



## DEGREE OF CONCENTRATION OF THE BANKING SECTOR IN B&H AND THE IMPACT ON THE PRICES OF BANKING PRODUCTS

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**Abstract:** This paper tends to examine the level of concentration of the banking sector in Bosnia and Herzegovina. The main objective of the paper is to measure the level of concentration and to investigate how the concentration and type of market structure affect the prices of banking products. By monitoring the movement of key indicators, it provides an insight into the state of the B&H banking sector. By using the appropriate index (HHI, CR3), the movement of concentration levels and the shape of the market structure that prevailed in the banking market over a period of time were determined. The results show that there is a moderate concentration in the B&H banking sector, which includes monopolistic competition as a form of market structure. This means that the equilibrium level of production is achieved at a lower volume of production, at higher prices for banking products (above marginal costs), thereby reducing consumer surplus relative to a perfectly competitive market

**Keywords:** concentration, banking sector, HHI index, CR3 index..

**JEL classification:** D40, G21, L10, L40

### Introduction

After the end of the war in B&H, drastic changes and reforms have taken place in the financial system, including the banking sector. As a result of the successful reform of the banking market, the last two decades have seen the consolidation of the entire sector, the more inclusive entry of foreign capital, the growth of the

overall balance sheet and the increase in profitability. The restructuring and consolidation process itself have been successfully continued, with constant and adequate supervision of banks and improvement of the legal framework.

In recent years, despite the obvious risk, Bosnia and Herzegovina has managed to preserve the stability of the financial system, of which the banking sector is the most developed. For many years, the banking sector in B&H has been operating under very difficult conditions of economic stagnation, as a consequence of the financial crisis, poor political environment, limited access to stable sources of financing and the global recession, which has existed in most EU countries for many years. Therefore, although the B&H banking sector is clearly facing major problems, it can be said that it has managed to maintain stability and successfully amortize the external and internal risks it has faced. All the parameters of successful banking operations in B&H are at a satisfactory level (satisfactory capitalization achieved including liquidity or profitability).

This paper is organized as follows: part one presents a brief overview of the banking sector of Bosnia and Herzegovina; the second part of the paper discusses the existing literature and provides some theoretical background; the third part contains information on the data, the specification of the indexes used and the methodology; the fourth part represents the empirical results and the discussion; the fifth part concludes the paper.

## **1. Overview of the banking sector of Bosnia and Herzegovina**

In 2016, there was a number of positive developments that greatly contributed to the strengthening of the stability of the B&H banking sector - two smaller, majority-owned banks, which had significant problems, merged with other two banks (*Moja Banka dd Sarajevo* was merged with *Investiciono-Komercijalna Banka dd Zenica*, whereby the *Investiciono-Komercijalna Banka* assumed all the rights and obligations of *Moja banka dd Sarajevo*, and the resulting bank started operating under the name of *ASA Banka dd Sarajevo*; *Privredna banka Sarajevo dd Sarajevo* was merged with *BOR banka dd Sarajevo*, the bank operates under the name of *Privredna banka Sarajevo dd Sarajevo*). There occurred a liquidation of the insolvent bank named *Banka Srpske ad Banja Luka*, as well as a reorganization of business in two banks. Accordingly, almost all banks in the system at the end of 2016 met the prescribed level of capital adequacy. At the end of 2016, 23 banks operated in B&H, with the number of banks reduced by three compared to the previous year. Also, the drafting of a set of laws in the field of banking sector business was completed, the main objective of which was to modernize and harmonize domestic regulations with EU regulations (CBBH, 2016).

