Creating and Developing Competition in the Banking Sector of the Republic of Serbia

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ABSTRACT: The significance of the banking sector in the Republic of Serbia has grown over the last 20 years, as a result of a huge increase of market importance and, consequently, deregulation in this and other sectors. Deregulation and liberalization processes are followed by the processes of integration (mergers and acquisitions) of banks. The banking sector in the Republic of Serbia is characterized by a relatively large number of banks. Competition in general, and especially in the banking sector, is complicated and difficult to measure, for which there are no generally accepted and best indicators. Using the Concentration Ratio index (CR) and Herfindahl-Hirschman index (HHI), the author tries to determine the degree of concentration, for the purpose of evaluation the competition in the banking sector of the Republic of Serbia. The degree of concentration was checked on the basis of the financial statements of banks in the Republic of Serbia in the period 2008-2017. The results of the research will point to the current state and the best perspectives for creating and developing competitive conditions in the banking sector of the Republic of Serbia.

KEYWORDS: Banking sector, Republic of Serbia, concentration, competition, CR index, HHI index

Introduction

The level of competition present in a particular market is of great importance for the efficient functioning of the economic system. The national economic policy should be aimed at protecting and strengthening competition in all market segments. This is particularly important for the banking sector, where the level of competition is usually high.

In the last few decades, the scientific interest in analyzing the development of competition in the banking sector has grown considerably. One of the reasons is the importance of the banking sector in developing countries, which is linked to a huge increase of the market role and deregulation. In parallel, in the developed countries, the processes of deregulation and liberalization of the banking sector were accompanied by the processes of mergers and acquisitions of banks, which showed the need for an increased degree of market regulation in the domain of competition. Competition in the banking sector is characterized by high intensity and great diversity of forms and methods, and has an extremely important role, above all in terms of the level of banking interest rates. Low level of competition leads to high interest rates, that is, to the occurrence caused by various forms of imperfect competition such as monopoly and oligopoly. Therefore, the monitoring of the competition level in the banking sector is regulated, since it is necessary to provide a competitive environment for creating an efficient market system.

The banking sector in the Republic of Serbia has undergone significant changes since 2000. The banking sector transition in the Republic of Serbia started in 2001. In the period of 2 years, the number of banks halved in the processes of acquisition, privatization and liquidation. Instead of the 90 banks operating within the banking sector during 2001, there were 40 commercial banks left at the end of 2003. According to available sources from the National Bank of Serbia, the banking sector of the Republic of Serbia in 2017 consists of 29 commercial banks (National Bank of Serbia 2018), none of which holding a share that would significantly exceed the shares of others. For the Republic of Serbia, this is a significant number of banks, viewed from the perspective of competition development. The entry of foreign banks and the processes of deregulation and liberalization have also raised the level of competition in the banking sector of the Republic of Serbia.

The assessment of the competition development in the banking sector should not be based on subjective assessments and analyzes, but the level of competition should be determined using mathematical models. An analysis of the concentration level of the banking sector in the Republic

of Serbia can give an insight into the degree of competition in this market. The optimal and efficient level of competition in the banking sector is necessary to ensure a competitive environment in all segments of the market economy.

The market concentration indicators in the banking sector

Depending on the purpose of the research, market concentration can be measured by numerous indicators. Authors Bikker & Haff (Bikker & Haff 2000) have in theory synthesized several concentration indicators: Concentration Ratio, Herfindahl-Hirschman index, Entropy measure, Lorenz curve, Gini coefficient. Table 1 gives an overview of the above mentioned market concentration indicators, of their values' intervals, as well as explanations of the obtained values.

