

Evaluation of the Banking Services and the Level of Competition

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ABSTRACT

Many studies conducted in the world banking practice are aimed at determining the impact of competition on the banking sector and its level. In the research, there were two types of determining the level of competition: systemic and unsystematic. This article analyzes the opportunities for their use in the banking practice of the country by analyzing the strengths and weaknesses of various models of determining the level of competition in global banking practice.

Keywords:

Competition, banking competition, systemic, non-systemic model, Lerner index, Hirfindal-Hirschman model, Bun indicator, Bresnahan model, Panzara-Rossa model, Barros Modesta model, Lorentz curve, Gini index.

Introduction: In the aftermath of the global financial and economic crisis, constant monitoring of the situation in the banking market is recognized as one of the most important challenges. In particular, if we take into account the changes in the banking system of the country, the entry of our banks into the world banking market is one of the important problems in supporting them in all respects and creating healthy competition in the domestic banking market.

To date, no clear agreement has been reached on the factors that assess the bank's level of competition in research. The analysis of various indicators in the banking sector does not clearly show the level of competition of banks. Therefore, assessing the level of competition through specific indicators has not always been justified.

The main purpose of this article is to analyze in depth the models used to organize and determine the level of competition between banks in world practice, to form a clear conclusion on their application in the banking practice of the country, based on their strengths and weaknesses.

Literature review:

Based on the findings of scientists who have conducted research in this area, it is possible to analyze different approaches. In particular, the concept of competition is different, it is formed on the basis of supply and demand. Demand and supply in the market were accepted as the main criteria determining the level of competition. Hence, the concept of statistical equality is based on being the optimal point of competition [4]. According to this theory, competition is a determining factor in the statistical situation, financial institutions participating in the market do not sell products at high prices, and the profit margin is not as high as they forecast. In contrast, Austrian school representatives argued that competition should be a determining factor in this struggle. One of the founders of this school, Kurno, was one of the first to argue that there should be free competition in the market and that competition could be developed on that basis.

Competition is a concept that defines the situation in the market, in which the market price is freely determined and is almost equal to the cost of production. In order to achieve a competitive position in the market, it is necessary to have a number of proposals, in which the number of competitors should not be

taken into account in the market as a whole, and free access to the market should be created [4]. Edworth, Djevonsom, Valrasom, Marshall, and Clark are among the scholars who have taken a theoretical approach to the concept of competition. Their book, Risk, Uncertainty, and Profit, argues that perfect competition is a key antitrust factor. We know that in a monopolistic competitive environment, financial institutions establish their dominance in the market by controlling prices. There are different views on the data of the oligopolistic statistical theory, which allows to change the structural structure of the market. Oligopoly theory offers complete competition, incomplete competition, and monopoly in the market structure. Competitions in this form are based on different concepts, and their correct interpretation in the market is important for enterprises and organizations. The core of the competition is of course the financial institutions participating in the market and their position in the market. The competition process is based on a certain mechanism, the main principle of which is its participants [13]. According to the author, the relationship between people plays a key role in the competition, but other scientists believe that all participate in the competition [11].

Based on the above, there are different approaches to assessing the level of competition in the banking sector. The concept is based not only on the study of the situation in the banking market, but also on the analysis of various factors affecting them through other markets [8]. The main reason for this is the acceptance of high-risk operations by banks [2]. High competition in the banking market ensures their sustainable growth, while a decrease in the cost of financial services leads to an increase in investment and an increase in the number of services [14]. So, first of all, high competition in

the banking market will put an end to the monopoly of banks and reduce the cost of banking services. On the other hand, increased banking competition will reduce their costs, preventing inefficient spending. This is especially the case in the European Union, where countries with economies in transition account for 30-50% of the banking market [10]. Competition in the banking market in developing countries is assessed mainly on the basis of the lending process [5]. The processes of competition between banks and the interrelationships between their economic performance have been the subject of many analyzes and approaches in world practice. Scientists have conducted many studies that have revealed a negative link between banking competition and efficiency.

In this study, scientists aimed to achieve two goals: first, to show the evolution of competition between banks, and second, to reveal the process of interdependence between competition and efficiency. The link between the effectiveness of competition between banks has not always been positive. The decline in competition makes it easier for banks to work with customers who are comfortable with them.

