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Market Concentration In The Banking Sector - Evidence From Serbia⁴

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Abstract: *The aim of this paper is to research the level and development of market concentration in the banking sector in Serbia. In the first chapter, the authors presented different concentration theories from economic literature and explained the possible impact of high concentration on various economic parameters. The second chapter provides information on methodology and different indicators used in order to measure the level of market concentration in the banking sector in Serbia. Empirical results of the analysis are presented in the third chapter of the paper and they include concentration of assets, capital, loans, deposits, interest income and net profit (loss) before tax, as well as comparative analysis with Central, Eastern and South European countries. Finally, the last chapter summarizes key messages of the paper.*

Key words: *market, banking, concentration ratio, Gini coefficient, Hirschmann-Herfindahl index.*

Tržišna koncentracija u bankarskom sektoru - Primer Srbije

Apstrakt: *Cilj ovog rada je da istraži nivo i razvoj tržišne koncentracije u bankarskom sektoru Srbije. U prvom poglavlju autori predstavljaju različite*

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teorije o tržišnoj koncentraciji i objašnjavaju moguće uticaje visoke koncentracije na različite ekonomske parametre. Drugo poglavlje pruža informacije o metodologiji i različitim indikatorima koji su korišćeni za merenje nivoa tržišne koncentracije u bankarskom sektoru Srbije. Empirijski rezultati analize su predstavljeni u trećem poglavlju rada i oni obuhvataju koncentraciju aktive, kapitala, plasmana, depozita, prihoda od kamata i neto dobitka (gubitka) pre oporezivanja, kao i komparativnu analizu sa zemljama Centralne, Istočne i Jugoistočne Evrope. Konačno, u poslednjem poglavlju su sumirane glavne poruke rada.

Ključne reči: tržište, bankarstvo, ratio koncentracije, Ćini koeficijent, Hiršman-Herfindalov indeks.

1. Introduction

Concentration is defined as a measure of subject participation in cumulative sales, assets or market share and it is usually determined by the number of companies in an industry and by their relative size (Zingales and Raghuram, 2003). The importance of market concentration in the banking sector is reflected in its impact on competition, efficiency and profitability in the banking sector, as well as on economic development and structure in other sectors. The economic literature abounds in different studies and theories on market concentration in the banking sector. All these studies and theories could be classified into pro-concentration and cons-concentration ones.

Pro-concentration theories argue that increasing concentration goes hand-in-hand with efficiency improvements. The efficient firms will be able to increase their market share as they are able to generate higher profits wherefore the degree of concentration will naturally increase. According to this efficiency theory, there is no negative relationship between concentration and competition (Macit, 2012).

There are also concentration-stability views on this issue. Some theoretical arguments suggest that a less concentrated banking sector with many small banks is more prone to financial crisis than a concentrated banking sector with a few large banks. The reason is that larger banks can diversify their portfolio better, so that banking systems characterized by a few larger banks will be less fragile than banking systems with many small banks (Tushaj, 2010).

Despite learning of a traditional theory of industrial organization that the concentration has predominantly negative effect on firm debt, some newer researches concluded that the banking sector concentration does not have a negative impact on corporate debt or economic growth, and that, in fact, this impact could even be positive (Hake, 2012).

On the other hand, cons-concentration theories suggest various negative impacts of market concentration in the banking sector. There are evidences linking increase in banking concentration to reductions in credit supply and higher prices for financial services. The policy implication of these evidences is that higher market concentration is associated with lower socio-economic welfare and therefore higher concentration is undesirable (Tushaj, 2010).

There are also empirical evidences that the degree of competition is quite lower in highly concentrated markets and that banks in such an environment enjoy higher profits (Macit, 2012). Many academics and policy makers concluded also that the increase in the degree of concentration in the European banking sector is negatively related to competition (Bikker and Groeneveld, 2000). High level of concentration on the banking market raises spreads and it is also associated with higher administrative costs, what was empirically proven on the example of Latin America (Peria and Mody, 2004).

Some studies showed a significant relationship between banking market structure and market structure of industrial sectors. The empirical evidence based on 35 manufacturing sectors in 17 OECD countries produced conclusion consistent with theoretical views suggesting that banks with market power may concentrate lending to small number of firms with whom they have already established long lasting relationships, what can cause increasing concentration in industrial sectors (Cetorelli, 2001).

Beside pro-concentration and cons-concentration theories, there are also studies which point out the insignificance of market concentration, because they did not found any significant relation between concentration on the one side and competition, efficiency and profitability on the other side (Jansen and Haan, 2003).

2. Methodological framework for research

Economic literature uses numerous ways of measuring banking concentration. In order to determine the level of market concentration in Serbian banking sector, in this paper there have been used most commonly applied market concentration measures as follows:

- Reciprocity index,
- Concentration ratio,
- Gini coefficient and
- Hirschmann-Herfindahl concentration index.