Table 1. Market concentration indicators

Concentration Ratio	$1/n \leq Cr \leq 1$	The index value approaches 0 when a large number of equal entities are present on the market, and the value of 1 takes place in a situation where the sum of "r" entities constitutes the entire industry
Herfindahl-Hirschman index	$1/n \leq HHI \leq 1$	Higher index value suggests a higher concentration. In the case of a monopoly, the value is equal to 10,000
Entropy measure	$0 \leq E \leq \log n$	A higher entropy value indicates a lower concentration. In the case of monopoly, the index value is equal to 0
Lorenz curve	-	It shows the distribution of the total to the units of the series. The concentration is greater if the curve is further from the equal distribution
Gini coefficient	$0 \leq G \leq 1$	The greater the value, the concentration is higher. In the event of complete inequality, the value is equal to 1

Source: Dumičić, K., Pavković, A., Akalović-Antić, J. (2012). Measurement of concentration in banking in the Republic of Croatia, Proceedings of the Faculty of Economics in Zagreb, X, no.II, p.121

Concentration Ratio (CR) is the indicator that is most often used when measuring concentration in the banking sector. It shows the sum of the participation of „n" of the largest banks in the market, or how much of the total market is covered by a group of „n" banks. The formula for calculating this indicator can be represented by the following expression (Kostić 2009):

$$CR_n = S1 + S2 + S3…..S_n = \Sigma^n_{i=1}S_i$$

   n - number of banks whose share is calculated
   Si - share of the bank „i" on the market within a set of „n" banks

The participation of an individual bank on the market can be measured using the following formula (Kostic 2009):

$$Si = q_i / Q \cdot 100 \ (\%)$$

   q - offer of the bank „i"
   Q - total offer of the whole banking sector

The number of banks participating in the concentration analysis using this index is not strictly defined, but it usually ranges between 4 and 10. In the literature, the most commonly encountered is the analysis of 5 banks, which is why this indicator is often referred to as the CR5, i.e. the concentration of the five leading banks (Iuga 2013). The concentration values range from 0 to 1. If the value of the ratio is closer to 0, there is a large number of banks with evenly distributed shares in the market (a larger number of smaller banks). In other words, there is a high degree of competition in a banking sector, since the participation of „n" largest banks is of relatively low importance. Conversely, if the value of the concentration index is close to 1, there is a high degree of concentration on the market. For the sake of easier interpretation, the concentration ratio is shown in percentages, and the degree of concentration for CR4 can be interpreted in the manner shown in Table 2 (Stojanović et al. 2010):

Table 2. CR4 concentration level

CR4 < 25%	Unconcentrated markets
25% < CR4 < 50%	Moderately concentrated markets
CR4 > 50%	Highly concentrated markets

*Source: Stojanović, B., Stanišić, T., Veličković, M. (2010), The problem of
protecting competition in retail in Serbia, School of Business, Vol.3, p.60*

The Concentration ratio belongs to the group of partial indicators, and its advantage is the simplicity of computation. It is not necessary to know the value for each bank, but it is enough to monitor the movement of the indicators for the largest banks. At the same time, this is a disadvantage, since the calculation does not include all market participants. Another significant disadvantage of this indicator usage is the fact that it does not show the dispersion of market shares within the set of observed banks, which often leads to wrong conclusions about the level of market concentration.

For this reason it is desirable to include several indicators of the concentration level in the analysis. For this purpose, the Herfindahl-Hirschman Index (HHI) is most commonly used. Herfindahl-Hirschman index is a collective indicator of concentration, and is considered the most precise indicator of the level of concentration, because it involves the participation of all banks and takes into account the size of market share between competitors.

The value of Herfindahl-Hirschman index is the sum of the squares of all banks' market share in the observed banking market. By squaring the market share of each bank on the market, the importance is given to those banks that have a higher market share. For this reason, it can be said that more asymmetrical markets have higher values of HHI index (Kostić 2009).

The formula for calculating the Herfindahl-Hirschman index can be mathematically presented in the following way (Kostić 2008):

$$HHI = S_1^2 + S_2^2 + S_3^2 + \dots + S_n^2 = \Sigma^n_{i=1} S_i^2$$

       i = 1, ..., n - the total number of banks in the market being analyzed

       Si - share of the bank „i" within a set of „n" banks

The HHI index values range from 0 to 10,000. If the value of HHI is lower than 1,000, it is an unconcentrated (low concentrated) market. If HHI ranges between 1,000 and 1,800, this is a medium-sized market. The HHI value between 1,800 and 2,600 represent a highly concentrated market. If HHI is between 2,600 and 10,000, it is a very high concentrated market. Monopoly concentration exists if the value of the HHI index is 10,000 (Begović et al. 2002).