Research has been conducted on the impact of risk on competition in the banking market and its consequences, arguing that the participation of banks in risky operations has a negative impact on the level of competition [9]. Based on the research, if we analyze the factors influencing the competition of banks, some indicators can have a positive and negative impact on banking competition depending on changes in market conditions. Table 1 below summarizes the general conclusions of the scientists who conducted research on this problem.

Table 1
Scientists who have conducted research on factors affecting bank competition¹

№	Show children	Impact of competition		Authors
		Positive	Negative	

¹Developed based on the research studied.

1.	Effectiveness	+	-	Berger, A. 1995: The profit-structure relationship in banking - tests of market-power and efficient-structure hypotheses. <i>Journal of Money, Credit, and Banking</i> 27: 404- 431 .; Goldberg, L and Rai , A. 1996: The structure - performance relationship in European banking. <i>Journal of Banking and Finance</i> 20: 745-771. ; Weill, L. 2003: Banking efficiency in transition economies, the role of foreign ownership. <i>Economics of Transition</i> 11 (3): 569-592.
2.	Credit	+	-	Caviglia , G, Krause, G and Thimann , C. 2002: Key features of the financial sectors in EU accession countries . In: Thimann , C. (ed). <i>Financial Sectors in Transition Countries</i> . European Central Bank : Francfort .
3.	Risk	+/-	-	Demirguc-Kunt , A., and MS Martinez Peria , 2010, "A framework for analyzing competition in the banking sector: an application to the case of Jordan," World Bank Policy Research Working Paper No. 5499 .
4.	Bank rent	+	-	Degryse , H., and S. Ongena , 2008, "Competition and regulation in the banking sector: A review of the empirical evidence on the sources of bank rents," in <i>Handbook of Financial Intermediation and Banking</i> , ed. by AWA Boot, and AV Thakor . Elsevier, San Diego , pp. 483-554.
5.	Information	-	+/-	Hauswald , R., and R. Marquez, 2006, Competition and strategic information acquisition in credit markets, " <i>Review of Financial Studies</i> 19 (3), 967-1000
6.	Customer confidence	+	-	Schaeck , K., and M. Cihak , 2010, "Competition, efficiency, and soundness in banking: An industrial organization perspective," <i>European Banking Center Discussion Paper No. 2010-20S</i> .

in this field T.I. As an important factor of interbank competition, Bobakulov [16] argues that "... in the current environment of healthy interbank competition, the Central Bank of the Republic of Uzbekistan conducts open market operations with one or two banks, which creates unfavorable conditions for competition." cites. Economist Sh.Z. Abdullaeva [15] notes that "... one of the main activities of commercial banks in the face of fierce competition is investment activity."

Economist D.G. According to Gozibekov [17], in order to ensure an interbank competitive environment, their activities need

to be regularly assessed on the following key parameters: the scale of financial activity (determined by the bank's financial weight - capital, assets and income), capital adequacy (own financial operations) level of provision); liquidity (the ability of the bank to fulfill its obligations to its customers in a timely manner); profitability (the ability to further increase the funds raised) ". Professor O.K. Iminov [18] "... the development of interbank competition is an important aspect of credit system reform. At present, most of the "big" banks specialize in providing services in one area or another, and have created their own "autonomy" in the

system. According to the author, one or two specialized banks are sufficient to comply with government instructions. But economists also point out that high levels of competition between banks could have a negative impact on lending. Mirzaev's work assesses the competition between the banks of the republic on the basis of their analysis, rather than the impact of financial indicators on competition in the banking market. Many models have been analyzed in this study [19].

Analysis and results:

The formation of competition between commercial banks is not limited to the factors of change in banking activities. Perhaps it will be possible to track the competition threshold based on the method of mathematical calculations based on the results given directly. Modeling the economic sector allows them to achieve certain results based on the factors that affect them. Similarly, models based on changes

in the banking sector will further increase their ability to evaluate their performance. Models developed in world practice are a key factor in determining the boundaries of competition in the assessment of competition between commercial banks. Achieving concrete results based on models created in world banking practice is the basis of our research. In world practice, there are many models for assessing competition between banks, including the Daymond model for determining the surface area of competition in investment, the Holstrom-Tyrol model for determining competition based on bank deposit and credit interest rates, the Monti-Klein model for determining monopolistic banks, the Oligopol model or Cournot's competition. The Bertrand method in the formation of competition in the activities of banks and the scope of Salop in the formation of free competition on the basis of the number of banks can also be cited.