Reciprocity index represents the reciprocal of total number of market participants. The more market participants, the lower value of reciprocity index, while in the case of single market participant the value of the index equals to

one. Reciprocity index is not the best indicator of market concentration, because it is based on the wrong assumption that higher number of market participants implies at the same time the lower level of market concentration, what does not necessarily mean. For example, if there are 1,000 participants on some market and if one of the participants has the market share of 90% while other 999 participants share remaining 10% of the market, reciprocity index will amount to 0.001 what indicates extremely unconcentrated market, but in reality the situation is exactly the opposite.

The most common measure used in literature on market concentration is a simple concentration ratio, which represents the sum of market shares of k participants with highest shares. There is no rule for choosing an appropriate value of k , but it usually amounts to three or five participants. The concentration ratio (CR) takes the following formula:

$$CR_k = \sum_{i=1}^k s_i, \quad (1)$$

where s_i are market shares of k largest firms in the market. The basic advantage of this ratio is that it is relatively easy to calculate. On the other hand, the main disadvantage is that it does not use information about the market share of all market participants (Jansen and Haan, 2003).

Gini coefficient represents a measure of distribution inequality, in this case an inequality measure of market share distribution. It can be calculated according to the following formula:

$$G = \frac{1}{2n^2 \bar{y}} \sum_{i=1}^n \sum_{j=1}^n |y_i - y_j|, \quad (2)$$

where G is Gini coefficient, n is total number of market participants, \bar{y} is average value of the observed indicator, y_i and y_j are indicator values of participants i and j (Litchfield, 1999). Defined in this way, Gini coefficient takes on values between 0 and 1, where zero value is interpreted as perfectly equal distribution of market shares (all participants on the market has the same share), while the value of one means absolutely monopolistic market with a single market participant with the share of 100%.

The most commonly used indicator in antimonopolistic procedures in European Union and United States is Hirschmann-Herfindahl concentration index (Strohe, 2009). It is calculated as the sum of the squares of the market shares of market participants within the observed industry (market shares may be calculated based on assets, capital, etc.):

$$HHI = \sum_{i=1}^n s_i^2, \quad (3)$$

where s_i are market shares of n firms in the market. Thereby, the HHI value of less than 1,000 (i.e. less than 0.1) means lack of concentration in the industry, the HHI value between 1,000 and 1,800 (i.e. between 0.1 and 0.18) indicates moderate level of concentration, while the HHI value of more than 1,800 (i.e. more than 0.18) is characteristic of highly concentrated sectors (Macit, 2012).

Despite its popularity, HHI also suffers from a few limitations. A major limitation is that distribution of market shares with radically different tail properties may have HHI of similar magnitude. Also, common economic phenomena like mergers between a strong and a weak bank or entries and exits only change certain parts of the distribution of market share – often the tails only. Indices based solely on dispersion or variance like HHI may miss such changes (Macit, 2012).

Measurement of concentration in the banking sector is very specific due to the problem of identification of products and services traded. Market concentration of the banking sector in Serbia is measured based on the following indicators of balance sheets and income statements of commercial banks: assets, capital, granted loans, deposits, interest income and profit (loss) before tax. For all of the observed categories of balance sheets and income statements of commercial banks, the above measures of market concentration are presented. Thereby, especial attention is dedicated to the values of Hirschmann-Herfindahl index, the most representative measure of market concentration.

For the purpose of the analysis, the data were used from the official balance sheets and income statements of commercial banks published on the web site of the National Bank of Serbia. Thereby, the analysis of concentration covers the period from 2008 to the third quarter of 2012.

3. Empirical results of research and discussion

The banking sector reform in Serbia, which started by adopting the Bank Restructuring Strategy, was followed by major changes on the national banking market. From 108 banks which operated at that moment on the market, the number of commercial banks decreased to 33. According to the latest data, 21 banks are in foreign ownership, while 12 banks are owned by domestic entities (out of that 9 are in public ownership and 3 in private ownership). The number of commercial banks will most likely continue to decline on the one hand because the state makes integration of banks in state ownership (in order to create a bank for development) and on the other hand because of acquisition of banks in private ownership.

The Serbian banking sector was well prepared for the first and the second wave of global economic crisis, having in mind high level of capitalization of commercial banks and proactive measures of National Bank (Filipović, 2010).

As compared with other countries, the stability of the Serbian financial sector has not been called into question (Haas, Korniyenko, Loukoianova and Pivovarsky, 2012). Moreover, considering the basic balance sheet and financial statement indicators, the sector experienced even growth during the years of crisis (Barjaktarović and Ječmenica, 2011).

3.1. Market concentration of assets in the Serbian banking sector

The value of total assets of the Serbian banking sector amounted to RSD 2,843.6 billion at the end of third quarter of 2012, i.e. EUR 24.7 billion. During the entire observed period 2008-2012, the assets of the Serbian banking sector have been characterized by high growth rates, which reached the level of 21.58% year on year when calculated in RSD, i.e. 12.34% year on year when calculated in EUR during 2009. Compared to pre-crisis period of 2006-2008, in which the growth rate was 31.2% per year, that is only a slight decrease in a growth rate (Zubović, 2010).

