



THE WAYS OF EVALUATING LEVEL OF COMPETITION BETWEEN COMMERCIAL BANKS IN THE TERBANK MARKET

F. Mirzaev

C.T.S STC employee, Uzbekistan

M. Kulmetov 

TFI teacher, Uzbekistan

mansur1@mail.ru

Abstract

In this article, it has been analyzed the ways of evaluating level of competition between commercial banks in the terbank market. Therefore, this article has been pursued under the importance of competition between commercial banks in the terbank market. For this, financial reports of commercial banks in Uzbekistan are analyzed. At last, based on the empirical findings, given are the conclusion and recommendations for the development financial stability of those banks in the future.

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

INTRODUCTION

At the current stage of economic reforms in Uzbekistan, increasing the role of the financial market in the development of the national economy is becoming an increasingly important task. Significant changes have taken place in the financial market as a result of structural and institutional reforms. New tools and new financial institutions have emerged. Commercial banks, which are directly linked to sustainable growth in the real sector of the economy, still remain the central institution of the financial market. Nevertheless, new institutions have begun to compete with commercial banks. One example of this is the fast-growing credit institutions sector. There



is no controversy in the economic literature about the economic content of interbank competition.

According to Decree of the President of the Republic of Uzbekistan dated February 7, 2017 N UP-4947 "Strategy of actions on five priority directions of development of the Republic of Uzbekistan" deepening of banking system reform, ensuring stability, development of interbank competition, increasing the level of bank capitalization, financial stability and reliability Strengthening macroeconomic stability, and maintaining high economic growth rates as well¹.

It is worth noting that interbank competition means competition between commercial banks and activities of non-bank credit institutions in the banking services market. Modern commercial banks cover all market segments. Therefore, inter-bank competition should be focused on the financial market, which is the main sector of the economy. Measures taken exclusively to ensure inter-bank competition and to suppress the monopolistic activities of banks vary considerably from country to country.

The development of competition in the banking activity was considered as a high level. Interbank competition depends on many factors and is fundamentally different from the competition in other markets, and requires careful treatment.

LITERATURE REVIEW

The first form of evaluation of competition between banks is divided into three empirical approaches: "Structure-Conduct-Performance (SCP)". This approach is seen as a paradigm that assesses the level of competition of banks in the market. This is based on the conclusion that high concentration in the market will enable banks to compete and ultimately increase their profitability (increasing the Lerner index). Consequently, the high level of market concentration in the competition between banks was considered to be sufficient. As a justification for this situation, the scientists studied in their research "Bank Concentration and Performance"². In their view, competition has shown that the market is more concerned with the profitability of the banks than on the high concentration of the market.

In many studies, market concentration has been considered as a key criterion in the assessment of competition (via the Lerner Index)³. Some studies have shown that this

¹Decree of the President of the Republic of Uzbekistan dated February 7, 2017 № P-4947 "On the Strategy of Action for the Further Development of the Republic of Uzbekistan". Collection of legislation of the Republic of Uzbekistan. - Tashkent, 2017. - No. 6 (766). - 32 p.

²Yongil J., Miller S. (2002), Bank Concentration and Performance. - University of Connecticut Working Paper Series 2

³Yongil J., Miller S. (2002), Bank Concentration and Performance. - University of Connecticut Working Paper Series 25; Bikker J.A., Haaf K., 2002, Measures of competition and concentration in the banking industry: a review of the literature, Economic & Financial Modelling 9, 53-98.

hypothesis is not valid⁴. According to Russian scientists Drobyshevsky and Pashenko, there is a need for a different approach to the assessment of banks' competition, taking into account the relationship between market concentration⁵.

The next step in assessing competition between banks is using direct modeling theory using microeconomic tools. It is important to determine which market participants will compete. The first model to evaluate through this theory is the Bresneman model. This model is based on the following factors:

- Each service has a specific function that is variable;
- increases the profitability of any bank based on the actions of its competitors;
- The demand for the services of any bank depends on the cost of its services, the services of its competitors and a number of exogenous factors.

Another recent method for assessing competition in the banking system is the Panzara-Rossa method. Its key factors are:

- data on all bank indicators are used separately (firm level data);
- Study the effect of the cost of production factors on bank revenues. At the same time, under perfect competition, bank revenues will increase proportionally. Decreases in non-competitive conditions⁶.

