

## Improving the Methodology for Assessing the Financial Stability of Banks

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### **Abstract**

*Assessment of financial stability of banks is important for the stability of the banking system. Indicators such as capital adequacy, credit risk assessment, liquidity assessment, market risk, profit contribute to the prompt identification of risks of individual credit institutions. As a result, there are no negative consequences in the banking system. The article develops proposals for improving the methodology for assessing the financial stability of banks as a consequence of assessing the financial stability of the banking system on the basis of a summarizing ratio using data analysis for the corresponding period.*

**Keywords:** *Financial stability ratio of banks, return on assets, return on capital, share of problem loans in the total amount of loans, liquidity ratio.*

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### **Introduction**

The practice of assessing the development and stability of the banking system of the countries of the world is widely used, depending on the dynamics of changes in the indicators of stability of the banking system in relation to the country's GDP. While in the world there is an increase in the gross assets of banks in different countries compared to the previous year or an increase in bank capital compared to the previous period, there are many cases of a decrease in these indicators in relation to the gross domestic product of the country. In addition, despite ensuring the stability of the national currency, a number of problems remain in the issue of financial stability of the banking system.

One of the main directions of the strategy of reforming the banking system of the Republic of Uzbekistan is the issue of increasing the financial stability of banks, improving corporate governance

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in banks using international standards and best practices in this direction; ensuring moderate growth in lending and improving the quality of the loan portfolio; developing a system of banking control and risk management in banks [1].

Therefore, on the basis of indicators that determine the financial stability of commercial banks, regular analysis of financial stability indicators in banking, the introduction of a financial stability coefficient in the analysis process and the introduction of its accounting will help prevent possible banking crises.

### **Literature review**

The issues related to the specifics of the financial stability of banks and the mechanisms of its assessment have been studied by a number of our economists, making a significant contribution to the assessment of the stability of the banking system. In particular, according to economists Laven and Mainoni, banks that create sufficient reserves to strengthen financial stability during periods of economic growth can minimize the negative effects of the economic downturn and maintain a high level of credit supply[2]. As a result of her research, K. Surovneva comes to the conclusion: the financial condition of the bank affects its activities in all other areas, as well as its financial stability. The financial stability of the bank is inextricably linked with its liquidity[3]. A. Abdullayev considers that it is necessary to provide financial stability of the banking system, using systematic methods of assessing the level of liquidity of commercial banks[4].

### **Research methodology**

The main purpose of the study is to draw up scientific conclusions on the analysis of the effectiveness of the work carried out in this area, based on the relevance of the issue of improving the methodology for assessing the financial stability of banks. As a theoretical and methodological basis of this article, conclusions, suggestions and recommendations were made in the relevant areas on the basis of general economic literature and scientific articles, analysis of research by economists on the financial stability of banks, expert assessment, monitoring of processes, a systematic approach to economic phenomena and processes. In the process of studying the topic, along with general economic methods, special approaches to systematization of data were used, such as comparison, mathematical and statistical, generalization of theoretical and practical materials, system analysis.

### **Analysis and results**

For the Central Bank, such indicators as capital adequacy, credit risk assessment, liquidity assessment, market risk, profit contribute to the timely identification of risks of individual credit institutions.

Below we will try to assess the financial stability of the banking system using an analysis based on a generalizing coefficient. To determine such a coefficient, we use the main indicators of the series shown in Table 1. These indicators will help identify the level of financial stability of banks. When developing the financial stability coefficient, it is advisable to assess credit risk, the level of overdue debt on the loan portfolio, profitability, liquidity and capital.

When evaluating the financial stability of the bank, it is necessary to estimate the quality of the loan portfolio, based on the fact that the main activity of commercial banks is lending to the economy. Therefore, we consider it appropriate to include an indicator of overdue loans in this study. In addition, since the bank's credit activity is being analyzed, it should be taken into account that the deposit base determines the bank's credit capabilities. Based on this, we take into account the share of deposits in loans as one of the important indicators, as an indicator of the financial stability of the

bank.

We will be able to develop a coefficient of financial stability of banks and analyse the results obtained using indicators established by the International Monetary Fund in determining the financial stability of the Bank's activities, as well as indicators established by the Central Bank of the Republic of Uzbekistan.

