

Econometric Modeling of Main Financial Indicators of Commercial Banks

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Abstract

This article presents the recommendations of the International Monetary Fund experts on financial stability indicators of commercial banks. In addition, the financial stability indicators of commercial banks of Uzbekistan were analyzed and based on the study of international experience in improving their stability, proposals and recommendations were developed and econometric analysis was carried out.

Keywords: *asset quality, currency position, home banking, call-center, liquidity level, liquid assets, investment project, stock market, financial stability, banking system.*

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Introduction

Maintaining a sufficient level of capital and asset quality in the banking system remains the financial basis for ensuring the consistency of economic growth in the country, becoming an active participant in structural changes, launching important production facilities, promoting entrepreneurship, expanding socio-economic infrastructure. The quality of fulfillment of the obligations of the banks of the Republic to their customers and the culture of service continue to gain and strengthen the trust of the population. This can be seen in the fact that banks are focusing on deposit operations to form and increase their resource base, the population is now attracted to deposits of more than 8 trillion soums, and this figure has increased 3.2 times over the past five years. As a result, to date, the volume of bank loans to the real sector of the economy has reached 48 trillion soums. 79.8% of them are long-term loans. The volume of loans provided to small businesses and private entrepreneurs is expected to increase by an average of 30% annually. These figures are evidence that banks have become financial institutions that stimulate production, ensure its continuity and rapid development, increase the material wealth of society. Further improvement of banking supervision and management in the country, an effective model of real and comprehensive in-depth analysis of the results achieved by the banking system, financial stability, international experts give high marks to the dynamics of key indicators and the dynamics of key indicators to ensure liquidity and gain customer trust. The activities of all commercial banks have been rated "stable" by international rating agencies, which make up the "big three", for a number of years. It should be noted that the Central Bank has always considered increasing the financial stability of the banking system of Uzbekistan, increasing the level of capitalization of commercial banks as a topical issue. This is due to the fact that reforms in the banking system, in particular, increase the total capital of banks, attract more deposits from the population and businesses, further improve the quality of services provided,

Literature review

Studies on the adequacy of capital in the banking system and the preservation of high asset quality were conducted by foreign economists O.I. Lavrushina [1], Roger Leroy Miller, David D. Van-Huz [2], Strujkin Dj.F [3], M.V Romanovsky [4], Yu.A. Gerasina, R.M. Rasulov [5] and others. He is also an Uzbek economist In the research of T.I.Bobakulov, Sh.A. Toshmatov, A.K.Ibragimov, A.Usanov [6], Sh.Z.Abdullaeva [7] scientific-theoretical views on the processes of econometric modeling of key financial indicators of commercial banks are of paramount importance.

Research methodology

Research methods such as analysis and synthesis, induction and deduction, statistics and comparison were used in the research.

Analysis and discussion of results

In a market economy, financial markets are composed of complex structures that include the money market, the credit market, the foreign exchange market, the stock market, and other financial markets. Commercial banks are active participants not only in the stock market, but also in all structural units of the financial market. In the securities market, commercial banks simultaneously conduct issuance operations as issuers and investment operations as investors, in addition to selling, buying and other intermediation as financial intermediaries in the securities

market at the request of issuers and investors. operations.

Banks, as investors in the securities market, direct a certain part of their financial resources formed as a result of passive operations to purchase financial instruments in order to earn income over the long term.

Speaking of securities transactions of commercial banks internationally, it should be noted that in terms of assets, eight of the world's ten largest banks are China and the United States, and two are Japan and France. An analysis of the balance sheet of Industrial and Commercial Bank Of China Ltd, the world's first bank in terms of assets, income and net profit, as well as the structure of investment and issuance operations, shows that the bankThe volume of investments in the total assets in 2017 amounted to 21.9%, while in 2019 this figure reached 22.7% or increased by 0.8 points in the analyzed period [9].

More than 70% of the securities turnover on the stock exchanges of the country is accounted for by commercial banks. In particular, the total trade turnover as of January 1, 2020 amounted to 438.8 billion soums. UZS, while commercial banks accounted for 72.8% of this amount on stock exchanges. Although the banking system of Uzbekistan (commercial banks) has a high rate of turnover in the securities market of our country, in our opinion, this is not enough for them. Table 1 below shows the ratio of investment operations of the banking system of Uzbekistan to some key indicators (GDP, assets of the banking system, loans).

