.nbs.rs)

medium-concentrated markets and suggests that there is a group of banks with a large market share as well as a group of banks with a small market share in the total supply, which will later be graphically represented by the Lorentz curve. A medium-concentrated market in this sense means that the number of companies with a large market share is equal to the number of companies with a small market share. Based on the value of the Gini coefficient, it can be concluded that the banking sector of the Republic of Serbia is characterized by greater inequality in the distribution of market share compared to Montenegro, where there is a smaller disproportion in the size of market shares. Given that there was a decline in the value of the Gini coefficient in 2019 compared to previous years, we can expect a change in market structure, which will be characterized by a larger number of those banks that have a smaller market share compared to the group with a higher market share, precisely the number of such banks will increase.

Figure 5: Lorenz curves, Serbia and Montenegro, 2015-2019
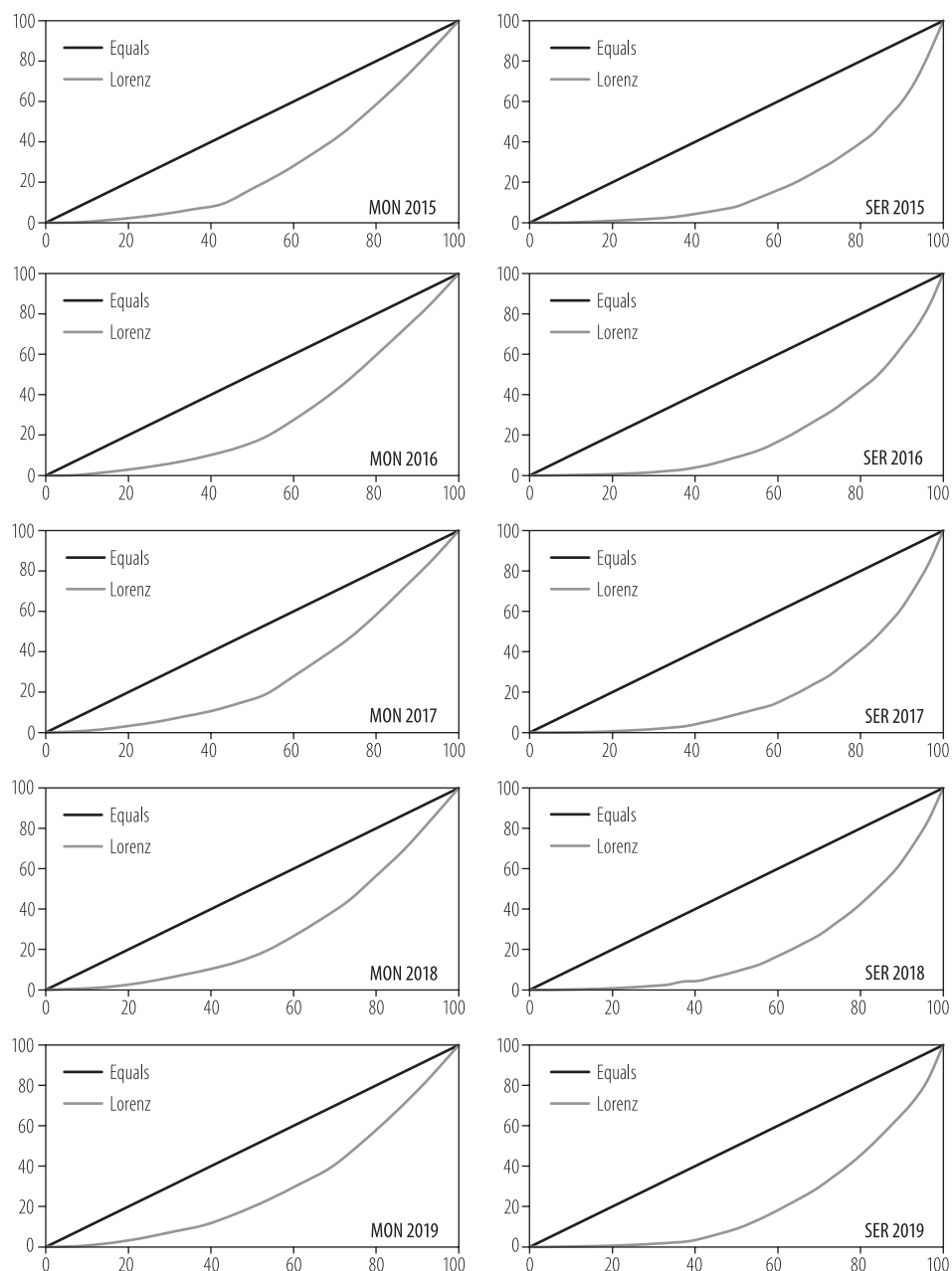
Source: Authors` calculations based on data from the Central Bank of Montenegro (https://www.cbcg.me) and the National Bank of Serbia (http://www.nbs.rs)