Although there are no specific requirements for the indicator of return on assets, we consider it reasonable that, based on a comparative analysis, the limit of this indicator should be set at at least 1.5%. Although there is also no corresponding specific requirement for the return on equity indicator, based on a comparative analysis, we considered that the limit of this indicator should be set at at least 10%. Also, the minimum requirement for the share of the loan portfolio in assets was assumed to be 45%, and the share of deposits in loans - a maximum of 100%.

Based on the above requirements, the financial stability coefficient of banks imposes stricter requirements on its indicators. Failure by a commercial bank to comply with the mandatory norms of the Central Bank can lead to the withdrawal of the issued license for banking activities, various fines to banks.

**Table 1**

**Indicators for evaluating the financial stability of banks**

<b>№</b>	<b>Indicator</b>	<b>Description</b>	<b>Limit indicator</b>
1	2	3	4
1.	Ratio of regulatory capital to total assets, taking into account risk	The ratio of the bank's own funds to its total assets, taking into account risk.	min 13% [5]
2.	The ratio of tier 1 capital to the total amount of risk-weighted assets	The ratio of tier 1 capital to the total amount of risk-weighted assets	min 10% [6]
3.	The share of the loan portfolio in assets	One of the most fundamental functions of the banking system is crediting. Non-compliance with the threshold value of this indicator means that preference is given to operations specific to speculative instruments or stock market instruments, the risk of which is relatively high in banking.	min 45%
4.	The share of deposits in loans	The share of deposits in loans. The lowest level (about 100%) means that the banking business model is stable in the long term.	max 100 %
5.	The share of problem loans (NPL) in the total volume of loans issued, %	This indicator is determined by the ratio of the volume of overdue loans and interest debts to the total loan portfolio. This indicator is considered an indicator that asset management is performed unsatisfactorily.	max 5%
6.	Return on assets (ROA)	Return on assets is a profitability ratio that provides	min 1,5%

		how much profit a bank can generate from its assets. In other words, return on assets (ROA) measures how efficient a commercial bank's management is in earning a profit from their assets on their balance sheet.	
7.	Return on equity (ROE)	Return on equity (ROE) is a measure of financial performance calculated by dividing net income by shareholders' equity.	min 10%
8.	Instant liquidity - H2	The ratio of highly liquid assets to demand liabilities. This indicator regulates the bank's liquidity losses per day.	min 25% [7]
9.	Ratio of liquid assets to total assets	Highly liquid assets are financial assets that may be in demand on the next calendar day.	min 10%[7]
10.	Regulatory liquidity compensation ratio	The ratio of highly liquid assets to the total net outflow over the next 30 days. Regulates the risk of loss of the bank's creditworthiness in the next 30 days.	min 100%[7]

In table 1, the main ten indicators for determining the financial stability coefficient of banks were identified, as well as the limit indicators for them were determined. Based on this, the dynamics of changes in exactly ten of these indicators in Uzbekistan during 2017-2022 was investigated (Table 2).

**Table 2**
**Dynamics of indicators that determine the financial stability of banking activities, %[9]**

№	Indicator	Limit indicator	2017	2018	2019	2020	2021	2022
1.	Ratio of regulatory capital to total assets, taking into account risk	min 13%	18,8	15,6	23,5	18,4	17,5	17,8
2.	The ratio of tier 1 capital to the total amount of risk-weighted assets	min 10%	16,5	14,3	19,6	15,2	14,6	14,5
3.	The share of the loan portfolio in assets	min 45%	62,5	78,1	77,6	75,6	73,4	70,1
4.	The share of deposits in loans	max 100 %	53,8	41,8	43,0	41,4	47,8	55,6
5.	The share of problem loans (NPL) in the total volume of loans issued, %	max 5%	*	*	*	2,1	5,2	3,6
6.	Return on assets (ROA)	min 1,5%	1,9	2	2,2	2,2	1,3	2,5
7.	Return on equity (ROE)	min 10%	17,1	16,2	16,7	10,3	6,1	13,3
8.	Instant liquidity - H2	min 25%	40,1	30,9	47,8	67,4	99,3	110,1
9.	Ratio of liquid assets to total	min 10%	23,6	13,6	13,9	15,4	18,6	21,5

	assets								
<b>10.</b>	Regulatory liquidity compensation ratio	min 100%	225,2	170,7	208,5	224,5	189,6	211,6	