Table 2
Research to determine competition in the banking market²

Researchers	Place of study	Number of banks	Study range	Selected index *	The final assessment of the competition
Bikker et al (2012)	Jahon	73	1994-2004	PRH	Average
Carbó et al (2009)	EI	58	1995-2001	HHI, L, PRH	Average
Casu and Girardone (2006)	EI	63	1997-2003	CR, PRH	Average
Casu and Girardone (2009)	EI	73	2000-2005	L	strong
Claessens and Laeven (2004)	Jahon	106	1994-2001	PRH	Average
Coccorese (2014)	Jahon	116	1994-2012	L	strong
Fernández de Guevara et al (2007)	EI	45	1993-2000	L	strong
Goddard and Wilson (2009)	G7	166	2001-2007	PRH	Strong
Logan (2004)	B. B. Britain	357	1989-2003	CR, HHI	Strong
Matthews et al (2007)	B. B. Britain	11	1980-2004	PRH, L	average
Schaeck and Cihák (2010)	EI	-	1995-2005	B	Average

²Based on the research studied.

Schaeck and Cihák (2012)	EI	43	1999–2005	PRH	average
Schaeck and Cihák (2014)	EI	43	1995–2005	B	strong
Schaeck et al (2009)	Jahon		1998–2005	PRH	Average
Weill (2013)	EI	56	2002–2008	L, PRH	Strong
Leuvensteijn et al (2011)	EI + G2	140	1992–2004	B	strong

* Here, CR = concentration coefficient; HHI = Herfindal-Hirschman index; L = Lerner index; PRH = Panzar-Rosse H-statistics; B = Bun indicator

The models discussed above have shown the need to evaluate banks in the market, taking into account certain factors. Today, the development of banks in the market does not allow to assess their market position through certain factors. The world practice of controlling the concentration or competition threshold in the banking market uses the Herfindal-Hirschmann median value index, the Lorentz curve, the Lerner index and the Gini index. An overview of this index is as follows [19]:

$$H = S_1^2 + S_2^2 + \dots + S_n^2 \quad (1)$$

$S_1^2, S_2^2, \dots, S_n^2$ are financial institutions operating in the market (where the organizations with the highest market share of the analyzed indicators are taken first). There is no clear methodology for calculating the number of banks in this index. In practice, B3, B5 or B10 is calculated by the market share of banks. If the value of the index is close to 0, the competition is strong, if it is close to 1, the monopoly is high. The normalized calculation formula for this index is as follows:

$$NHHI = \sum_{i=1}^n \frac{s_i^2 - \frac{1}{N}}{\frac{1}{N}}, \quad (2) \text{ where } N \text{ is the}$$

number of banks participating in the market.

According to scientists, competition in the market is strong if it is less than $X \leq 1000$, moderate competition in the range of $1000 \leq X \leq 1800$, and $1800 \leq X$, which indicates that the market is dominated by a monopolistic process. This index limit has been interpreted

differently in different literatures. Including, J. According to the Kvoka analysis, it is necessary to take the upper limit of the index as 4500 and the lower limit as 1200. These figures vary from country to country. In particular, the United States has been using this index since 1982. Its rating range is taken from 0 to 1000 or 10,000. If the market is less than $HHI \leq 1000$, the competition is strong, if the competition is moderate in the range of $1000 \leq HHI \leq 1800$, if it is $1800 \leq HHI$, the market will be inspected by the Department of Justice. This index determines the position of market participants. The Concentration Coefficient (CR) and the Herfindal-Hirschman (HHI) index divide the market into three categories³: Type I - a highly concentrated market: $70\% < CR < 100\%$; $1800 < HHI < 10000$; Type II - moderately concentrated market: $45\% < CR < 70\%$; $1000 < HHI < 1800$; Type III - low-concentration market: $CR < 45\%$; $HHI < 1000$

In addition, Naldi and Flamini (2014) performed an integral forecast of the HHI index. In the methodology they created, the share of M major players in the market was also known, while the share of the remaining participants was unknown [12].