Table 1. The ratio of investments in the banking system of Uzbekistan to some key indicators [11]
(as a percentage)

Of investment ratio	Years, as of January 1st				
	2016	2017	2018	2019	2020
Ratio to GDP	1.37	1.61	1.36	0.93	0.63
Ratio of total assets of the banking system	3.68	3.98	2.46	1.77	1.17
The ratio of total loans to the banking system	5.62	5.73	3.71	2.27	1.51

The table shows that the ratio of the volume of operations of Uzbek banks in the securities market to the country's GDP as of January 1, 2020 is 0.63%, and during the period under review there is a decline. If we look at the ratio of this indicator to the assets of the banking system of the country, it has a downward trend from January 1, 2016 to January 1, 2020, or decreased by 2.51 points in the same period (3.68-1.17). Almost the same situation can be observed in the ratio of total investment to loans of the banking system [12]. At a time when the volume of operations of commercial banks in the securities market of the country in the analyzed period is not increasing, but declining, the main indicators of the banking system, assets, loans, from this it can be concluded that the functioning of the securities market in the country, the mechanisms and organizational and legal framework that stimulate the activities of its participants do not have the ability to effectively operate this market. In our opinion, this is due to a number of factors, including the transparency of financial and credit mechanisms and economic governance in the country, the competitiveness of the national economy and businesses in international and domestic markets, investor confidence and profitability in this market. The main purpose of calculating the financial stability indicators of commercial banks is to provide users with

information on how stable the financial institution is. An international comparison of these indicators serves to shed more light on the nature of the indicator. To this end, the International Monetary Fund experts first developed and recommended financial stability indicators for 1992. Some changes were made in 2002 and last in 2006. These financial stability indicators total 39 and they are divided into 2 groups. The first group includes key indicators (related to the banking system) and consists of 12 financial indicators. The second group includes 27 indicators, non-bank financial institutions,

Since the activities of commercial banks are the object of study, we found it necessary to study the indicators of the first group [13]. The recommendations in Table 1 below are the recommendations of the International Monetary Fund and are currently being implemented by the European Central Bank. We have studied these recommendations in assessing the financial stability of commercial banks in the Republic of Uzbekistan. Below are their contents.

Table 2. International Monetary Fund financial stability indicators

No	Category	Indicator
1	Capital	The ratio of total capital to risk assets
		The ratio of tier 1 capital to risk assets
		The ratio of reserve allocations to non-performing loans to assets
2	Asset quality	The share of problem loans in total loans
3	Revenue and utility level	Return on Assets (ROA)
		Share capital return (ROE)
		The share of interest income in gross profit
		The share of interest-free expenses in gross profit
4	Liquidity level	Share of liquid assets in total assets
		The ratio of liquid assets to current liabilities
5	The level of risk associated with foreign exchange	The ratio of the bank's net open currency position to capital

Table 3. Profitability indicators of the banking system (billion soums) [14]

Income and expenses of the banking system	01.04.2018 y.	01.04.2019 y.	01.04.2020 y.	01.04.2021 y.	01.04.2022 y.
Interest margin (x1)	1182	9898	3161	3 902	5 545
Interest-free income (loss) (x2)	269	-51	1009	2 321	3 410
Net profit (loss)	716	4681	1392	1 473	1,897

If there is a percentage margin and interest-free income as a factor, the result will be net profit (loss). We construct an econometric model for these components.

<i>Regression statistics</i>	
	0.999883
R-square	0.999765
Norm R-square	0.999531

Standard error	33,36456
Seen	5
Dispersion analysis	
	<i>df</i>
Regression	2
Residue	2
All	4
<i>Coefficients</i>	
Y-crossing	247,3913
Interest margin (x1)	0.446375
Interest-free income (loss) (x2)	-0.23738

The econometric model is as follows:

$$Y = 0.44x_1 - 0.23x_2 + 247.3$$

The correlation coefficient, which shows the relationship between the interest margin and the effect of interest-free income on the bank's net profit, is 0.99, and the determination coefficient is 99.97%. The effect of factors other than these 2 factors on net profit is only 0.03%.

Conclusion and suggestions

In short, ensuring the financial stability of banks prevents the scope of exposure to risks arising in banking activities. As a result of our research, we came to the following conclusions:

first, in the total assets of non-income assets the share should not be high;

second, the total volume of assets with a high level of risk its share in assets should be low;

third, which banks do with securities underdevelopment of investment operations;

fourth, low return on bank assets (ROA).

Having studied foreign experience (in particular, the banking systems of Germany and Japan), we have developed the following proposals:

✓ in order to ensure the financial stability of banks

paving the way for the purchase and sale of financial instruments, in particular, securities that provide a sustainable resource;

✓ introduction of new methods of effective management of assets and liabilities of banks (derivative tools widely used in Germany and Japan);

✓ extensive use of securitization methods widely used in Japanese and German practice to ensure financial stability;

✓ the relationship between the term and volume of assets and liabilities provide

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