As can be seen from the data in Table 2, one of the main indicators of the solvency of banks is that the calculated capital adequacy ratio averaged 17-18% in the period from 2017 to 2022. In accordance with the Basel III standards, it was recommended that the bank's total capital adequacy ratio should be at least 8 percent compared to risky assets. In addition, the Basel III standards provide additional requirements for bank capital, such as reserve capital (2.5 percent), countercyclical capital buffer (0-2.5 percent) and capital buffer (no specific limit is set) for banks of local and global systemic importance. Taking into account both the current state of stability of the banking system of Uzbekistan and the requirements for an additional capital reserve recommended by Basel III, the capital adequacy ratio for commercial banks is set at 13 percent. Based on the indicators of the last six years, it can be concluded that the commercial banks of Uzbekistan have fully met the minimum requirements imposed by the central bank in relation to capital. The banking system has sufficient capital to cover potential losses.

Also, the minimum requirement for the ratio of tier I capital to the total amount of assets, taking into account risk, is 10%. It can be noted that commercial banks have achieved adequate results on this indicator. However, this figure means that the decrease from 16.5% in 2017 to 14.5% by the end of 2022 is a decrease in the share of tier I capital in relation to the total amount of assets if risks are taken into account.

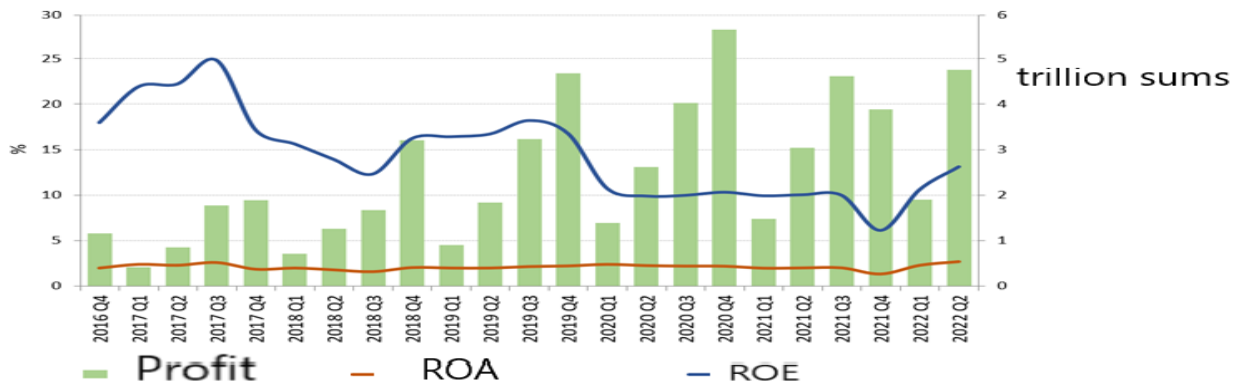
The share of the loan portfolio in assets by the end of 2022 amounted to 70.1% compared to 62.5% in 2017.

According to the analysis over the past six years, the ratio of deposits to loans is on average about 50% and amounted to 55.6% by the end of 2022.

The share of non-performing loans (NPL) in the total volume of loans in the banking system as of January 1, 2023 amounted to 3.6 percent (14 trillion soums), which is 1.6 percent less than in the corresponding period of the previous year. This indicator is 3.9% for banks with a state share and 2.1% for other banks. Among the banks with a state share, this indicator was the highest in Uzagroexportbank - 96.3%, in People's Bank - 11.9%, in Microcredit Bank - 4.8% [8].

The Return on Assets Index (ROA), which increased from 1.9% in 2017 to 2.5% by the end of 2022, can be assessed as positive. Figure 1 below shows the dynamics of the return on assets (ROA) and return on equity (ROE) over the last six-year period. Considering that the return on investment indicator averages about 2-2.5% during this period, as well as the fact that this indicator is higher than our marginal rate (1.5%), this indicator can be evaluated positively. But it should be borne in mind that the increase in the ROA indicator is one of the main indicators that determine the financial stability of banks. The expansion of services based on innovative digital technologies in the structure of banking services will reduce the costs of banking activities, contributing to an increase in net profit, which in itself will contribute to a higher return on assets.