$HHI = \sum_{i=1}^n s_i^2$ and $1 = \sum_{i=1}^n s_i^2 + s_i^2$ - where i is the market share of the i participant, n is the number of market participants here, M is the participants with a clear market share. In this case, Naldi and Flamini proposed to determine the minimum value of the HHI index as follows:

$$HHI_{min} = \sum_{i=1}^n s_i^2 + \frac{(1 - \sum_{i=1}^n s_i^2)^2}{n - M} \quad (3)$$

In determining the maximum value of the HHI index, it is proposed to determine it by two conditions: if the share of unknown participants

³<http://discovered.com.ua/glossary/indeks-xerfindalya-xirshmana/>

in the market is less than the share of known participants, then

$$HHI_{max} = \sum_{i=1}^n s_i^2 + (1 - \sum_{i=1}^n s_i^2)^2 \quad (4)$$

if the share of unknown participants in the market is greater than the share of known participants

$$HHI_{max} = \sum_{i=1}^n s_i^2 + s_M^2 + (1 - \sum_{i=1}^n s_i^2 - s_M * Q)^2, \text{ here } Q = \frac{1 - \sum_{i=1}^n s_i^2}{s_M} \quad (5)$$

offered to determine through. An overview of the Lorentz curve and the Gini indicator formula is as follows:

$$GI = 1 + \frac{1}{N} + \left(\frac{2}{\bar{y}N^2}\right) \sum_{i=1}^N y_i \quad (6)$$

Here, y_i - the addition of the i chi bank, \bar{y} - the average.

The oscillation frequency of this indicator is also between 0 and 1, and the closer to 1 the market distribution is incorrectly distributed, the opposite to 0. The most convenient of these indices is the Lerner index. First, it allows direct competition to be determined, and second, it is assessed on a net bank basis. This will then allow comparison with the results of other banks. In world banking practice, the Herfindal-Hirschman index is analyzed in the constant monitoring of competition in the market. In particular, if we analyze the banking system of Ireland, which is experiencing a stage of development from European countries, the value of HHI on loans was as follows:

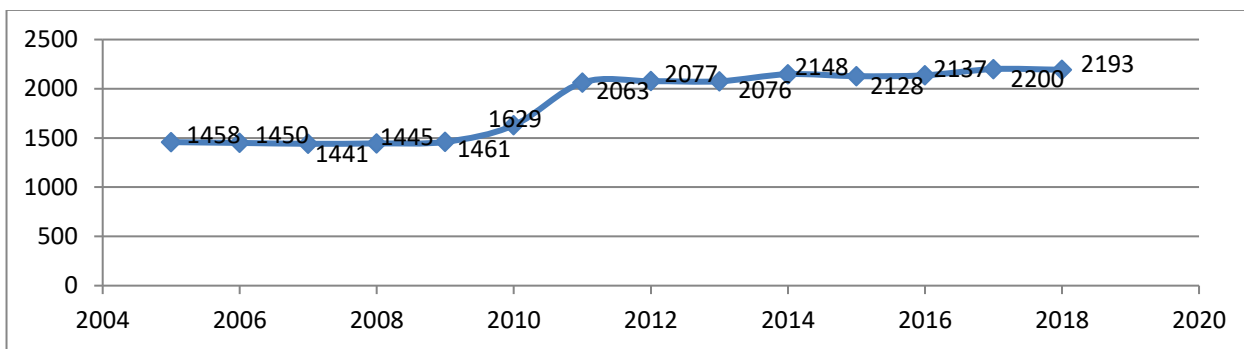


Figure 1. HHI value on Irish state bank loan⁴.

The value of HHI on loans in the Irish state has increased since 2010. The market position of Irish banks in 2018 has maintained an oligopolistic position.

HHI in the banking system of the CIS countries⁵ by the state of Armenia, then the index value for various indicators of banks from 2005 to 2017 was as follows.

⁴<https://www.centralbank.ie/statistics/data-and-analysis/credit-and-banking-statistics/hhi-indicators>

⁵The value of the Herfindal-Hirschman index is rated between 0 and 1. A value of 0 is considered to be the minimum concentration, up to 0.10 - low concentration, 0.10 to 0.18 - the average concentration, 0.18 - the highest concentration.