When observed by the value of assets, the five largest banks in Serbia have the market share of 47.41% and they include the following ones: Banca Intesa, Komercijalna Banka, Unicredit Bank, Raiffeisen Banka and Societe Generale Banka. The value of Gini coefficient of 0.5406 indicates the distribution which significantly deviates from the perfectly equal distribution.

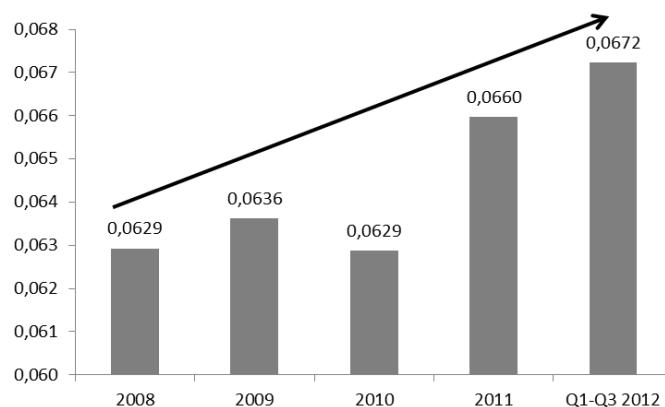
Table 1 - Concentration indicators of assets of the Serbian banking sector in the third quarter of 2012

Concentration indicator	Value
Reciprocity index	0.03
Concentration ratio CR3	33.51%
Concentration ratio CR5	47.41%
Concentration ratio CR8	64.86%
Gini coefficient G	0.5406
Hirschmann-Herfindahl index HHI	0.0672

Source: Authors' calculations based on data from balance sheets of commercial banks

The value of Hirschmann-Herfindahl concentration index of 0.0672 indicates considerably fragmented structure of the Serbian banking sector when observed by the value of assets. Looking at the historical development of the index, it can be concluded that the Serbian banking sector is characterized by slightly enlarging trend, considering the higher value of HHI at the end of the third quarter of 2012, than the value of the same index at the end of 2008.

Figure 1 - Hirschmann-Herfindahl concentration index of assets of the Serbian banking sector in the period 2008 - 2012



Source: Authors' calculations based on data from balance sheets of commercial banks

3.2. Market concentration of capital in the Serbian banking sector

The value of total capital of the Serbian banking sector amounted to RSD 573.7 billion at the end of the third quarter of 2012, i.e. EUR 5 billion. As in the case of assets, the value of capital of the banking sector expressed in RSD is characterized by high growth rates during the entire observed period, but they are quite lower as compared with growth rates of assets.

Table 2 - Concentration indicators of capital of the Serbian banking sector in the third quarter of 2012

Concentration indicator	Value
Reciprocity index	0.03
Concentration ratio CR3	33.35%
Concentration ratio CR5	49.42%
Concentration ratio CR8	68.89%
Gini coefficient G	0.5684
Hirschmann-Herfindahl index HHI	0.0713

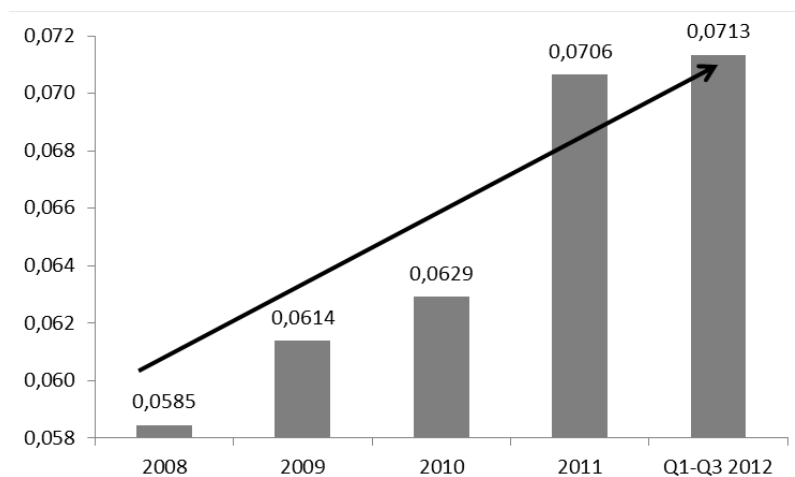
Source: Authors' calculations based on data from balance sheets of commercial banks

The market share of the five largest banks by the value of capital amounts to 49.42% and does not significantly differ from market share of the five largest banks by the value of assets. The only difference is that beside Banca Intesa, Raiffeisen Banka and Komercijalna Banka, among the five largest by the value of capital, there is also one bank in domestic private ownership - AIK Ban-

ka. The value of Gini coefficient amounts to 0.5684 indicating extremely unequal distribution of capital in the Serbian banking sector.

The value of Hirschmann-Herfindahl concentration index of 0.0713 also indicates extremely fragmented structure of the Serbian banking sector, as well as in the case of assets. Looking at historical development of the index, it can be concluded that market emerging trend is stronger if the value of capital taken into account rather than the value of assets.