The Gini coefficient is a statistical measure, based on the Lorentz curve, as a graphical instrument. The Lorentz curve is one of the very important instruments used in statistical analysis. In practice, this tool is often used to graphically present the degree of market concentration and to identify inequalities in the distribution of market share. Uniformity in the distribution is seen on the basis of the deviation of the Lorentz curve from the curve of equal market shares (curve 45 °), which shows absolutely equal distribution of market shares among all market participants - a hypothetical case of complete competition (Stojanović & Radivojević, 2010). Given that the curve of equal market shares reflects the ideal, theoretical situation of uniform dispersion of market power, it is desirable that the Lorentz curve, as a reflection of the real situation, be as close as possible, i.e. that the value of the Gini coefficient be as low as possible.

The Lorenz curve is widely used to represent and analyse the size distribution of income and wealth. The curve relates the cumulative proportion of income received when the units are arranged in ascending order of their income (Kakwani & Podder, 2008). Figure 5 shows the constructed Lorenz curves for both banking sectors in the observed period using balance sheet position loans and receivables from customers, but not including loans and receivables from banks. The abscissa shows the banks that are ranked from the smallest to the largest (in percent), and the ordinate shows the percentage of bids available to the same banks (in the range from 0% to 100% of the bid). A comparative analysis of the two countries clearly shows the difference in the inequality of the division of market shares on the graphs, and the previously analysed values of the Gini coefficient are graphically confirmed. Given that in the case of the banking sector of Montenegro, the Lorenz curve is constructed closer to the curve of equal market shares, it can be concluded that there is less inequality in the distribution of market shares. Additionally, it is noticeable that from year to year the Lorenz curve approached the curve of equal market shares, which suggest that the dispersion of market shares decreased in the observed period 2015-2019, in the banking sector of Montenegro.

Analysis of the Lorenz curves constructed for the banking sector of the Republic of Serbia, suggests that they did not significantly change the slope in the observed period, but it is noticeable that the group of banks with lower market share increased its market share compared to the group of banks with high market share. In other words, 60% of banks ranked from lower to higher market share in 2019 "share" 20% of the total market compared to previous years, where the stated percentage was below 20%.

Entropy coefficient is a sum of market shares of individual firms and natural logarithms of their reciprocal values as in the following formula:

$$EI = \sum_{i=1}^{n} Xi \ln \frac{1}{Xi}$$

Where 'Xi' stands for market share of an 'i' firm expressed in relative numbers. Coefficient value is defined between two extreme cases: value EI =0 where one firm sets up the whole offer and value EI = log (n) when in one branch there are n firms of the same size (Kaličanin & Hanić, 2016). The larger the entropy index is, the higher the bank's diversification is (Hu, Li & Chiu, 2004).

The entropy coefficient in the case of the banking sector shows the degree of stability on the supply side. In general, in the case of a monopoly, one bank would be able to form the level of interest rates on approved loans. In the case of a large number of banks on the market, users of banking services can relatively easily change the bank whose services they use, which reflects the instability of the market. Unlike other analysed concentration indicators, the value of the entropy coefficient is inverse to the level of concentration, i.e. a higher entropy coefficient means a lower level of concentration on the market, and vice versa.