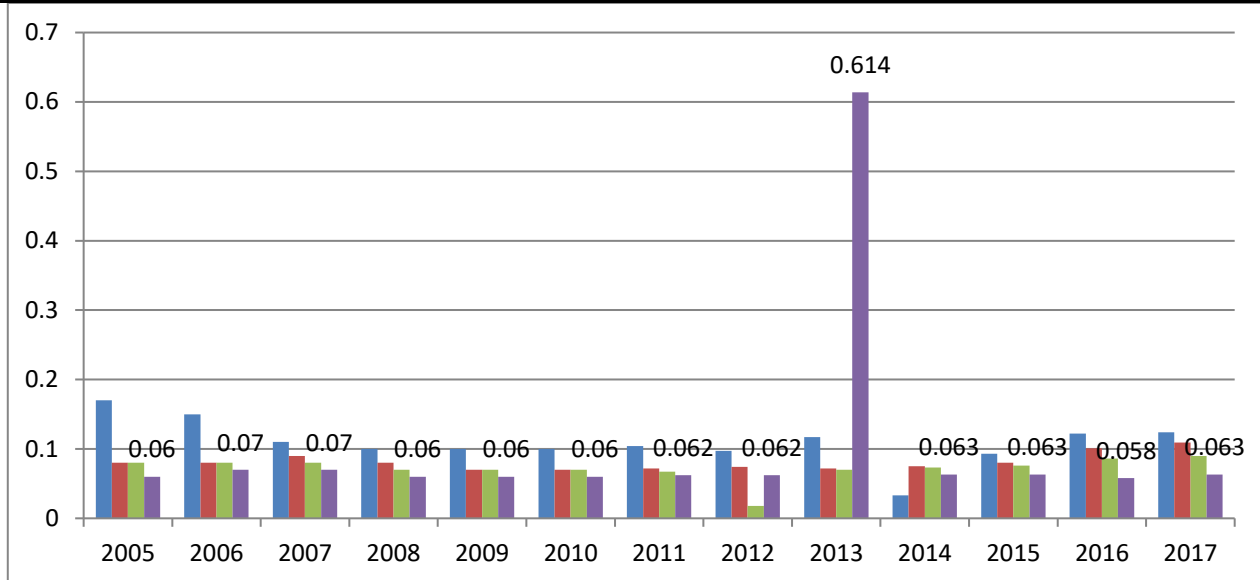


Figure 2 The value of HHI in the banking system of the Armenian state⁶.

The value of HHI in the banking system of the Armenian state has remained stable. This means that competition in the banking market was strong during the periods under analysis

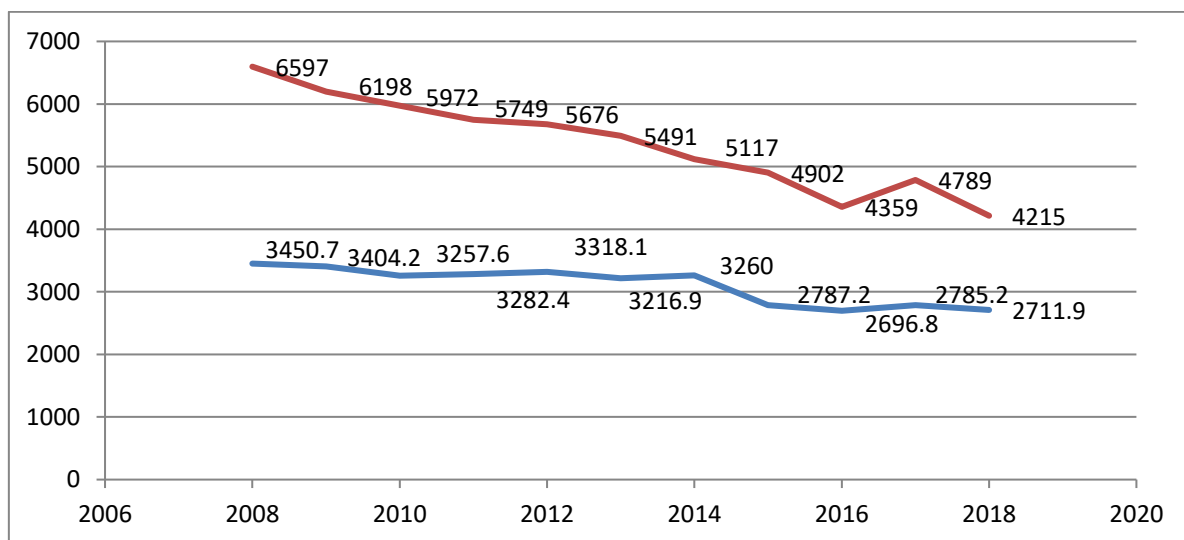


Figure 3. HHI value of major B10s in the Russian Federation (RF)⁷

In 2013 alone, there was moderate competition for bank capital. At the same time, the value of HHI was 0.164, the market concentration was high and the level of competition changed.