Figure 2 - Hirschmann-Herfindahl concentration index of capital of the Serbian banking sector in the period 2008 - 2012



Source: Authors' calculations based on data from balance sheets of commercial banks

3.3. Market concentration of loans in the Serbian banking sector

The value of total granted loans of the Serbian banking sector amounted to RSD 1,782.9 billion at the end of the third quarter of 2012, i.e. EUR 15.5 billion. After a significant growth of granted loans in previous years, a decline in the value of loans of 2.41% when observed in RSD, i.e. 1.61% when observed in EUR was recorded in 2011.

The five largest banks in Serbia by the value of granted loans have the market share of 48.88% and they include the following ones: Banca Intesa, Komercijalna Banka, Unicredit Bank, Societe Generale Banka and Raiffeisen Banka. The value of Gini coefficient of 0.5554 indicates the distribution of loans which is significantly different than the perfectly equal one.

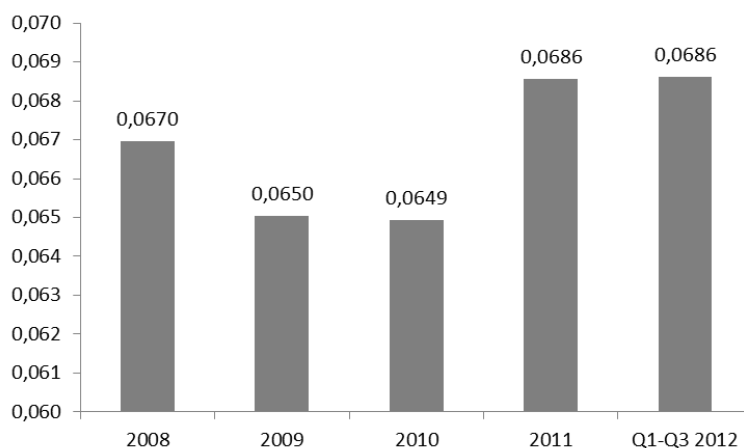
Table 3 - Concentration indicators of loans of the Serbian banking sector in the third quarter of 2012

Concentration indicator	Value
Reciprocity index	0.03
Concentration ratio CR3	33.35%
Concentration ratio CR5	48.88%
Concentration ratio CR8	65.87%
Gini coefficient G	0.5554
Hirschmann-Herfindahl index HHI	0.0686

Source: Authors' calculations based on data from balance sheets of commercial banks

Hirschmann-Herfindahl concentration index of granted loans at the end of the third quarter of 2012 amounted to 0.0686, indicating quite unconcentrated structure of the Serbian banking sector. Unlike the development of HHI of assets and capital, the HHI of loans has not shown the stable trend. In the period 2008 - 2010, HHI dropped from 0.0670 to 0.0649, while it was at the level of 0.0686 over the last two years.

Figure 3 - Hirschmann-Herfindahl concentration index of loans of the Serbian banking sector in the period 2008 - 2012



Source: Authors' calculations based on data from balance sheets of commercial banks

3.4. Market concentration of deposits in the Serbian banking sector

The value of total received deposits of the Serbian banking sector at the end of the third quarter of 2012 amounted to RSD 1,641.3 billion, i.e. EUR 14.3 billion. Deposits of the banking sector are characterized by the increasing trend over the entire observed period. However, the growth rate significantly decreased from 26.99% in 2009 to only 1.41% in 2011.

The five largest banks in Serbia by the value of received deposits have the market share of 49.09%. As well as in the case of loans, they include Banca Intesa, Komercijalna Banka, Unicredit Bank and Societe Generale Banka, but also a domestic bank in private ownership - AIK Banka. The value of Gini coefficient of 0.5575 means high inequality in distribution of received deposits among commercial banks in the Serbian banking sector.

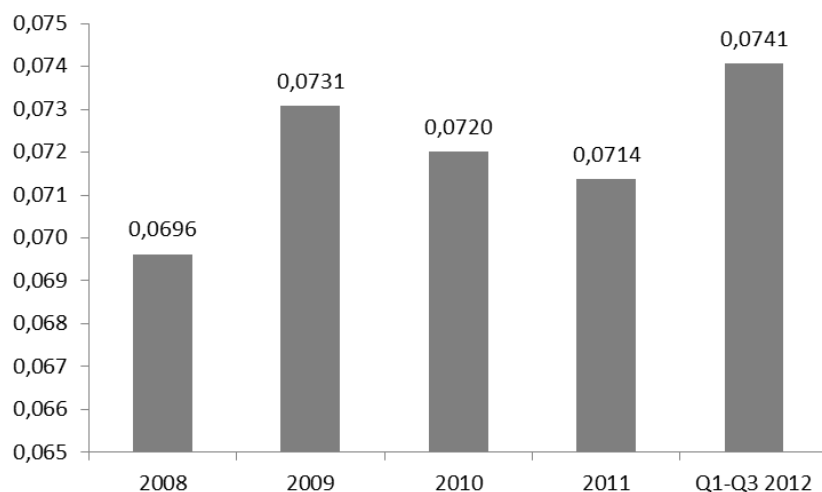
Table 4 - Concentration indicators of deposits of the Serbian banking sector in the third quarter of 2012