The general equation of the model is the bank revenue equation:

$$\ln P_{it} = \alpha + \beta_1 \ln(W_{1it}) + \beta_2 \ln(W_{2it}) + \beta_3 \ln(W_{3it}) + \gamma_1 \ln(Y_{1it}) + \gamma_2 \ln(Y_{2it}) + \gamma_3 \ln(Y_{3it}) + \delta D + \varepsilon_{it} \quad (1)$$

Where,

P_{it} is the ratio of bank interest income to total assets (bank service cost); W_{1it} - ratio of bank interest expense to total deposits (price of production factors); W_{2it} the ratio of bank staff costs to total assets (labor cost); W_{3it} - ratio of bank administrative expenses to total assets (capital cost); Y_{1it} - ratio of the bank's share capital to total assets; Y_{2it} - ratio of net loans to assets; Y_{3it} - total assets.

The bank's competitive index is as follows: $H = \beta_1 + \beta_2 + \beta_3$. The hypothesis of these statistics for zero and togetherness is tested by the F-test.

Evaluation of the industry's equivalence during the test is determined by the following equation.

⁴Fernandez De Guevara, J., Maudos, J., 2007. Explanatory factors of market power in the banking system. The Manchester School 75, 275–296.; Claessens S., Laeven L. (2003), What Drives Bank Competition? Some International Evidence. - World Bank Working Paper Series.

⁵Drobyshevsky S., Pashchenko S. (2006), Analysis Competition in the Russian Banking Sector. - IEPP

⁶Panzar, J. and Rosse, J. (1987). Testing for "monopoly equilibrium". The Journal of Industrial Economics, XXXV(4) :443{456.

$$\ln(\text{ROA}_{it}) = \alpha + \beta_1 \ln(W_{1it}) + \beta_2 \ln(W_{2it}) + \beta_3 \ln(W_{3it}) + \gamma_1 \ln(Y_{1it}) + \gamma_2 \ln(Y_{2it}) + \gamma_3 \ln(Y_{3it}) + \delta D + \varepsilon_{it} \quad (2)$$

In the evaluation statistics, this equation is tested by means of zero: $= \beta_1 + \beta_2 + \beta_3$. If the hypothesis is not reversible, then the field will retain its equilibrium over time and the Panzara-Rossa method can be used. The basic idea here is that the equality of return on assets should not depend on the cost of production factors.

This is the way that many studies on the competitiveness of banks have been conducted. In particular, Claessens, Laeven studied 50 banking systems based on data from 1994-2001 and analyzed monopolistic competition (average N-statistics was 0.6-0.7)⁷. Similar studies have been studied in Bikker, Haaf and Gelos, and Roldos⁸.

Anzoategui, Peria, and Melecky conducted a study of Panzara-Rossa model of Russian banking system for 2002-2008. Result: 1) Competitiveness Index N-statistics = 0.74 compared to BRHX countries. 2) state-owned banks are more profitable than private banks (competition is noticeable) 3) Banks that work with individuals are more competitive than banks that work with companies⁹.

Consequently, many studies in the evaluation of competition between banks have taken different approaches, which still do not allow accurate conclusions.

RESEARCH METHODOLOGY

This research is focused on the measures aimed at improving the development of information technologies in the enterprises. Such research methods as comparative analysis of the practical data, statistic tables and other relevant data have been widely used in the research. Basing on the research results appropriate proposals and recommendations have been developed.

ANALYSIS AND RESULTS

There are various methods for assessing competition in the banking sector, mainly by scholars who have tried to justify the need to calculate mathematical methods of different difficulty using multiple indicators. However, some types of mathematical methods do not take into account the market concentration, which is why estimation does not provide accurate results. In international practice, the assessment of competition between banks was evaluated by the market share of

⁷Claessens S., Laeven L. (2003), What Drives Bank Competition? Some International Evidence. - World Bank Working Paper Series

⁸Bikker J.A., Haaf K., 2002, Measures of competition and concentration in the banking industry: a review of the literature, *Economic & Financial Modelling* 9, 53-98.; R.G. Gelos, Jorge Roldos (2004) "Consolidation and market structure in emerging market banking systems" // *Emerging Markets Review* 5, pp. 39-59

⁹Anzoategui D., Peria M., Melecky M. (2010), Banking sector Competition in Russia. - Policy Research Working Paper 544.

assets of the ten largest banks. The market share of bank assets, loans to individuals and legal entities, deposits of individuals and legal entities is obtained. In some countries, market competition has been chosen to determine the competitiveness of banks by the market share of three, five, or ten major banks. In particular, as of January 1, 2019, the share of the five largest banks in the Russian Federation was 67.4%¹⁰. According to international practice, the five banks in Germany account for 30% of assets, 36% in Austria, 37% in the UK and 45% in the United States. In countries with a high concentration of the banking system this indicator is as follows: Portugal - 70%, Cyprus - 67.6%, Spain - 60%, Greece - 95.2%. However, it is also possible to observe a high share of assets in the five banks, even in countries with high concentration. In particular, Belgium - 65.5%, Finland - 75% and Denmark - 67.8%¹¹.