Table 1: Entropy coefficient and relative entropy, Montenegro banking sector in 2015-2019

Montenegro	2015	2016	2017	2018	2019
Entropy coefficient	1.00	1.04	1.05	1.04	0.99
Log (n)	1.15	1.18	1.18	1.18	1.11
Relative entropy	0.88	0.89	0.89	0.88	0.89

Source: Authors` calculations based on data from the Central Bank of Montenegro (https://www.cbcg.me) and the National Bank of Serbia (http://www.nbs.rs)

Table 1 shows the calculated values of the entropy coefficient of the banking sector of Montenegro, the maximum values of the coefficient and the coefficient of the relative entropy. The coefficient of relative concentration distance was obtained as the ratio of the calculated entropy and the maximum entropy for a given number of commercial banks. The entropy coefficient shows a declining trend in the observed period, which indicates an increased level of market concentration and a reduced level of competitiveness - which is supported by the reduced number of banks operating in the banking sector of Montenegro. If we take into account the ratio of the maximum value of the coefficient and the value of the entropy coefficient, expressed by the value of relative entropy that did not change significantly, it can be concluded that the degree of market instability did not change significantly in the observed period.

Table 2: Entropy coefficient and relative entropy, Serbian banking sector in 2015-2019

Serbia	2015	2016	2017	2018	2019
Entropy coefficient	1.21	1.22	1.19	1.19	1.17
Log (n)	1.48	1.48	1.46	1.43	1.41
Relative entropy	0.82	0.83	0.82	0.83	0.82

Source: Author's calculations based on data from the Central Bank of Montenegro (https://www.cbcg.me) and the National Bank of Serbia (http://www.nbs.rs)

Table 2 shows the calculated values of the entropy coefficient of the Serbian banking sector, the maximum values of the coefficient, the coefficient of the relative entropy and the values of the relative distance coefficient. The value of the entropy coefficient of the Serbian banking sector is higher compared to the banking sector of Montenegro, although the maximum value of the coefficient is higher because of the larger number of banks operating in the Serbian market. The trend is almost the same and records a decline in value, and the conclusion is that there is increased concentration of the banking market and a reduced level of competitiveness. The decrease in the number of banks operating in the market of the Serbian banking sector did not affect instability in the market, which is supported by the value of the entropy coefficient, which was in the small range of 0.82-0.83.

Unlike the HHI index, the Rosenblatt index gives a relatively higher weight to smaller companies and respects the absolute number of market participants, i.e. it is sensitive to the entry of new companies in the market. The value of the Rosenblatt index is determined according to the form:

$$R = \frac{1}{2\sum_{i=1}^{N} i \cdot s_i - 1}$$

where 'i' stands for the ranking position of the insurance company, and 'si' for the market share of the i-th company. If the value of the index R is closer to the value of 1/N, it is a lower concentration on the market (Kočović, Rakonjac-Antić & Rajić, 2013). The lower limit of the value of the Rosenblatt index is equal to 1/N, which corresponds to the situation of mutually equal shares of all market competitors. The higher the degree of inequality of market shares, the closer the value of the index is to 1.

Table 3: Rosenblatt index, Montenegro banking sector in 2015-2019

Montenegro	2015	2016	2017	2018	2019
Rosenblatt coefficient	0.124	0.114	0.114	0.117	0.129
1/N	0.071	0.067	0.067	0.067	0.077
Difference	0.053	0.047	0.047	0.051	0.052

Source: Authors` calculations based on data from the Central Bank of Montenegro (https://www.cbcg.me) and the National Bank of Serbia (http://www.nbs.rs)

Table 3 shows the values of the Rosenblatt index, while column 1/N corresponds to the situation of mutually equal shares of all banks in the Montenegrin market. The higher the degree of inequality of market shares, the closer the value of the index to 1. Taking into account the values in the difference column, it can be concluded that there is a high degree of inequality in the distribution of market power in the banking sector of Montenegro.