The main advantage of using the Herfindahl-Hirschman index in relation to the Concentration ratio is the fact that the market share of all banks in the observed market is taken into consideration. On the other hand, the biggest deficiency of this model is the fact that the quadrant of participation below 1% practically have no impact on the overall indicator value. This means that HHI index practically ignores the influence of banks with low market share on the development of competition. However, these deficiencies do not represent a significant obstacle to the application of the Herfindahl-Hirschman index, so today it is considered a very reliable indicator of market concentration on all market types (Lipczynski & Wilson 2001).

Analysis of concentration and competition in the banking sector of the Republic of Serbia

Unlike some empirical researches that divide the banking sector into small, medium and large banks (Bikker & Haaf 2002), the banking sector of the Republic of Serbia can be viewed as unity. Regardless of the relatively large number of banks, the banking market in the Republic of Serbia is scarce, according to all relevant indicators: total assets of banks as of December 31, 2017. amounted to 3.369 billion dinars ($33,991 million), total capital was equal to 667 billion dinars ($6,730 million) *(National Bank of Serbia 2018)*. Therefore, the division of banking sector would not be appropriate for any

criterion. The analysis of concentration levels in the banking sector of the Republic of Serbia in this paper covers the period from 2008 to 2017. The measurement was performed using the data related to the value of the banks' balance sheet. When it comes to analyzing the level of concentration, it is important to take into account the number of banks that operated in the Serbian market in the observed period. The number of commercial banks operating in the Republic of Serbia in the period 2008-2017 is given in Table 3.

Table 3. Number of banks in the banking sector of the Republic of Serbia in the period 2008-2017

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of banks	34	34	33	33	32	30	29	30	30	29

Source: Autonomous work of the author on the basis of the National Bank of Serbia

(National Bank of Serbia, 2009-2018)

The first step of the research is the calculation of the CR5 indicator. The CR5 Concentration ratio is calculated based on the value of the balance sums of the five largest banks operating in the Republic of Serbia. These are Banca Intesa AD, Komercijalna banka AD, Unicredit Bank Serbia AD, Societe Generale Bank Serbia AD and Raiffeisen Bank AD. The obtained CR5 index values are shown in Table 4.

Table 4. Coefficient CR5 in the banking sector of the Republic of Serbia in the period 2008-2017

Year	Total assets of the top 5 banks (RSD bills)	Total banking sector assets (RSD bills)	CR5 (%)
2008	744	1777	41,9
2009	943	2160	43,7
2010	1097	2534	43,3
2011	1250	2650	47,2
2012	1384	2880	48,1
2013	1469	2846	51,6
2014	1591	2969	53,6
2015	1653	3048	54,2
2016	1773	3242	54,7
2017	1850	3369	54,9

Source: Autonomous work of the author on the basis of the National Bank of Serbia

(National Bank of Serbia, 2009-2018)

The average value of the CR5 coefficient testifies that the banking sector in the Republic of Serbia can be described as moderately concentrated. However, starting from 2008, there is a noticeable growth trend of this coefficient, which breaks the 50% limit in 2013, which puts the Serbian banking sector in the ranking of highly concentrated. Therefore, it can be concluded that the number of clients in the largest five banks is so great that it threatens to endanger competition in the market.

In the second step of the analysis, the values of the Herfindahl-Hirschman index are calculated. The values of HHI index, which show the sum of the squares of all banks' participation in the overall banking sector in the Republic of Serbia, are shown in Table 5.

Table 5. HHI index in the banking sector of the Republic of Serbia in the period 2008-2017

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
HHI	629	636	629	660	678	741	794	796	813	813

Source: Autonomous work of the author on the basis of the National Bank of Serbia
(National Bank of Serbia, 2009-2018)

The value of the Herfindahl-Hirschman index indicates a lack of concentration in the banking sector of the Republic of Serbia. Although in the observed period there is a growth trend, the value of this index in no case exceeds 1,000 points, which places the banking sector in the rank of unconcentrated. The increase in the value of the HHI index was also induced by the decrease in the number of banks in the market, which is predominantly due to the low intensity of the Serbian economy development.