Concentration indicator	Value
Reciprocity index	0.03
Concentration ratio CR3	37.14%
Concentration ratio CR5	49.09%
Concentration ratio CR8	64.97%
Gini coefficient G	0.5575
Hirschmann-Herfindahl index HHI	0.0714

Source: Authors' calculations based on data from balance sheets of commercial banks

Hirschmann-Herfindahl concentration index at the end of the third quarter of 2012 amounted to 0.0714, indicating extremely unconcentrated structure of the Serbian banking sector. As well as in the case of granted loans, HHI index of deposits also has not shown the stable trend. Nevertheless, as compared with the end of 2008, the value of HHI is at a higher level today.

Figure 4 - Hirschmann-Herfindahl concentration index of deposits of the Serbian banking sector in the period 2008 - 2012



Source: Authors' calculations based on data from balance sheets of commercial banks

3.5. Market concentration of interest income in the Serbian banking sector

The value of total interest income of the Serbian banking sector in the first three quarters of 2012 amounted to RSD 143.2 billion, i.e. EUR 1.3 billion. When observed in RSD, the interest income is characterized by positive growth rates over the entire period.

Table 5 - Concentration indicators of interest income of the Serbian banking sector in the period from Q1 to Q3 2012

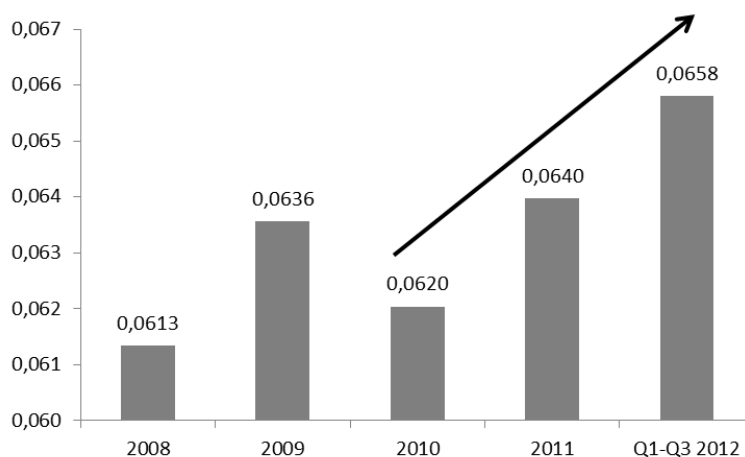
Concentration indicator	Value
Reciprocity index	0.03
Concentration ratio CR3	31.66%
Concentration ratio CR5	44.98%
Concentration ratio CR8	62.11%
Gini coefficient G	0.5166
Hirschmann-Herfindahl index HHI	0.0658

Source: Authors' calculations based on data from income statements of commercial banks

The market share of the five largest banks by the value of interest income amounts to 44.98%, which is lower as compared with the same indicator of assets, capital, loans and deposits. As well as in the case of loans, the most successful banks are Banca Intesa, Unicredit Bank, Societe Generale Banka and Raiffeisen Banka, but instead of Komercijalna Banka, AIK Banka was ranked among the five largest. The value of Gini coefficient amounted to 0.5166 indicating high inequality in distribution of interest income in the Serbian banking sector.

Hirschmann-Herfindahl concentration index of interest income in the first three quarters of 2012 amounted to 0.0658, indicating quite fragmented structure of the Serbian banking sector. HHI index of interest income shows a stable increasing trend of market concentration after 2010.

Figure 5 - Hirschmann-Herfindahl concentration index of interest income of the Serbian banking sector in the period 2008 - 2012



Source: Authors' calculations based on data from income statements of commercial banks

3.6. Market concentration of net income after tax in the Serbian banking sector

In the first three quarters of 2012, 19 banks recorded net profit, while 14 recorded net loss. The total net profit of the 19 banks amounted to RSD 29.8 billion, i.e. EUR 264 million. On the other hand, the total net loss of the 14 banks amounted to RSD 17.8 billion, i.e. EUR 158 billion. In this way, the total net result of the banking sector in the observed period amounted to RSD 12 billion, i.e. EUR 106 million.

The concentration indicators are presented separately for the group of banks with net profit and the group of banks with net loss.