In addition to the above method, the Herfindal-Hirschman (HHI) index is used to evaluate the market competition of banks or to determine the market concentration and monopoly level. The best indices for this index are between 200 and 1,800, with the market being assessed as positive. If the index is close to 10,000 points the market position is monopolized. In particular, 30, 100 and 250 banks were taken from the study of the Russian banking market, and the HHI index was 1649, 100 banks - 1158 and 250 banks - 999 points¹².

Competition between banks plays a significant role in the effective functioning of the financial market and is an important element of the proper management of financial policy. To illustrate this, many studies have examined the interrelationship between banks, competition, bank stability and economic growth. In particular, in 32 countries of the European Union the above linkage process was analyzed on the basis of statistical data of banks for 1996-2014. The dependence process of these factors was studied on the basis of the Granger correction error vector model. As a result, healthy competition between banks and stable operation of banks is based on the ability of the country to achieve economic growth in the long run. This study, from a political point of view, determines the difference between healthy competition among banks and the sustainability of banks in pursuing economic policy, and the need to properly evaluate their impact on economic growth. The graphical representation of this dependency process is as follows:

H1A0: The competition between banks created by the Granger Correction error vector model does not lead to economic growth.

H1B0: Competition has nothing to do with economic growth between banks created by the Granger Correction error vector.

¹⁰<https://www.banki.ru/news/research/?id=10890092>

¹¹<https://www.banki.ru/news/columnists/?id=9163740>

¹²<https://expert.ru/expert/2018/03/oligopolya-kak-drajver-konkurentsii/>

H2A0: The emergence of satability of banks created by the Granger Correction error vector model does not lead to economic growth.

H2B0: Growth correction has nothing to do with economic growth in the stability of banks created by the Granger Correction error vector

H3A0: The competition between banks does not play a role in ensuring the stability of the banks, based on the Granger correction error vector model.

H3B0: Stability of banks does not play a role in competition between banks based on the Granger correction error vector model

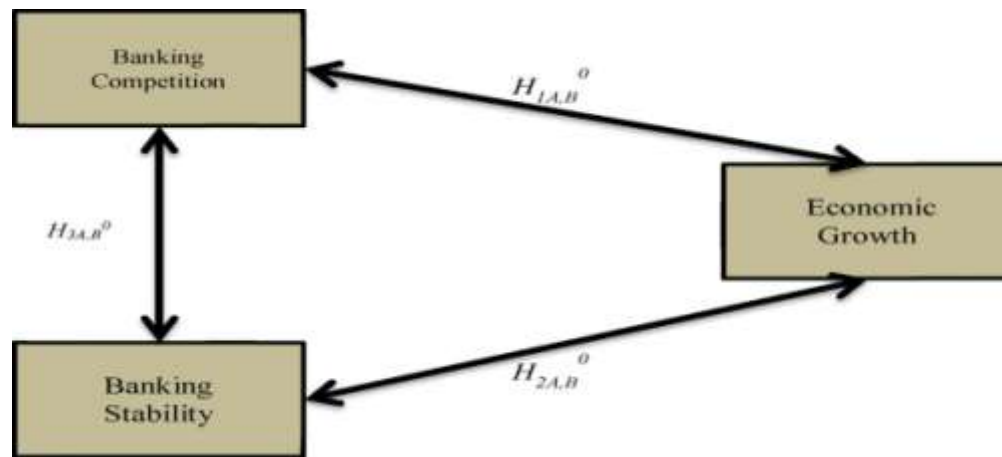


Figure 1. Algorithm of competition between banks, the stability of banks and the economic growth¹³.

The above-mentioned models show that it is necessary to take into account some factors when evaluating banks' competitiveness in the market. Today, the development of banks' activity in the market does not allow estimation of their market position by some factors.

The global practice of controlling the margins of competition in the market uses the Herfindal-Hirschman median value index. Here is an overview of this index¹⁴:

$$H = S_1^2 + S_2^2 + \dots + S_n^2 \quad (3)$$

$S_1^2, S_2^2, \dots, S_n^2$ firms operating in the market (primarily organizations with a high market share of analyzed indicators).

¹³<https://doi.org/10.1016/j.jeconbus.2017.12.004>Journal of Economics and Business Volume 96, March–April 2018, Pages 15-41.

¹⁴Alexandrova E.I., Gusieva M.B. and others. General economic fundamentals of market management. -M.: 2002. – s. 58-59.