Table 4: Rosenblatt index, Serbia banking sector in 2015-2019

Serbia	2015	2016	2017	2018	2019
Rosenblatt index	0.082	0.078	0.084	0.085	0.087
1/N	0.033	0.033	0.034	0.037	0.038
Difference	0.048	0.045	0.050	0.048	0.049

Source: Author's calculations based on data from the Central Bank of Montenegro (https://www.cbcg.me) and the National Bank of Serbia (http://www.nbs.rs)

Given the larger number of banks that operated in the banking sector of the Republic of Serbia in the observed period, the reference value in column 1/N is far lower than in the case of the banking sector of Montenegro in the period 2015-2019. Taking into account the difference between the Rosenblatt index and the reference value 1/N, it can be concluded that it ranged from 0.045-0.050. Compared to the movement of the same value in the banking sector of Montenegro, which was in the range of 0.047-0.053, the degree of inequality in the distribution of market power in the banking sector of Serbia is lower, which is contrary to the Gini coefficient. It is important to mention here the basic shortcoming of the Gini coefficient, which ignores the number of banks and exclusively observes the inequality of market shares, while the Rosenblatt index takes into account the absolute number of market participants. Although the Gini coefficient is more often used in the analysis of different market structures, in order to obtain a clearer picture of the market structure and a better comparative analysis, the authors believe that the Rosenblatt index is more suitable.

Conclusion

Compared to Serbia, the banking sector of Montenegro is characterized by a smaller number of banks, a higher level of market concentration, and weaker competition. Both markets are characterized by the presence of one leader who took a strong market position in the observed period with some 15% market share. In addition, there is an increase in the CR1 index, and as the number of banks on both banking markets has decreased, there is a possibility that this trend will continue.

Considering the values of HHI, it can be concluded that the banking sector of Serbia is characterized by stronger competition and less concentration compared to the banking sector of Montenegro, where the values of the index are far higher, indicating greater concentration and greater economic power of operating banks. Observing the trend in the value of the Gini coefficient of the banking sector of Montenegro, change can be expected in the market structure, which will be characterized by a larger number of those banks that have a smaller market share compared to the group with a higher market share.

Additionally, it is noticeable that over the years the Lorenz curve approached the curve of equal market shares, from which it can be concluded that the dispersion of market shares decreased in the period 2015-2019 in the banking sector of Montenegro. The dispersion of market shares of the Serbian banking sector in the same period did not change significantly. The degree of instability and uncertainty measured by the entropy coefficient did not change significantly in the observed period in the banking sector of Montenegro. Increased concentration of the banking market and reduced intensity of competition also did not significantly affect the instability and uncertainty of the analysed sector.

Considering the calculated values of all coefficients, as well as advantages and disadvantages of some indicators, some of which point to contradictory conclusions, the authors believe that it is important to analyse a number of concentration indicators in order to get a realistic picture of market structure for a better comparative analysis. Also, the recommendation for further research is to use the Rosenblatt index which is rarely used when determining the level of concentration in a banking sector, since it takes into account not only individual market shares, but also the absolute number of market participants.

References

1. Arif, M. N. R. A., & Awwaliyah, T. B. (2019). Market Share, Concentration Ratio and Profitability: Evidence from Indonesian Islamic Banking Industry, *Journal of Central Banking Theory and Practice*, 8(2), 189-201. doi: https://doi.org/10.2478/jcbtp-2019-0020.

2. Babić, A., Zildžović, E. & Lončar, D. (2015). Testing for Competition in Serbian Banking Industry: the Panzar-Rosse Approach. *Industrija*, 43(3), 7-26.

3. Barjaktarović, L., Filipović, S. & Dimić, M. (2013). Nivo koncentracije u bankarskoj industriji u zemljama centralne i istočne Evrope. *Industrija*, 41(3), 39-54.

4. Bayar, Y. (2019). Macroeconomic, Institutional and Bank-Specific Determinants of Non-Performing Loans in Emerging Market Economies: A Dynamic Panel Regression Analysis, *Journal of Central Banking Theory and Practice*, 8(3), 95-110. doi: https://doi.org/10.2478/jcbtp-2019-0026.