**Table 1. Key indicators of the banking sector (in millions of EUR)**

<b>Key indicators of the banking sector</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
Total assets	11.414	11.988	12.298	12.755	13.344
<i>Growth in %</i>	1,9	5,0	4,3	3,7	4,6
Total loans	8.151	8.388	8.422	8.623	8.795
<i>Growth in %</i>	4,1	2,9	2,8	2,4	2,0
Loans to private companies	3.803	3.846	3.793	3.793	3.938
<i>Growth in %</i>	4,4	1,1	(1,4)	(0,0)	3,8
Loans to households	3.474	3.612	3.798	3.980	4.129
<i>Growth in %</i>	1,3	4,0	5,1	4,8	3,8
Total deposits	6.814	7.286	7.861	8.451	9.076
<i>Growth in %</i>	2,6	6,9	7,9	7,5	7,4
Household deposits	3.914	4.276	4.623	5.043	5.451
<i>Growth in %</i>	8,6	9,3	8,1	9,1	8,1
Total loans (% of total deposits)	120	115	107	102	97
<i>Structural information</i>					
Number of banks	28	27	26	26	23
State-owned banks market share (% of total assets)	1,0	2,1	2,7	2,9	1,7
Foreign-owned banks market share (% of total assets)	92	90	84	84	85
<i>Profitability and efficiency</i>					
<i>Return on Assets (RoA)</i>	0,6	(0,2)	0,7	0,1	1,1
<i>Return on Equity (RoE)</i>	4,9	(1,4)	5,2	1,1	7,3
Capital adequacy (% of risky assets)	17,0	17,8	16,3	14,9	15,8
Problematic loans (% of total loans)	13,5	15,1	14,2	13,7	11,8

Source: Raiffeisen Bank International, 2017

Regardless of the mitigation of risks arising from the real economy and the banking sector, the level of non-performing loans is still high, especially in the non-financial corporation sector, so credit risk<sup>1</sup> remains the dominant risk in the

<sup>1</sup>Credit risk is the risk of default on the resulting debt. It is expressed in ratings. Ratings show the debtor's ability to service its liabilities on a regular basis. There is an external and internal rating. An external rating is assigned by an agency that specializes in this type of business. The most significant

B&H banking sector. When it comes to the household sector, the potential risk stems from the growing presence of non-earmarked loans as well as larger loans and longer maturities. Despite the presence of these risks, although some slight positive trends in the macroeconomic environment were observed, the level of the banking sector is extremely modest. Due to the absence of significant credit activity, there was an increase of liquid assets, or cash, so that the liquidity of the banking sector is at a satisfactory level. At the end of 2016, the total assets of the banking sector amounted to 13.34 billion of euros and recorded a growth in the amount of 5.4% over the previous year.

The analysis in Table 1 shows that the total assets of banks have been increasing in recent years and that the loans to private companies and households have also been increasing in recent years. The deposits of domestic resident sectors recorded an increase, of which the largest sector was population with 8.1%. This growth is likely to be a reaction of the population to the conditions that have been prevailing in the banking market for many years, but also to the lack of an alternative for a safer investment form. In the last five years, the banking sector has achieved a satisfactory level of profitability, which in 2016 was  $ROA = 1.1\%$  and  $ROE = 7.3\%$ . The capital adequacy ratio of the banking system recorded a slight improvement over the previous year and amounted to 15.8%, which is above the legal minimum (12%) and is directly related to the reduction of the problem loans percentage to 11.8% in 2016. Also, the level of capitalization should be further stimulated by the growth trends in quality and profitability of assets achieved in 2016.

The financial market of B&H, as in most countries of the immediate environment, is bank-centric, dominated by foreign-owned banks. A strong competition from foreign banks is thought to have positively contributed to the growth of savings, the fall in interest rates, the better quality of banking services, and thus the general confidence in the banking sector. However, the most significant problems of the banking market in B&H remain: the high dependence of branches on parent banks, the slow resolution of the problem of non-performing loans, which burden banks' balance sheets and stifle their interest in new lending.

## 2. Literature review

Market structure of the banking sector has caused a great interest of researchers in the region and around the world, with the aim of determining the level of competition and efficiency that is applied in each country. In the case of countries in transition, and especially those in the Eastern European region that have shifted towards an open economy, an interest in analyzing their home market, as well as cross-border implications has increased (*Davcev & Hourvoulides, 2013*).

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external rating agencies are Standard & Poor's, Moody's and Fitch. On the other hand, internal ratings differ from bank to bank, depending on the criteria set by the banks themselves.

