

THE IMPORTANCE OF USING THE HERFINDAL-HIRSCHMAN (HHI) INDEX IN DETERMINING THE LEVEL OF COMPETITION BETWEEN BANKS IN UZBEKISTAN

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Abstract: This article analyzes the assessment of competition between commercial banks using the Herfindal-Hirschman index. The most convenient method of bank competition assessment is to evaluate the level of competition between commercial banks of the Republic.

Keywords: Competition, competition between commercial banks, competition assessment methods, market concentration, bank stability, economic growth.

Introduction

Competition between banks plays a significant role in the effective functioning of the financial market and is one of the important links in the proper conduct of financial policy. During the gradual reform of the financial sector in Uzbekistan, a number of measures have been taken, and as a result, special attention is paid to the conduct of advanced banking business and strengthening the competitive environment in this sector. Of the 31 banks operating in Uzbekistan, 13 have state participation in their capital, the capital of which is more than 87% of the total capital of the banking system, and their assets are more than 85% of total assets (PF-5992, 2020).

As noted by the President of the Republic of Uzbekistan Shavkat Mirziyoyev in his Address to the Oliy Majlis on December 29, 2020

“The focus will be on the widespread introduction of digital technologies in the activities of banks. In 2021, we are preparing for the privatization of Sanoatqurilishbank, Asaka Bank, Ipoteka Bank, Aloqabank, Turonbank and Qishloq Qurilish Bank. The state's stake in at least one major bank will be sold in full to strategic investors.

It is clear that reducing the share of the state in large banks is to reduce the level of monopolization between commercial banks.

Critical analysis of the literature on the subject

The world practice of controlling the concentration limit in the banking market uses the Herfindal-Hirschman median value index.

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**:

$$NHHI = \sum_{i=1}^n \frac{s_i^2 - \frac{1}{N}}{\frac{1}{N}}, (1)$$

where N is the number of banks participating in the market.

According to scientists, the competition is strong if the market is less than $X \leq 1000$, the average competition in the range of $1000 \leq X \leq 1800$, and $1800 \leq X$ indicates that the market is dominated by a monopolistic process. This index limit has been interpreted differently in different literatures. Including, J. According to Kvoka's 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 $X \leq 1000$, the competition is strong, the average competition is in the range of $1000 \leq X \leq 1800$, if it is $1800 \leq X$, 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 categories:

Category I - highly concentrated market: $70\% < CR < 100\%$; $1800 < HHI < 10000$;

Category II - average concentrated market: $45\% < CR < 70\%$; $1000 < HHI < 1800$;

Category 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.

Research Methodology

The main purpose of the study is to draw scientific conclusions for the development of scientific and practical proposals and recommendations based on the results of the analysis of the practice of ways to assess the level of competition between commercial banks in the interbank market.

The theoretical and methodological basis of this article is general economic literature and scientific articles, analysis of economists' research on financial stability of commercial banks, expert assessment, process monitoring, conclusions, suggestions and recommendations based on a systematic approach to economic events and processes. In the process of studying the topic, special approaches to the systematization of financial data of Uzpromstroybank, Agrobank, National Bank, Asaka Bank, Ipoteka Bank, banks were used, such as comparison, aggregation of theoretical and practical materials and systematic analysis.

Analysis and Results

We will analyze the commercial banks of the Republic B5 banks on the basis of several indicators on the basis of their market share. F. In his study, Mirzaev suggested that the Herfindal-Hirschman index be taken as the average of the competition threshold in the banking market. In our opinion, given the changes in our banks over the past two years and their entry into the global banking market, it would be expedient to conduct this index on the basis of the criteria used in world practice. Based on the above analysis, we analyze the HHI index of the largest commercial banks "B5" on the basis of assets and capital of the banks of the republic.