According to scientists, competition is less than $X \leq 1000$ on the market, and the average competition between $1,000 \leq X \leq 1800$ and $1800 \leq X$ indicates that monopoly dominates the market.

We will analyze the commercial banks of the Republic on the basis of several indicators of B5 banks based on their market share. The following table shows the shares of B5 banks in total loans.

Table 1. Share of B5 commercial banks in total loans

Commercial banks	2013 y.	2014 y.	2015 y.	2016 y.	2017 y.	2018 y.
JSCB "Uzpromstroybank"	14,9	10,7	8,0	8,7	6,1	22,8
JSCB "Agrobank"	16,9	13,7	11,8	14,8	13,6	11,7
National bank	25,2	20,8	17,4	14,9	23,1	15,5
JSCB "Asaka" bank	11,3	9,4	9,2	10,4	14,9	9,1
JSCB "MortgageBank"	11,3	9,5	10,3	9,1	10,8	9,8
Total	54,3	43,5	39,3	57,9	68,5	68,9

At the same time, the share of the National Bank in comparison with other banks is higher than 25.2% in 2013, but in the next years it can be seen a decrease. This can be attributed to the strengthening of the market position of other banks. The share of Uzpromstroybank in 2018 increased by 3.5% compared to 2017. This is explained by a sharp increase in bank loans to the construction industry.

Table 2. Share of B5 commercial banks in total deposits

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

Analysis of the structure of deposits does not show a sharp change in the banks' share. The National Bank's market share on this indicator is high, reaching 14.2% in 2018. The total share of B5 banks decreased by 9.1 points in 2018 compared to 2013. This can be considered a positive state.

Table 3. Share of B5 commercial banks in total liabilities

Commercial banks	2013 й.	2014 й.	2015 й.	2016 й.	2017 й.	2018 й.
JSCB "Uzpromstroybank"	12,8	11,8	10,7	9,8	11,5	12,0
JSCB "Agrobank"	6,8	6,5	4,9	6,0	4,0	6,8
National bank	21,5	22,1	21,5	21,5	26,9	22,9
JSCB "Asaka" bank	11,1	10,8	11,4	10,8	12,9	12,9
JSCB "JSCB "MortgageBank"	6,6	6,0	6,0	6,5	7,6	8,1
Total	58,8	57,2	54,5	54,6	63,0	62,7

The share of B5 banks in total liabilities has got a growth tendency. At the same time, the Agrobank index was 6.8% in 2018, an increase of 2.8% compared to 2017. Indicator of Uzpromstroybank increased by 0.5% compared to 2017, JSCB "Mortgage Bank"'s market share increased by 0.5% compared to 2017. The share of B5 banks in 2018 increased by 3.9% compared to 2013.

Table 4. Share of B5 commercial banks in total capital

Commercial banks	2013 й.	2014 й.	2015 й.	2016 й.	2017 й.	2018 й.
JSCB "Uzpromstroybank"	8,7	12,1	11,8	10,7	10,8	10,7
JSCB "Agrobank"	7,5	6,8	6,4	5,9	6,6	8,3
National bank	22,3	21,1	21,0	21,3	23,3	21,5
JSCB "Asaka" bank	13,9	13,3	12,5	11,4	14,9	11,9
JSCB "MortgageBank"	4,7	4,8	4,9	5,1	6,1	6,1
Total	57,2	58,2	56,6	54,5	61,7	58,5

Analysis of the Bank's capital structure shows that the share of B5 banks has not changed significantly. In 2017 only, the share of B5 banks was 61.7%. In particular, in 2018, just 1.3% more than in 2013. Here, the share of the National Bank is still high compared to other banks.

Table 5. Share of B5 commercial banks in total investment

Commercial banks	2013 й.	2014 й.	2015 й.	2016 й.	2017 й.	2018 й.
JSCB "Uzpromstroybank"	5,7	6,2	7,2	7,4	1,5	0,2
JSCB "Agrobank"	3,7	4,1	4,5	12,9	10,8	6,9
National bank	56,8	50,5	48,2	32,7	40,9	36,2
JSCB "Asaka" bank	6,4	9,4	9,6	10,0	12,2	17,0
JSCB "MortgageBank"	3,3	4,2	2,8	2,2	4,9	13,6
Total	76,0	74,4	72,3	65,2	70,3	74,0

Analyzing the share of banks in investment, the B5 share is the highest. According to the analysis for the year, it was 76% in 2013, 74.4% in 2014 and 72.3% in 2015. It was 65.2% in 2016 only and over 70% in the remaining years. The B5 banks' participation was highest in this indicator. Although the share of the National Bank is still high here, the share of Uzpromstroybank in 2017-2018 has sharply declined. In 2018, its share was only 0.2%