For most transition countries, the process of market transformation first entailed the deregulation, which was soon followed by the privatization of state-owned banks or the entry of foreign banking institutions seeking to gain market share. In his research, *Barisitz* (2008) concentrated on the Balkans, and found that there were two waves of banking reform: the first wave focused on liberalization and the second on restructuring.

In their work, *Giustiniani & Ross* (2008) analyzed the situation of the banking market in Northern Macedonia during the 1990s. The analysis was based on the application of the Panzar and Rosse tests on market structure and H-statistics. The results obtained, near zero H-statistics, suggest that market competition is not high enough and is more like a monopoly or a cartel. They conclude that the banking sector is still relatively underdeveloped, leading to a weak competition probably due to legal and institutional constraints.

*Tsiritakis & Tsirigotakis* (2011) analyzed 20 EU Member States using the Herfindahl-Hirschman index,  $CR_3$  and  $CR_5$  concentration indicator. The conclusion they reached points to the fact that European markets are characterized by levels of concentration which indicate an imperfect market structure, i.e. a monopolistic competition, which has a favorable effect on consumer prices and credit access to firms. In his research on the banking market, *Fosu* (2013) also established the presence of monopolistic competition, as a form of market structure. The research was conducted in the African sub-regional markets using a dynamic version of the classic Panzar and Rosse model.

*Dumičić et. al.* (2008) analyzed banking concentration in Bosnia and Herzegovina, Croatia and Serbia-Montenegro, applying the Herfindahl-Hirschman index and other concentration measures. They concluded that the concentration in the banking market of these countries varies, while the banking markets of Serbia and Croatia are the most efficient. In analyzing the banking sector, *Berger et. al.* (2004) found that the emerging markets are facing greater concentration, implying less favorable prices for consumers.

Countries in transition from Central and Eastern Europe (14 of them) were analyzed by *Yildirim & Philippatos* (2007). The results of the study showed that banking markets in all countries, except Northern Macedonia and Slovakia, operate under conditions of monopolistic competition. Applying the methodology of H-statistics, they concluded that there was a low level of competition in Northern Macedonia, suggesting the presence of oligopolies or monopolies.

*Boyd & De Nicolo* (2005), *Boyd et. al.* (2006) and *Schaeck et. al.* (2006) agree that market power can destabilize the market, as well as be detrimental to the financial stability of the market. Empirical findings of *Boyd et. al.* (2006) showed that the probability of failure increases with more concentration in banking, they refute the trade-off between banking competition and stability. *Schaeck et. al.* (2006) use an alternative measure of the degree of competitiveness and conclude

that competitive banking markets are more stable than monopolistic ones because of their lower likelihood of bankruptcy and longer crisis times.

*Weill* (2004) also measures banking competition in a sample of 12 EU countries, from 1994 to 1999, finding the presence of monopolistic competition in all countries analyzed. *Bikker & Haaf* (2002) examine competitive conditions and the market for 23 countries during the 1990s. The results of their research also confirm the presence of monopolistic competition in all countries. Their estimates also showed that the competition is weaker among small banks operating mainly in local markets and stronger in international markets that are typically operated by large banks. They found that the competition in the banking market was stronger in Europe than in Canada, Japan or the USA.

### 3. Methodology – concentration measures

The economic literature offers several methods for assessing market concentration and competition. The most commonly accepted tools that are used for the purpose of determining the concentration of the banking market are the following indexes: Herfindahl- Hirschman index, Concentration index (n) banks -  $CR_n$ , Hall-Tideman index and Comprehensive index of concentration (Table 2).

Table 2. Review of concentration indexes

Concentration measures	Definition	Boundary values	Characteristics
Concentration index (n) banks - $CR_n$	$CR_n = \frac{\sum_{i=1}^n S_i}{S_i}$ $n \in \{1, \dots, n\}$	(0,1]	The indicator measures which part of the market belongs to n number of the largest banks. The higher the value, the greater the opportunity for these banks to interfere in a competitive environment.
Herfindahl - Hirschman index	$HHI = \sum_{i=1}^N S_i^2$	$\left[\frac{1}{n}, 1\right]$	The index covers the size of the bank and emphasizes the importance of large banks. A higher index value indicates a higher concentration.