Table 1: The share of banks in the total assets of banks of the Republic of Uzbekistan and their value

Commercial Banks (B5)	Йиллар						
	2013	2014	2015	2016	2017	2018	2019
National Bank	25,7	24,6	23,9	25,4	30,1	24,9	24,4
Asaka bank	10,3	10,3	11,4	12,6	14,6	13,4	12,7
Industrial Construction Bank	15,6	15,0	13,7	13,0	14,9	12,6	12,8
Ipoteka bank	6,7	6,3	6,7	7,2	8,3	8,7	8,6
Agrobank	4,4	4,9	4,9	4,9	3,1	5,4	6,8
Jami	62,6	61,1	60,5	63,1	71,0	64,9	65,3
HHI	1072,9	1000,8	955,9	1049,9	1420,1	1061,4	1040,69
Market situation	Oligopol	Oligop	compe	Oligo	Oligopol	Oligo	Oligopo

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If we pay attention to the table, the market share of B5 banks of the republic in 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, Did not fall below 23%. Based on the results obtained, when calculating the HHI, 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 in 2017 was $HHI = 1420.1$. In a similar capital analysis, the HHI was as follows.

Table 2: The value of HHI on the capital of commercial banks

Banks	Йиллар						
	2013	2014	2015	2016	2017	2018	2019
National Bank	15,5	17,5	16,4	15,8	17,0	34,3	25,8
Asaka bank	9,0	10,7	9,4	8,5	9,6	19,0	12,0
Self-construction bank	6,7	11,5	11,1	10,3	5,8	13,6	12,2
Ipoteka bank	3,1	4,0	4,1	4,4	5,4	9,6	7,3
Agrobank	3,7	5,0	6,3	5,7	5,5	13,4	9,1
Total share	38,0	48,6	47,3	44,7	43,4	89,9	66,4
	389,3	593,3	536,5	479,8	475,8	1992,9	1094,58
HHI	competitive	competitive	competitive	competitive	competitive	Mono-pol	Oligopol

When analyzing the value of HHI on the assets of commercial banks of the country, the situation in the banking market for 2013-2017 can be assessed as positive. However, by 2018, the value of HHI was 1992.9 and there was a monopoly. This is due to the fact that in 2018, the market share of the National Bank of TIF was 34.3%.

As of January 1, 2020, the following results were obtained when analyzing the value of HHI on assets, loans, capital and deposits of our B5 banks:

Table 3: H5 value of B5 banks.

Banks	Active	Credit	Capital	Deposit
National Bank	24,4	26,0	25,8	16,8
Uzpromstroybank	12,8	12,8	12,2	9,9
Asaka bank	12,7	12,4	12,0	8,9
Ipoteka bank	8,6	9,4	7,3	8,6
Agrobank	6,8	7,5	9,1	6,0
Total share	65,3	68,1	66,4	50,2
HHI	1040,69	1138.21	1094,58	569.42
Market situation	Oligopol	Oligopol	Oligopol	competitive

If we look at the table, when analyzing the performance of our commercial banks on the basis of the Herfindal-Hirschman index as of January 1, 2020, the market position of banks in terms of assets, credit, capital was oligopolistic, and the market position on deposits was competitive. The following table shows the share of B5 banks in total loans:

Table 4: Share of commercial banks B5 in total loans

Commercial banks	2013 й.	2014 й.	2015 й.	2016 й.	2017 й.	2018 й.	2019 й.
Uzpromstroybank	14,9	10,7	8,0	8,7	6,1	22,8	26,0
Agrobank	16,9	13,7	11,8	14,8	13,6	11,7	12,8
National Bank	25,2	20,8	17,4	14,9	23,1	15,5	12,4
Asaka bank	11,3	9,4	9,2	10,4	14,9	9,1	9,4
Ipoteka-bank	11,3	9,5	10,3	9,1	10,8	9,8	7,5
Jami	54,3	43,5	39,3	57,9	68,5	68,9	68,1

At the same time, the share of the National Bank is higher than other banks, which in 2013 amounted to 25.2%, and in subsequent years it can be observed to decrease. The occurrence of this situation can be attributed to the strengthening of the position of other banks in the market. In particular, the share of Uzpromstroybank in 2018 increased by 3.5 times compared to 2017. This is

assessed by a sharp increase in the volume of loans to the construction sector of the bank.