HHI on assets based on the 10 largest banks in the Russian Federation⁸ (Figure 3), the market situation can be assessed as a monopoly. Although this figure decreased by 738.8 points in 2018 compared to 2008, the market concentration remains high. The market situation on the deposit of individuals shows that the monopoly is high.

⁶<https://www.ceicdata.com/en/armenia/banking-system-herfindahl-hirschman-index-of-concentration> .

⁷<https://people.conomy.ru/blog/economics/1742.html>

⁸The criteria for this index in the Russian Federation are as follows: Group I: market highly monopolized (concentration) - monopolized market (1,800 < HHI < 10,000). Group II: the market is moderately monopolized (concentration) - oligopolistic market (1,000 < HHI < 1,800). Group III: market is low monopolized (concentration) - competitive market (HHI < 1,000).

The forecast of the general banking sector index of the Russian state for 2019-2020 is analyzed as follows.

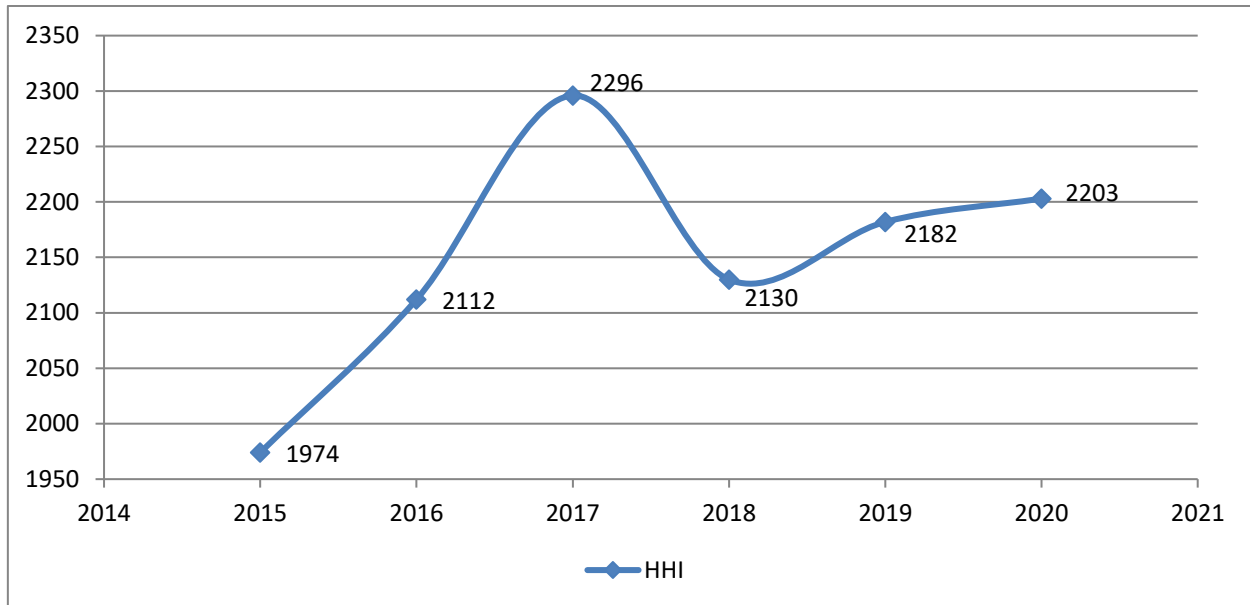


Figure 4. Forecast of HHI value of Russian banks⁹.

HHI in the Russian banking system is projected to maintain an oligopolistic position, with values of 2182, 2203, respectively, for 2019-2020.

F. In his research, Mirzaev suggested that the Herfindal-Hirschman index $1000 \leq X \leq 3500$ be taken as the average of the limits of competition in the banking market. In our opinion, given the changes in the past two years and the entry of our banks into the global banking market, it would be appropriate to conduct this index on the basis of the criteria used in world practice. Based on the above analysis, on the basis of assets and capital indicators of the banks of the republic, we analyze the HHI of the largest commercial banks "B5".