Table 6. From total loans: B5 share of commercial banks in enterprises and organizations

Commercial banks	2013 й.	2014 й.	2015 й.	2016 й.	2017 й.	2018 й.
JSCB "Uzpromstroybank"	17,8	13,4	12,8	10,5	6,7	26,0
JSCB "Agrobank"	15,4	13,8	13,8	14,1	17,4	12,7
National bank	0,0	0,0	0,0	16,8	14,5	16,8
JSCB "Asaka" bank	13,1	11,5	14,0	12,3	18,2	10,4
JSCB "MortgageBank"	11,4	10,0	12,5	9,2	12,6	9,2
Total	57,8	48,7	53,2	62,9	69,4	75,1

As we have seen above, the overall market for loans is almost unchanged with loans to businesses and organizations. However, the share of Uzpromstroybank in 2018 has grown dramatically compared to 2017. The share of B5 banks has kept upward over the past three years.

On the basis of the analysis, we use the Herfindal-Hirschman Index formula to assess the level of competition on the basis of B5 banks' indicators. Based on the above 3 formulas, we calculate the HHI index for each year. Specifically, the shares of B5 banks in 2013 loans are 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 will do the same calculation for the remaining years. As a result, we have the following table:

Table 7. B5 value of HHI index based on bank performance

Index	2013 й.	2014 й.	2015 й.	2016 й.	2017 й.	2018 й.
Intotalloans						
HHI	1396,0	918,2	695,4	706,9	1093,8	1076,9
Market position	Average competition	Strong competition	Strong competition	Strong competition	Average competition	Average competition

In total deposits						
HHI	840,9	821,6	767,9	751,3	1096,9	946,7
Market position	Strong competition	Strong competition	Strong competition	Strong competition	Strong competition	Strong competition
In total capital						
HHI	846,8	840,0	803,0	762,0	961,7	826,1
Market position	Strong competition	Strong competition	Strong competition	Strong competition	Strong competition	Strong competition
In total investment						
HHI	3324,5	2708,5	2495,7	1392,5	1966,7	1835,5
Market position	monopoly	monopoly	monopoly	monopoly	monopoly	monopoly
Total credits : companies and organizations						
HHI	1805,2	1255,9	909,3	827,8	1048,8	1313,2
Market position	monopoly	monopoly	Strong competition	Strong competition	Strong competition	Strong competition

Thus, according to the results, the position of the market of B5 banks of the republic by 5 indicators is as follows:

- by the structure of total loans, the market concentration is high and the competitiveness of banks in 2017 and 2018 remained moderate;
- in terms of total deposits, the market concentration is very high and banks have created strong competition in 2018;
- in terms of total capital structure, market concentration is very high and banks have created strong competition in 2018;
- in the structure of total investments the market concentration is low and competition in the market is monopolistic;
- Market structure of loans by enterprises and organizations is moderate, and in 2018 the average competition remained.

CONCLUSIONS / RECOMMENDATIONS

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

- increasing flexibility and effectiveness in the market;
- automatization of the banking sector;

- use of new computer technologies, creation of new innovative services and improvement of service;
- further improvement of the system of remote servicing, increase of internet banking capabilities;
- use of new information and communication technologies based on the introduction of electronic marketing;
- wide use of the Know Your Stomer client system;

To ensure competition in the commercial banks market of the Republic followings are necessary :

- not to exceed the share of B5 banks in ensuring high market concentration by more than 60%;
- to exceed the involvement of commercial banks in investing, as a result de-monopolize the market;
- it is advisable to use the Lerner index, Panzara-Rossa model and the Herfindal-Hirschman index in the assessment of competition between banks.

REFERENCES

AgroBank, https://agrobank.uz/en/page/fin_report

AsakaBank, <https://www.asakabank.uz/en/about/reports>

CBU Statistics, <http://www.cbu.uz/eng/statistics/bankstats/2019/04/166208/>

Decree of the President of the Republic of Uzbekistan dated February 7, 2017 № P-4947 "On the strategy of further development of the Republic of Uzbekistan". Collection of Legislation of the Republic of Uzbekistan.-Tashkent, 2017. -6 (766) .- 32 p.

Ipotekabank, https://www.ipotekabank.uz/ru/investors/raskritie_info/statement/

NBU annual reports, <https://nbu.uz/en/about-bank/annual-reports/>

UZPSB, <https://www.uzpsb.uz/for-investors/finansovaya-otchetnost/>