If we present all the established values, i.e. the number of banks, the CR5 coefficient values and the values of the HHI index, we can conclude that it is noticeable that in the observed ten-year period, parallel to the decrease in the number of banks, the concentration of the banking sector increased (Figure 1).
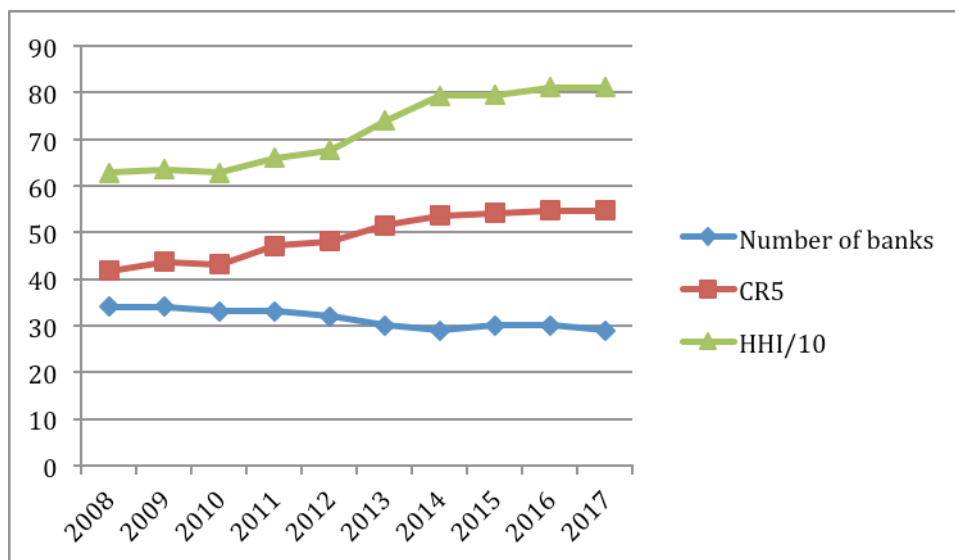

Figure 1. Presentation of trends in the concentration and number of commercial banks in the Republic of Serbia in the period 2008-2017

Source: Autonomous work of the author on the basis of the National Bank of Serbia
(National Bank of Serbia, 2009-2018)

Conclusion

The banking sector, where most of the national money is concentrated, should be responsible for its economic allocation. In recent years, the activity of commercial banks in the Republic of Serbia has grown, despite a recession whose effects are still strong in other parts of the national economy. Competition in the banking sector is desirable for the economy as a whole, and for that purpose free market access is protected by regulations aimed at removing, preventing and sanctioning those forms of banks' behavior that can lead to significant monopolistic operations. The primary goal of the legal framework, that protects free market access, is to secure the lowest price on the market for a particular product or service, as well as protecting smaller market participants, suppressing inflation, preservation of social and national interests, and the like. Competition in the banking sector stimulates efficiency, supply and quality of diversified products and services, reduces the difference between active and passive interest rates, which improves long-term development. In order to show the state of concentration and competition in the banking sector of the Republic of Serbia, a statistical analysis of the various variables measured by concentration in the banking sector was conducted. The following indicators were used: Concentration ratio and Herfindahl-Hirschman index. Based on the conducted

empirical research, several conclusions can be made. First of all, the values of the CR5 concentration indicator show that the banking market in Serbia is relatively limited, which means that large banks, which have numerous comparative advantages over smaller banks, threaten to take a market share that could jeopardize the development of competition in the future. However, the values of the HHI index testify to the fact that a large number of banks still operate in the market, whose distribution of market share provides a low concentration of the banking market, in total.

Second, the market conditions that prevail in the banking sector in the Republic of Serbia significantly influence the concentration values obtained. This primarily relates to the fact that the Serbian banking sector shows signs of saturation, which is confirmed by the decrease in the number of banks operating on the market. Factors such as the limited and relatively small number of clients, in relation to the total number of banks, the insufficiently dynamic economic growth, and the effects of the global economic crisis affecting many aspects of the economy, influence the prevention of the competition development in the banking sector of the Republic of Serbia.

Bearing in mind the trend of a decrease in the number of banks in the market and the prognosis of macroeconomic trends, based on the calculated values of the concentration indicators, one can expect a further trend of the consolidation of the banking sector in the Republic of Serbia (through mergers and acquisitions), which will increase the importance of analyzing and monitoring it's concentration level in the future.

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