Hall-Tideman index	$HTI = (2 \sum_{i=1}^{i=n} iS_i^2 - 1)^{-1}$	$(0, \infty]$	This indicator enriches the HHI with the number of banks that cause entry and exit barriers. Unity is achieved in the case of monopolies, and high indicator values suggest a highly concentrated market.
Comprehensive index of concentration	$CIC = s_1 + \sum_{i=2}^{i=n} S_i^2 (2 - s_i)$	$(0, 1]$	This measure highlights the dominance of the largest bank in determining market behavior. It combines relative dispersion and absolute size. Unity is achieved in the case of monopoly.

Source: Bod'a, 2014

In the following, a more detailed explanation of the above indexes has been made in calculating the concentration level in the banking market, using the first two, and also the most commonly used, concentration index (HHI and  $CR_n$ ) for the purposes of empirical research.

### 3.1. Concentration index (n) banks - $CR_n$

Concentration is one of the most important determinants of profitability in the banking sector. The index of n firms denoted by  $CR_n$  is usually used to calculate the level of concentration, as a measure of the market share of the n largest firms in the market (in this case three). The formula for the n-company index is (Ljubaj, 2005):

$$CR_n = \sum_{i=1}^n S_i / S_t \quad (1)$$

where  $S_i$  represents individual share of large banks, while  $S_t$  represents total market share. Accordingly, the formula for calculating the sales volume ratio of the three largest banks ( $CR_3$ ) would be:

$$CR_3 = \frac{S_1 + S_2 + S_3}{S_t} \quad (2)$$

where  $S_1, S_2, S_3$  are individual sales of the three largest banks in the market and  $S_t$  - total sales of the same. It can be seen that the concentration of the three largest banks equals the sum of these banks' market shares, i.e.

$$C R_3 = W_1 + W_2 + W_3 \quad (3)$$

where  $W_1 = S_1 / S_t$ ;  $W_2 = S_2 / S_t$ ;  $W_3 = S_3 / S_t$ . Therefore, this coefficient shows how much production falls on the three largest banks in the branch. If the coefficient is closer to 1, the concentration in the banking market is higher, and if it is closer to 0, the concentration is lower. When the concentration level is 0%, it is an extremely competitive market; while on the other hand, the situation where the concentration level is 100% reflects an extremely concentrated oligopoly or even a monopoly if only one bank achieves 100% concentration. Between the two extreme cases, the concentration level in the case of  $CR_n$  can be low, medium, and high:

- low concentration - when the concentration level in one market ranges from 0 to 50%, we say that the market has low concentration; an example is monopolistic competition;
- medium concentration - when the concentration level in one market ranges from 50 to 80%, we say that it is a market with moderate concentration; this is usually a case of oligopoly;
- high concentration - when the concentration level in one market ranges from 80 to 100%, that market is considered highly concentrated; national regulatory authorities pay the most attention to markets that fall into this category; monopolies are an example;

In fact, it is relatively easy to obtain market competitiveness information by looking at the number of banks in the market. When more banks are present, the market will look more competitive. However, this indicator will not answer the question of the degree of concentration, since there may be more banks present on the market, implying the existence of perfect competition or monopolistic competition, and yet it is an oligopolistic market. The reason for this outcome can be found in the fact that two large banks with 95% market share can operate in a given market, while all other banks participate with a minor 5%.

Can we rely on the fact that the degree of concentration is a good indicator of the degree of competition in a particular branch? The answer would be: not completely, because in some cases the degree of competition from abroad is ignored, which should not be neglected.