Table 3

The share of banks in the total assets of banks of the Republic of Uzbekistan and HHI value¹⁰

Commercial Banks (B5)	Years						
	2012	2013	2014	2015	2016	2017	2018
National Bank	26.5	25.7	24.6	23.9	25.4	30.1	24.9
Asaka bank	11.8	10.3	10.3	11.4	12.6	14.6	13.4
Uzpromstroybank	15.3	15.6	15.0	13.7	13.0	14.9	12.6
Ipoteka bank	6.5	6.7	6.3	6.7	7.2	8.3	8.7
Agrobank	4.5	4.4	4.9	4.9	4.9	3.1	5.4
Jami	64.6	62.6	61.1	60.5	63.1	71.0	64.9
HHI	1136.0	1072.9	1000.8	955.9	1049.9	1420,1	1061.4
Market situation	Oligopol	Oligopol	Oligopol	competitive	Oligopol	Oligopol	Oligopol

⁹<https://www.simple-analytics.com/blog/Index-Gerfindalya/>

¹⁰Compiled by the author on the basis of data from commercial banks.

If we pay attention to the table, the share of B5 banks in the market of assets did not fall below 60%. The lowest figure was 60.5% in 2015, while the highest figure was 71% in 2017. Among our banks, TIF belongs to the National Bank and has not fallen below 23%. Based on the results obtained, when the HHI was calculated, the position of banks in terms of assets was oligopolistic and was competitive only in 2015. The lowest HHI was HHI = 955.9 in 2015 and the highest was HHI = 1420.1 in 2017.

In our similar capital analysis, HHI was as follows

Table 4
The value of HHI on the capital of commercial banks (B5)¹¹.

Banks	Years						
	2012	2013	2014	2015	2016	2017	2018
National Bank	14.0	15.5	17.5	16.4	15.8	17.0	34.3
Asaka bank	8.4	9.0	10.7	9.4	8.5	9.6	19.0
Uzpromstroybank	5.3	6.7	11.5	11.1	10.3	5.8	13.6
Ipoteka bank	2.7	3.1	4.0	4.1	4.4	5.4	9.6
Agrobank	3.1	3.7	5.0	6.3	5.7	5.5	13.4
General	33.4	38.0	48.6	47.3	44.7	43.4	89.9
HHI	310.6	389.3	593.3	536.5	479.8	475.8	1992.9
Market situation	Raquo-batli	Raquo-batli	Raquo-batli	Raquo-batli	Raquo-batli	Raquo-batli	Mono-pol

of HHI on the assets of commercial banks of the country in 2012-2017, the situation in the banking market can be assessed as positive. However, by 2018, the value of HHI was 1992.9 and there was a monopoly situation. This is due to the fact that in 2018 the market share of the National Bank of TIF was 34.3%.

Table 5
HHI value of commercial banks of the Republic (B5)¹².

Banks	Active	Credit	Capital	Deposit
National Bank	27.9	29.1	21.0	17.9
Asaka bank	13.9	14.4	11.4	9.9
Uzpromstroybank	13.6	15.7	11.5	6.2
Ipoteka bank	9.1	10.4	6.1	9.1
Agrobank	5.1	5.7	8.0	4.8
General	69.6	75.3	58.0	47.9
HHI	1265.4	1441.3	804.4	562.7
Market situation	Oligopol	Oligopol	Competitive	Competitive

According to the table, when analyzing the performance of our commercial banks in the first quarter of 2019, the market position of banks in terms of assets and credit was oligopolistic, and the market position in terms of capital and deposits was competitive.

Conclusions and recommendations:

Based on the analysis, the following conclusions were made:

1. The share of B5 banks in all indicators of the Republic should be less than 60%. Achieving this indicator will allow the banking market to:

¹¹Author's account based on data from commercial banks.

¹²Author's account based on data from commercial banks.

- leads to an increase in the number of banks' products;
- improves the quality of banking services;
- increases the ability of banks to enter the world banking market;
- expands the opportunities to increase the income of banks;
- ensures the improvement of the quality of banking services in the regions and the expansion of the customer base;
- increase the international rating of banks and strengthen their position in the market.

2. When covering the level of competition in the banking market, the Central Bank should announce the value of HHI.

3. Criteria for assessing the value of HHI on the basis of the world system Group I: the market is highly monopolized (concentration) - monopolized market ($1,800 < \text{HHI} < 10,000$). Group II: the market is moderately monopolized (concentration) - oligopolistic market ($1,000 < \text{HHI} < 1,800$). Group III: the market is low monopolized (concentration) - it is advisable to adopt a competitive market ($\text{HHI} < 1,000$).

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