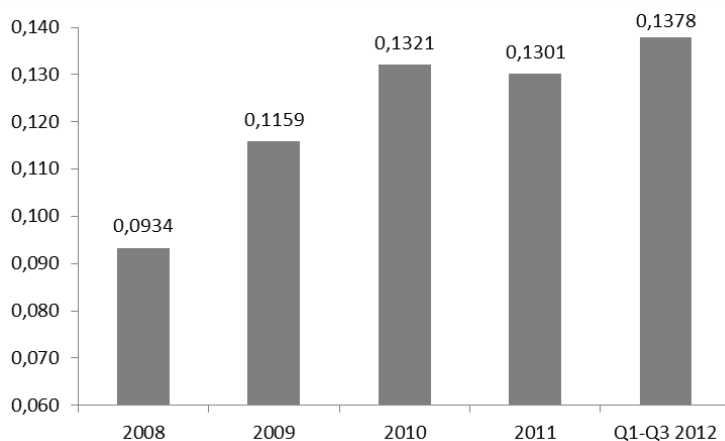
Table 6 - Concentration indicators of net profit of the Serbian banking sector in the period from Q1 to Q3 2012

Concentration indicator	Value
Reciprocity index	0.05
Concentration ratio CR3	54.29%
Concentration ratio CR5	75.62%
Concentration ratio CR8	89.36%
Gini coefficient G	0.6364
Hirschmann-Herfindahl index HHI	0.1378

Source: Authors' calculations based on data from income statements of commercial banks

The market share of the five largest banks by the value of achieved net profit before tax amounts to as much as 75.62%. Among the five most profitable banks, Banca Intesa is on the first place with market share of 25%; it is followed by Raiffeisen Banka, Unicredit Bank, Komercijalna Banka and AIK Banka. The value of Gini coefficient of 0.6364 indicates quite higher inequality in distribution of the profit as compared with other observed indicators of balance sheet and income statement of commercial banks.

Figure 6 - Hirschmann-Herfindahl concentration index of net profit of the Serbian banking sector in the period 2008 - 2012



Source: Authors' calculations based on data from income statements of commercial banks

Hirschmann-Herfindahl concentration index of net profit before tax in the first three quarters of 2012 amounted to 0.1378, indicating moderate concentration of the Serbian banking sector. As compared with 2008, HHI index has significantly increased, indicating the increasing trend of concentration.

On the other hand, market share of the five largest banks by the value of net loss before tax amounts to as much as 86.76%. Among the banks with the highest net loss there are Razvojna Banka Vojvodine and Agrobanka which together make almost 70% of the loss in the sector, as well as Alpha Bank, Vojvodjanska Banka and OTP Banka. The value of Gini coefficient of 0.6879 means very high level of inequality in distribution of the net loss in the Serbian banking sector.

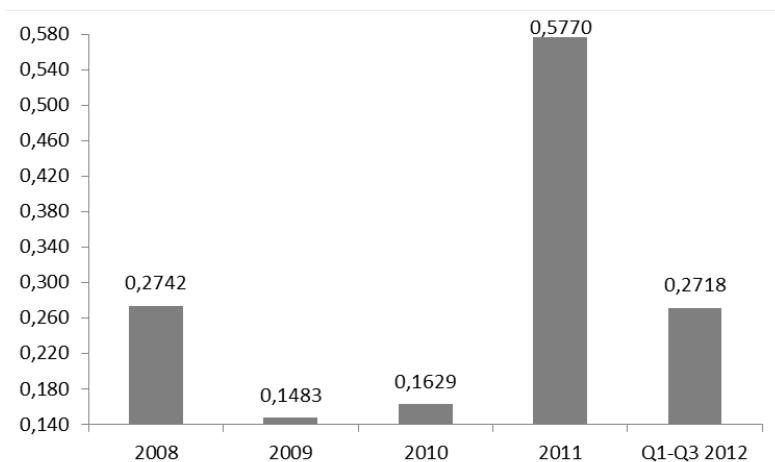
Table 7 - Concentration indicators of net loss of the Serbian banking sector in the period from Q1 to Q3 2012

Concentration indicator	Value
Reciprocity index	0.07
Concentration ratio CR3	77.56%
Concentration ratio CR5	86.76%
Concentration ratio CR8	95.20%
Gini coefficient G	0.6879
Hirschmann-Herfindahl index HHI	0.2718

Source: Authors' calculations based on data from income statements of commercial banks

Hirschmann-Herfindahl concentration index in the first three quarters of 2012 amounted to 0.2718, indicating very concentrated structure of the Serbian banking sector. It can be noticed that concentration was significantly higher in 2011 and the first three quarters of 2012 than in the previous years. The main reason for such a trend is the fact that 75% of the entire sector's loss in 2011 referred to Agrobanka, while almost 70% of the total sector's loss in the first three quarters of 2012 referred to (Nova) Agrobanka and Razvojna Banka Vojvodine.