5. Begović, B., Bukvić, R., Mijatović, B., Paunović, M., Sepi, R. & Hiber, D. (2002). *Antimonopolska politika u SR Jugoslaviji*. Beograd: Centar za liberalno-demokratske studije.

6. Bukvić, R. M. (2017). Concentration and Competition in Serbian Banking Sector. *Economic and Engineering Studies* (Cahul State University "Bogdan Petriceicu Hasdeu"), 2(2), 4–12.

7. Calkins, S. (1983). The new merger guidelines and the Herfindahl-Hirschman Index. *Calif. L. Rev.*, 71, 402.

8. Dimić, M. & Paunović. S. (2019). Concentration Measuring Techniques in Banking Sector-Lorenz Curve and Gini Coefficient. *Economic Analysis: Applied Research in Emerging Markets*, 52(2), 137-151.

9. Filipović, M., Avramović, V. & Račić, Ž. (2016). Analiza nivoa koncentracije aktive u bankarskom sektoru Republike Srbije. *Škola biznisa*, 2, 111-119.

10. HU, J. L., Li, Y., & Chiu, Y. H. (2004). Ownership and nonperforming loans: Evidence from Taiwan's banks. *The Developing Economies*, 42(3), 405-420.

11. Kakwani, N. C., & Podder, N. (2008). Efficient estimation of the Lorenz curve and associated inequality measures from grouped observations. In *Modeling Income Distributions and Lorenz Curves* (pp. 57-70). New York: Springer.

12. Kaličanin, T. & Hanić, A. (2016). Comparative Analysis of Levels of Banking Sector Markets Concentration in CEE Region. *Economic Analysis*, 49(1-2), 59-72.

13. Kočović, J., Rakonjac-Antić, T. & Rajić, V. (2013). Dobrovoljno zdravstveno osiguranje kao dopuna obaveznom zdravstvenom osiguranju u Srbiji. *Ekonomske teme*, 51(3), 541-560.

14. Kola, F., Gjipali, A. & Sula, E. (2019). Commercial Bank Performance and Credit Risk in Albania. *Journal of Central Banking Theory and Practice*, 8(3), 161-177. doi: https://doi.org/10.2478/jcbtp-2019-0029.

15. Lipczynski, J., Wilson, J. & Goddard, J. (2009). *Industrial Organization: Competition, Strategy, Policy*. Third Edition. Harlow: Prentice Hall.

16. Marinović-Matović, I. (2018). Creating and developing competition in the banking sector of the Republic of Serbia. RAIS Conference Proceedings – The 11th International RAIS Conference on Social Sciences, Washington DC, USA, November 6-7, 2018, pp. 59-64.

17. Miljković, M., Filipović, S. & Tanasković, S. (2013). Tržišna koncentracija u bankarskom sektoru - primer Srbije. *Industrija*, 41(2), 7-25.

18. Mustafa, A. & Toçi, V. (2017). Estimation of the banking sector competition in the CEE countries: The Panzar-Rosse approach. *Zbornik radova ekonomskog fakulteta u Rijeci/Proceedings of Rijeka Faculty of Economics*, 35(2), 459-485.

19. Rakshit, B., & Bardhan, S. (2020). Does Bank Competition Enhance or Hinder Financial Stability? Evidence from Indian Banking, *Journal of Central Banking Theory and Practice*, 9(s1), 75-102. doi: https://doi.org/10.2478/jcbtp-2020-0024.

20. Šaj, O. (2005). *Industrijska organizacija: Teorija i primena*. Belgrade: Centar za izdavačku delatnost Ekonomskog fakulteta.

21. Stojanović, B. & Radivojević, V. (2010). Koncentracija ponude kao izraz nesavršenosti tržišta: primer nespecijalizovane trgovine na malo na tržištu grada Niša. *Ekonomika preduzeća*, 58(7-8), 327-338.

22. Waldman, D. & Jensen, E. (2001). *Industrial Organization: Theory and Practice*. New York: Addison Wesley Longman.

https://www.cbcg.me/

https://nbs.rs/