### **3.2. Herfindahl-Hirschman index (HHI)**

The HHI index can be cited as the most important measure of concentration on the market. As the name implies, this index is the result of the individual works of Herfindahl and Hirschman. Specifically, these economists concluded from detailed



research and analysis that concentration and measurement should be based on the sum of squares of the market shares of all companies in one branch. Therefore, the Herfindahl-Hirschman index is a convex function of market share, which is also a result of its sensitivity to inequality. Thus, the HH index can be formally expressed as follows (Cetorelli, 1999):

$$HHI = \sum_{i=1}^N S_i^2 \quad (4)$$

where  $S_i$  is the market share of the company, while  $N$  denotes the total number of firms in a given industry. Unlike the  $CR_n$  concentration coefficient, HHI shows the market share distribution of a selected limited number of leading companies, but includes all companies in the sector. Due to the squaring process, proportionally greater importance is attached to banks with the largest market shares (Calkins, 1983). HHI cannot theoretically be less than zero, so an index value ranging from 0 to 1000 is interpreted as a low concentrated market, between 1000 and 1800 is considered a medium concentrated market, while all index values above 1800 are designated as highly concentrated markets<sup>2</sup>.

In the banking market, market share is usually calculated using the total assets of banks and deposits, noting that larger, industrialized countries, as a rule, have powerful banking systems (larger volume of assets), i.e. an increasing number of banks and a naturally more competitive banking sector relative to small or developing countries. (Bikker & Haaf, 2000).

The data in the paper cover the period from 2008 to 2016, and the main source of the data provided are the summary audit reports of the banking agencies of the Republika Srpska and the Federation of Bosnia and Herzegovina, which are available on their websites. In addition to the agencies' audit reports, relevant primary and secondary economic literature was used for the purposes of this paper.

### 3.3. Hall-Tideman index (HTI)

The Hall-Tideman index emphasizes the importance of the absolute number of banks in calculating concentration. The importance of including the absolute number of banks in calculating a concentration stems from the fact that the number of banks in the banking market may partly explain the possibility of a new bank entering a given market. Specifically, the assumption is that entry into the market is easy if it operates a large number of banks, while it is relatively more difficult to

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<sup>2</sup> Competition commissions and various antitrust organizations are guided by the values of the HH index when regulating various markets (industrial, banking, etc.). The announced takeovers or mergers of the company will not be approved if these mergers break the concentration limit in a given market set at 1800 points, or if this increases the index value by more than 200 points, while increasing the index value by 100 points will surely attract more attention of antitrust organization.

enter a market that is covered by two or three major banks. The Hall-Tideman index (HTI) is expressed by the following formula (Ljubaj, 2005):

$$HTI = 1 / \left( 2 \sum_{i=1}^n i s_i - 1 \right) \quad (5)$$

where the market share of each  $S_i$  company is multiplied by the corresponding rank ( $i$ ), with the largest bank being assigned the rank  $i = 1$  and the smallest  $i = n$ . HTI has similar characteristics to HHI, so its value ranges from 0 to 1, taking a value close to 0 for an infinite number of banks of equal size, while the index would be 1 in the case of a monopoly.

### **3.4. Comprehensive index of concentration (CCI)**

In most cases, market concentration indexes emphasize the role of the largest, dominant companies, neglecting other firms that can also act to change the market structure. The Comprehensive Market Concentration Index (CCI) reflects both the relative dispersion and the absolute number of banks. The CCI form is partly derived from the HHI and is expressed by the formula:

$$CCI = s_1 + \sum_{i=2}^n s_i^2 [1 + (1 - s_i)] \quad (6)$$

The largest bank's share is extracted from the sum obtained by summing the multiples of the square of the share of  $i$  bank ( $i = 2, \dots, n$ ) and the multiplier representing the proportional share of other banks in the market. The CCI index ranges from 0 to 1 and reaches a value of 1 in the case of a pure monopoly. This index is particularly applicable for market analysis where we can clearly distinguish two groups of banks, for example one dominant bank from the other group consisting of other smaller banks in the market.

## **4. Analysis of the degree of concentration of B&H banking sector**

Four classic models of market structures are generally distinguished: perfect competition, monopolistic competition, oligopoly and monopoly. The shape of the market structure is determined by the size of the market power of one or more banks operating in the relevant market.

### **4.1. The concept and specifics of market structures**

The existence of many banks in the market implies the presence of low market power, which further implies a relatively low impact on the prices of banking products and services. On the other hand, if there are only two or three banks

operating in the banking market, their market power is large, implying the possibility of a large impact on the prices of services and products offered by the banks in the market. Therefore, market power indicates the degree of control that a bank or a small number of banks have over the price of a product it offers in the banking market.