While the return on equity (ROE) indicator was observed to drop sharply from 17.1% in 2017 to 6.1% by the end of 2021. But this indicator, by the end of 2022, has grown to 13.3%.



**Figure 1. Profitability of the banking sector [9]**

Based on the above data, an analysis of the gross indicators of the banking system was carried out. As of January 1, 2023, the analysis of the capital liquidity indicator, the return on assets indicator and the return on capital indicator in the context of banks with various assets was carried out (Table 3).

**Table 3**

**As of January 1, 2023, the share of financial stability indicators in the context of banks with different amounts of assets, % [10]**

Indicators	Total	Banks with assets up to 3 trillion soums	Banks with assets from 3 trillion soums to 10 trillion soums	Banks with assets from 10 trillion soums to 30 trillion soums	Banks with assets of more than 30 trillion soums
Ratio of regulatory capital to total assets (as a percentage)	17,8%	22,6%	18,4%	15,9%	18,4%
(ROA) (as a percentage)	2,5%	3,2%	5,0%	3,7%	1,8%
(ROE) (as a percentage)	13,3%	8,2%	27,2%	20,1%	9,8%

Based on the data in Tables 1 and 2, basing on the analysis carried out, we will elaborate the coefficient of financial stability of the suggested banks. The financial stability coefficient is taken into account based on the analysis of indicators (Table 2) obtained from the statistical bulletins of the Central Bank of Uzbekistan. A comparative analysis of the marginal value and the actual value of the indicators is carried out. The difference of the financial stability indicator from the limit value is calculated. In the stability assessment model, the formula for determining differentiation will have the following form:

$$O_i = 1 - P_i / F_i \quad (1)$$

in this case, I - is an indicator in the Financial Stability Assessment System, P<sub>i</sub> is the limit value of the indicator, F<sub>i</sub> is the actual value of the indicator. If the level of O<sub>i</sub> – differentiation has a positive value, then stability is maintained according to the calculated indicator, if the level of O<sub>i</sub> - differentiation approaches zero, then the calculated indicator is kept at the required level, if the level of O<sub>i</sub> – differentiation has a negative value, this means that the financial stability of the banking system is

under threat.

determining the sum of the differences over the same period for all ten indicators, we determine the coefficient of financial stability –  $K_n$ . The formula for calculating the financial stability coefficient will be as follows:

$$K_n = \sum O_i(n) \quad (2)$$

in this case,  $O_i$  is the value of the difference in  $n$  year according to indicator  $i$ ,  $K_n$  is the financial stability coefficient,  $n$  is the reporting period (year).

According to the indicator of financial stability of banks, the calculation is made by the amount of the difference ( $O_i$ ), determined from the limit value of a specific indicator. The financial stability indicator allows you to assess the level of risk to the stability of the banking system. The higher the indicator of financial stability, the more stable the stability of the bank is calculated according to the selected indicator. If the financial stability indicator has a negative value, it means that there are risks associated with the stability of the bank, and in order to avoid a banking crisis, it is necessary to take the necessary measures to maintain stability. This coefficient reflects the average value of the difference of all  $I$  indicators from the norm in the period  $n$ .

Based on the algorithm formulated by the financial stability coefficient, the calculation of the difference of all ten indicators from the limit value in Table 4 for the study period was carried out. Based on the results of determining the degree of differentiation from the limit value, the coefficient of financial stability of banks for 2017-2022 was determined.

Based on the data obtained,  $K_n$  determines the level of financial stability of the banking system as a whole for the corresponding years.