Table 5: Share of commercial banks B5 in total deposits

Commercial banks	2013 й.	2014 й.	2015 й.	2016 й.	2017 й.	2018 й.	2019 й.
Uzpromstroybank	8,5	4,9	4,3	4,5	4,5	6,2	16,8
bank	4,6	5,1	4,1	4,1	2,6	4,1	9,9
Agrobank	15,1	17,0	14,8	13,4	17,0	14,2	8,9
National Bank	16,4	17,4	19,1	17,3	12,9	8,2	8,6
Asaka bank	6,9	7,4	6,8	6,8	8,3	9,8	6,0
Ipoteka-bank	51,5	51,8	49,2	46,0	45,4	42,4	50,2

If we analyze the composition of deposits, we do not see a sharp change in the share of banks. According to this indicator, the market share of the National Bank is high, in 2018 it was 14.2%. The total share of B5 banks decreased by 9.1 points in 2018 compared to 2013. This can be considered a positive situation. Based on the obtained analysis, we analyze the B3 banks of the country using the Herfindal-Hirschman index formula to assess the level of competition. Based on the above formula, we calculate the HHI index for each year. In particular, the share of B5 banks in loans in 2013 is as follows:

$$H = S_1^2 + S_2^2 + \dots + S_n^2 = 14.9 * 14.9 + 16.9 * 16.9 + 25.2 * 25.2 + 11.3 * 11.3 + 11.3 * 11.3 = 1396$$

We calculate the same for the remaining years. As a result, we have the following table.

Table 6: B5 is the value of the HHI index based on the performance of banks

Index indicator	2013 й.	2014 й.	2015 й.	2016 й.	2017 й.	2018 й.	2019 й.
As part of total loans							
HHI	1396,0	918,2	695,4	706,9	1093,8	1076,9	1138,21
Market	Ўртача	Кучли	Кучли	Кучли	Ўртача	Ўртача	Ўртача

situation	рақобат	рақобат	рақобат	рақобат	рақобат	рақобат	рақобат
As part of total deposits							
HHI	840,9	821,6	767,9	751,3	1096,9	946,7	569.42
Market situation	Кучли рақобат	Кучли рақобат	Кучли рақобат	Кучли рақобат	Ўртача рақобат	Кучли рақобат	Кучли рақобат
As part of total capital							
HHI	846,8	840,0	803,0	762,0	961,7	826,1	1094,58
Market situation	Кучли рақобат	Кучли рақобат	Кучли рақобат	Кучли рақобат	Кучли рақобат	Кучли рақобат	Ўртача рақобат

Thus, according to the results obtained, the market position of B5 banks of the republic on 5 indicators was as follows:

- In terms of total loans, the market concentration is high, and bank competition in 2017-2019 remained moderate;
- In terms of total deposit structure, the market concentration is very high, and in 2019 the banks created strong competition;
- In terms of total capital structure, the market concentration is very high, and in 2018 the banks created strong competition;

Conclusion

In conclusion, it is important for banks to do the following to ensure their competitive advantage:

- transfer of the state share in large banks to strategic investors;
- increase flexibility and sensitivity in the market;
- automation of the banking sector;
- use of new computer technologies, creation of new innovative services and improvement of service;

- further improvement of the remote service system, increase of internet-banking opportunities;
- use of new information and communication technologies based on the introduction of electronic marketing;

In order to ensure competition in the market of commercial banks of the Republic, it is necessary to:

- not to exceed the share of B5 banks in ensuring high market concentration;
- further increase the participation of commercial banks in attracting investment, resulting in the de-monopolization of the market;
- It is advisable to use the Herfindal-Hirschman index in assessing competition between banks.

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