Market power is reflected, or measured, in the size of the market share of banks operating in the relevant market. The size of market power directly implies the degree of concentration present in a given market, which further implies the type or shape of the associated market structure. Therefore, market concentration refers to the degree to which a small number of banks are able to provide the majority of the total products and services offered in the banking market. Markets that tend to monopoly are marked as extremely concentrated, while on the opposite side of the scale, the degree of concentration of the banking market close to perfect competition is rated as low.

The second part of this paper provides a detailed analysis of the concentration index measures that are most commonly used today to determine the degree of concentration of the banking market, both here and in the world. If the concentration index indicates a low concentration, the market situation is considered competitive. On the other hand, if the concentration index shows high concentration, the market is considered monopolistic or oligopolistic. An overview and key features of the market structures are given in the following table.

**Table 3. Overview of characteristics of market structures**

<i>Market structure</i>	<i>Number of firms and differentiation of product</i>	<i>Degree of price control by firms</i>	<i>Barriers to entry</i>	<i>Advertising methods</i>
<i>Perfect competition</i>	many manufacturers of identical products	no	no	Market exchange or auction
<i>Monopolistic competition</i>	many manufacturers with small differences in products	small	no	advertising and rivalry in quality
<i>Oligopoly</i>	several manufacturers with the same or slightly differentiated products	small	small	advertising and rivalry in quality
<i>Monopoly</i>	one product manufacturer with no close substitute	significant (usually regulated)	significant	advertising and promotion of services

Source: Samuelson & Nordhaus, 1998, pp. 158

#### 4.2. Analysis of the degree of concentration in the B&H banking market

Banks in B&H operate with majority private equity, with a dominant share of foreign capital. State banks' assets are below 10%, indicating that the privatization process has been quite efficient. The participation of foreign banks in Bosnia and Herzegovina is considered to play a large role in fostering competition, bank efficiency, new technology and the quality of banking products and services.

At the outset of the empirical research, the market shares of commercial banks operating in the B&H banking market were determined (Table 4).

**Table 4. Market shares (% of total assets)**

Name of the bank	Market share (%)
UniCredit Mostar	18,11
Raiffeisen Bank	15,07
Intesa San Paolo	8,05
Nova banka	7,76
UniCredit Banja Luka	5,38
NLB Banja Luka	4,78
Sparkasse	4,56
Sberbank B&H	4,46
NLB Tuzla	3,75
Hypo Mostar	3,25

*Source:* Author's calculation

The preceding table sends a picture of several banks that have the largest market share in the banking sector. All displayed banks are majority foreign-owned, of which the largest market share is possessed by UniCredit Bank (Mostar and Banja Luka) with over 23 per cent, followed by Raiffeisen Bank with 15%. Based on this review of market shares, it can be assumed that this is a market with moderate concentration, in which the first five banks gained market dominance.

Table 5 measures the concentration of the B&H banking sector using the CR<sub>3</sub> and the Herfindahl-Hirschman index. As one may notice, B&H showed the highest level of banking concentration in 2008. Over the next five years, the concentration ratio of banks has been steadily declining until the last two years, when there has been a slight increase. In terms of reduction, HHI declined from 0.945468 in 2008 to 0.084125 in 2014, followed by a slight increase from 0.087564 in 2015 to 0.089969 in 2016.

The decrease in the concentration level was confirmed by the analysis of the CR<sub>3</sub> index, where the concentration level in 2008 was 0.487488, and continued to decline until 2014, when it amounted to 0.407338 index points. Then there is a slight increase from 0.415768 in 2015 to 0.424581 in 2016.

The results of the analysis show that the structure of the banking market in B&H is somewhere between monopoly and perfect competition. If we exclude the extreme values, we can conclude that there is a moderate concentration in the banking sector of Bosnia and Herzegovina, and that the obtained research results are closer to monopolistic competition than to an oligopoly. It can be concluded that monopolistic competition is present in the banking sector of B&H as a form of market structure.