Figure 7 - Hirschmann-Herfindahl concentration index of net loss of the Serbian banking sector in the period 2008 - 2012



Source: Authors' calculations based on data from income statements of commercial banks

3.7. Comparative analysis with EU member countries from Central, Eastern and South-Eastern Europe

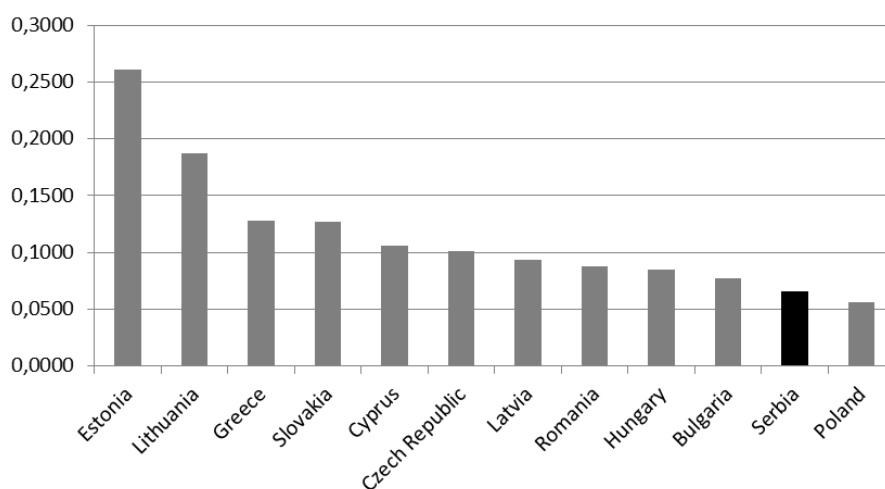
The banking sector in the Central, Eastern and South-Eastern European countries have undergone fundamental transformation in the past 20 years. The banking system has been transformed by three major trends – privatization, consolidation and large-sale entry of foreign banks (Tushaj, 2010). Banking system ownership shifted from the state to the private sector and foreign-owned banks began to increasingly dominate these banking markets, either directly by establishing greenfield operations or by participating in privatization of domestic state-owned banks. At the same time, financial systems in these countries remained bank-dominated and banks became the key source of external finance for the private sector. (Hake, 2012)

Many authors investigated also the changes in the European Union banking sector which has witnessed a lot of structural changes that can be considered as result of integration process and global trends, especially mergers and acquisitions in banking (Dermine, 2003). Market structure of the EU banking sector is characterized by monopolistic competition, while new member countries have a more competitive banking sector (Staikouras and Koutsomanoli-Fillipaki, 2006).

By observing the values of HHI in the countries of Central, Eastern and South Eastern Europe, it can be noticed that the Serbian market is one of the most

fragmented. Nevertheless, most of the countries of this region are characterized by unconcentrated banking market with HHI lower than 0.1.

Figure 8 - Hirschmann-Herfindahl concentration index of assets in the banking sector of the countries of Central, Eastern and South Eastern Europe at the end of 2011

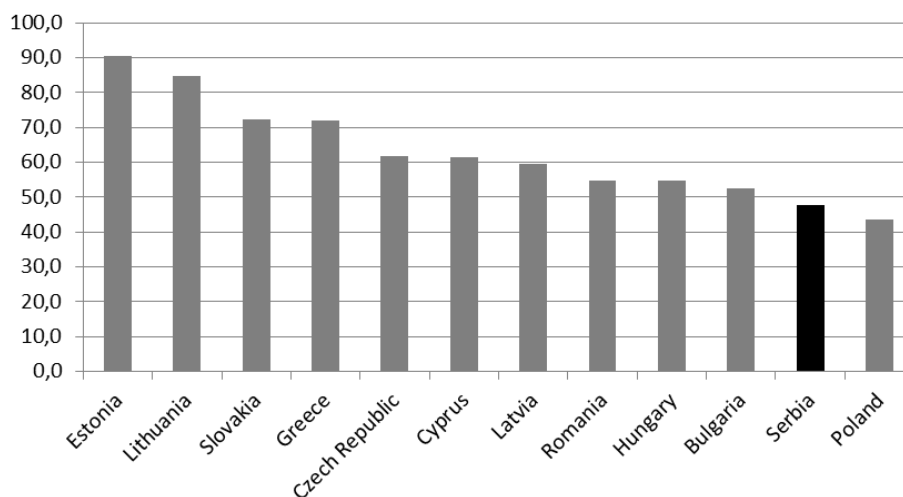


Source: EU Structural Financial Indicators, retrieved from http://www.ecb.europa.eu/stats/pdf/121030_ssi_table.pdf?a9d7650ad1aea11c6223bcd77c3a61a8

The situation is the same when observed by simple concentration ratio CR5.

The bank market concentration is especially high on the deposit market. Regarding all concentration measures (CR5, HHI etc.), the biggest concentration appears in total deposits and the smallest concentration in total loans (Staikouras and Koutsomanoli-Fillipaki, 2006). The deposit market has always tended to have a higher concentration than the loan market, which to a certain extent reflects inhomogeneous confidence of the economic agents towards different banks (Strohe, 2009).

Figure 9 - Concentration ratio CR5 of assets in the banking sector of the countries of Central, Eastern and South Eastern Europe at the end of 2011



Source: EU Structural Financial Indicators, retrieved from http://www.ecb.europa.eu/stats/pdf/121030_ssi_table.pdf?a9d7650ad1aea11c6223bcd77c3a61a8

4. Conclusions

Having in mind the results of the conducted analyses, it can be concluded that the Serbian banking sector is characterized by extremely unconcentrated (fragmented) structure. This is evident if we observe the concentration of market share in total assets, capital, loans, deposits and interest income of the Serbian banking sector.