**Table 4**

**The degree of divergence of financial stability indicators from the limit value**

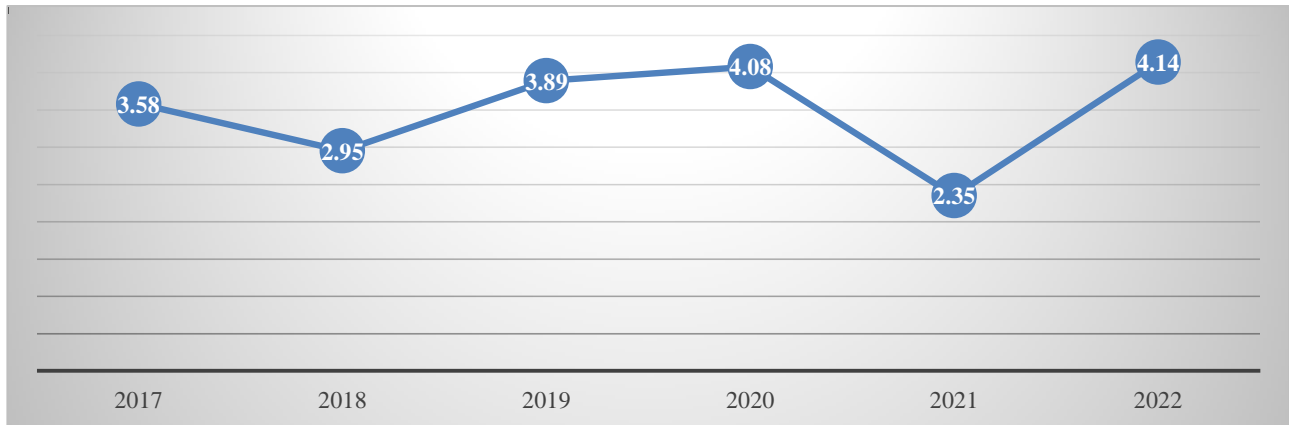
№	Indicator	The degree of divergence of financial stability indicators from the limit value					
		2017	2018	2019	2020	2021	2022
1.	Ratio of regulatory capital to total assets, taking into account risk	0,31	0,16	0,44	0,29	0,26	0,27
2.	The ratio of tier 1 capital to the total amount of risk-weighted assets	0,39	0,30	0,49	0,34	0,32	0,31
3.	The share of the loan portfolio in assets	0,28	0,42	0,42	0,40	0,39	0,36
4.	The share of deposits in loans	0,46	0,58	0,57	0,59	0,52	0,44
5.	The share of problem loans (NPL) in the total volume of loans issued, %	*	*	*	0,58	-0,04	0,28
6.	Return on assets (ROA)	0,21	0,25	0,32	0,32	-0,15	0,40
7.	Return on equity (ROE)	0,42	0,38	0,38	0,03	-0,63	0,25
8.	Instant liquidity - H2	0,38	0,19	0,47	0,63	0,75	0,77
9.	Ratio of liquid assets to total assets	0,58	0,26	0,28	0,35	0,46	0,53
10.	Regulatory liquidity compensation ratio	0,55	0,41	0,52	0,55	0,47	0,53
	<b>FINANCIAL STABILITY COEFFICIENT</b>	<b>3,58</b>	<b>2,95</b>	<b>3,89</b>	<b>4,08</b>	<b>2,35</b>	<b>4,14</b>

It should be noted that changes in the activities of economic entities after the pandemic, by the

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end of 2021, led to a significant drop in the indicator of financial stability of banks (2.35). In particular, it can be observed that the share of problem loans (NPL) in the total volume of loans issued, indicators of return on assets, return on capital have a negative value in the reporting period.

In 2022, this indicator was recorded as growing (4.14). In particular, the share of non-performing loans (NPL) in the total volume of loans issued decreased, and the indicators of return on assets, return on capital received positive indicators.



**Figure 2. Dynamics of the financial stability coefficient of banks**

The necessity of the suggested model lies in the fact that with the help of a single coefficient, banks are evaluated according to the level of financial stability. In practice, the use of this indicator helps to identify situations in which the coefficient indicates a negative value when analyzing the financial stability of banks. As a result, appropriate measures are carried out in a timely manner.

### Conclusion

Observing and studying the dynamics of the above indicators that determine the financial stability of banks, we can come to the following conclusions:

- there are many indicators that determine the financial stability of banks, and an analysis of changes in additional indicators recommended by the Central Bank of Uzbekistan, as well as the International Monetary Fund in this area is also given;
- particular attention should be paid to assessing the financial stability of commercial banks during the transition to the digital economy and increasing globalization. In this case, the development of a generalized coefficient that determines the financial stability of banks and the constant monitoring of its value in practice will prevent the occurrence of negative consequences for banking activities.;
- the financial stability indicators of banks reflect the average indicators for all banks. For this reason, it is appropriate to analyze these indicators in the context of individual credit institutions.

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