**Table 5. Concentration measures of the B&H banking sector**

Year	CR <sub>3</sub>	HHI	Number of banks
2008	0,487488	0,945468	30
2009	0,486520	0,110567	30
2010	0,458133	0,094873	29
2011	0,443025	0,096081	29
2012	0,424939	0,091703	28
2013	0,414816	0,087476	27
2014	0,407338	0,084125	26
2015	0,415768	0,087564	26
2016	0,424581	0,089969	23

*Source:* Author's calculation

In addition, it can be observed that at the same time as the concentration decreases, the number of banks in the banking market decreases. The number of banks in the B&H market decreased from 30 at the beginning of 2008 to 26 at the end of 2014 and to 23 at the end of 2016. Although the number of banks has declined, it has not led to a higher level of concentration. There are several reasons for such developments in the banking market - the decrease in concentration comes as a result of the closure of smaller or larger insolvent state and private banks, the privatization of state-owned banks with foreign investors, and partly due to the ongoing consolidation efforts of the banking sector.

Most of the changes in the banking market are driven by large and powerful banks that have participated in takeovers and mergers. However, large banks were often forced to make acquisitions of weaker banks with one primary purpose - to ensure their stability. There is no doubt that the trend towards consolidation of the B&H banking sector continues, with a further tendency to reduce the number of banks. The most interesting part of this analysis is the fact that despite the steady decline in the number of banks, there was no expected increase in concentration.

## Conclusion

The situation on the B&H banking market is characterized by a slight concentration on the market, with differences between market participants in terms of their market power. Taking into account the traditional features that are present between individual market structures, as well as the results of concentration measurements, it is clear that the banking sector in B&H operates in a monopolistically competitive environment (monopolistic competition).

Since 2000, there has been a significant increase in the number of foreign banks in the banking market of Bosnia and Herzegovina, leading to increasing competition in the relevant market. In response to the pressure of competing new banks, many banks have decided to consolidate in terms of mergers and acquisitions or to use a diversification and introduction strategy for financial innovation, such as mobile banking. These activities of B&H banks contributed to the growth of their efficiency.

Commercial banks in B&H can exert some price control, compete outside advertising and cannot effectively enforce barriers for entry of other firms. Banking services are not uniform because it is the way they are trying to differentiate themselves. As concluded earlier, the number of commercial banks does not influence on concentration and competition. All this points to monopolistic competition as the only viable market structure for the B&H banking sector.

It can be concluded that the improvement of profitability of B&H banks during the observed period is mainly the result of intense competition, diversification of products and services, as well as efficient use of new techniques and technologies in banking. Further consolidation of banks is needed as a driving force for further development in line with real trends in European and world banking. The ultimate goal is more effective inter-agency cooperation and better bank performance.

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## STEPEN KONCENTRACIJE BANKARSKOG SEKTORA U BIH I UTICAJ NA CENE BANKARSKIH PROIZVODA

**Apstrakt:** Ovaj rad nastoji da ispita nivo koncentracije bankarskog sektora u Bosni i Hercegovini. Osnovni cilj rada je da izmeri nivo koncentracije i istraži kako koncentracija i vrsta tržišne strukture utiču na cene bankarskih proizvoda. Praćenjem kretanja ključnih indikatora dobija se uvid u stanje bankarskog sektora BiH. Korištenjem odgovarajućih indeksa (HHI, CR<sub>3</sub>) utvrđeno je kretanje nivoa koncentracije i oblik tržišne strukture koji je preovladavao na bankarskom tržištu u određenom vremenskom periodu. Dobijeni rezultati pokazuju da u bankarskom sektoru BiH postoji umerena koncentracija, koja uključuje monopolističku konkurenciju kao oblik tržišne strukture. To znači da se ravnotežni nivo proizvodnje postiže na nižem obimu proizvodnje, pri višim cenama bankarskih proizvoda (iznad graničnih troškova), čime se potrošački višak smanjuje u odnosu na savršeno konkurentno tržište.

**Ključne reči:** koncentracija, bankarski sektor, HHI indeks, CR<sub>3</sub> indeks.

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