On the other hand, if we observe the concentration of market share in net profit of the Serbian banking sector, it can be concluded that banking sector is moderately concentrated. Among the most profitable banks, which recorded share in profit of more than 5% throughout the entire period 2008 - 2012, there are: Banca Intesa, Raiffeisen Banka and Unicredit Bank (private foreign banks), Komercijalna Banka (state bank) and AIK Banka (private domestic bank).

Moreover, the net loss in the banking sector is also characterized by moderate concentration over the entire observed period, except in 2011 and in the first three quarters of 2012 when HHI indicated extremely high concentration

due to large losses of state owned banks Agrobanka and Razvojna Banka Vojvodine.

As compared with the situation on the banking markets of the countries of Central, Eastern and South Eastern Europe, Serbia is characterized by quite more fragmented structure of the banking sector. On the other hand, the common attribute for the most countries of the region is more pronounced concentration of deposits as compared with other categories of balance sheet and income statement.

The analysis indicates high differences between banks in terms of financial strength and business results. Competition improvement will make these differences more visible. Therefore, in the upcoming period, we can expect consolidation of domestic banks by the process of merging, acquisition and privatization. Such a trend would cause capital strengthening, but also other organizational and technological advantages what would enable more efficient use of resources and cost-effective business.

5. References

- National Bank of Serbia. . Balance Sheets and Income Statements of Commercial Banks. Retrieved from http://www.nbs.rs/internet/cirilica/50/50_5.html
- National Bank of Serbia. *Banking Sector in Serbia – Third Quarter Report 2012.*
- National Bank of Serbia. *Banking Sector in Serbia – Fourth Quarter Report 2011.*
- National Bank of Serbia. *Banking Sector in Serbia – Fourth Quarter Report 2010.*
- National Bank of Serbia. *Banking Sector in Serbia – Fourth Quarter Report 2009.*
- National Bank of Serbia. *Banking Sector in Serbia – Fourth Quarter Report 2008.* In *Bank Supervision Department.*
- Barjaktarović, L., & Ječmenica, D. (2011). Optimism vs. Pessimism of Competitiveness of the Banking Sector of Serbia. *Industrija*, 39(2), 137-150.
- Bikker, J.A., & Groeneveld, H.J. (2000). Competition and Concentration in the EU Banking Industry. *Kredit und Kapital*, 33,
- Cetorelli, N. (2001). Does Bank Concentration Lead to Concentration in Industrial Sectors. In *Working Paper 2001-01*. Federal Reserve Bank of Chicago.
- Dermine, J. (2003). *Banking in Europe: Past, Present and Future, the Transformation of European Financial System*. European Central Bank..
- EU Structural Financial Indicators Retrieved from http://www.ecb.europa.eu/stats/pdf/121030_ssi_table.pdf?a9d7650ad1aea11c6223bcd77c3a61a8
- Filipović, S. (2010). Effects of Global Financial Crisis on the Financial Sector of Serbia. *Industrija*, 38(3), 79-94.
- Haas, R., Korniyenko, Y., Loukoianova, E., & Pivovarsky, A. (2012). Foreign Banks and the Vienna Initiative - Turning Sinners into saints. In *EBRD Working paper.*
- Hake, M. (2012). *Banking Sector Concentration and Firm Indebtedness: Evidence from Central and Eastern Europe, Focus on European Economic Integration Q3/12*. Oesterreichische Nationalbank.

- Jansen, D., & de Haan, J. (2003). Increasing Concentration in European Banking: a Macro-level Analysis. In *Research Memorandum WO*. De Nederlandsche Bank.
- Litchfield, A.J. (1999). *Inequality: Methods and Tools*. World Bank.
- Macit, F. (2012). Recent Evidence on Concentration and Competition in Turkish Banking Sector. *Theoretical and Applied Economics*, 19(8), 573.
- Peria, M.S.M., & Mody, A. (2004). How Foreign Participation and Market Concentration Impact Bank Spreads: Evidence from Latin America. In *Research Working Paper*. World Bank.
- Staikouras, C., & Koutsomanoli-Fillipaki, A. (2006). Competition and Concentration in the New European Banking Landscape. *European Financial Management*, 12(3), 443-482.
- Strohe, H.G. (2009). Development of the Banking Sector in Georgia. In *Statistische Diskussionsbeiträge*. University of Potsdam.
- Tushaj, A. (2010). Market Concentration in the Banking Sector: Evidence from Albania. In *BERG Working Paper Series on Government and Growth*. Bamberg Economic Research Group, Bamberg University.
- Zingales, L., & Raghuram, G. (2003). Banks and Markets: The Changing Character of European Finance. In: European Central Bank 2nd Annual Conference 2002, Frankfurt am Main. Paper presented.
- Zubović J. (2010) Razvoj privrede zasnovan na ulaganjima u ljudske resurse i stranim investicijama. Belgrade: Institute of Economic Sciences, ISBN 978-86-80315-83-6.

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