



## Article

# Improving The Modeling of Bank Management in The Conditions of Digital Transformation

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**Abstract:** Improving the quality of bank management is a necessary condition for ensuring the stability of commercial banks. In turn, improving the quality of management in commercial banks requires the improvement of management modeling practice. In the conditions of digital transformation, the use of digital technologies serves to increase the effectiveness of bank management modeling. In the article, scientific proposals aimed at improving management modeling in commercial banks have been developed.

**Keywords:** Commercial Banking, Management, Modeling, Credit, Stock Market, Securities, Risk

## 1. Introduction

The Strategy for Reforming the Banking System of the Republic of Uzbekistan for 2020-2025 (PF-5992) recognizes the creation of equal competitive conditions in the financial market, lending only based on market requirements, reducing banks' dependence on state resources, improving the quality of the loan portfolio and risk management, maintaining a moderate level of lending growth, and implementing technological solutions for assessing financial risks as priority areas of the country's banking system reform strategy [1].

Also, the Development Strategy of New Uzbekistan (PF-60) sets the task of increasing the share of the private sector in the country's banking system to 60 percent.

The above circumstances create the need to improve the quality of management in commercial banks.

## Literature Review

V. Dravitsa and A. Kurbatsky conclude that:

- The digital economy accelerates development so much that, as a result, old methods of regulation do not have time to adapt to new technologies, and as a result, traditional mechanisms of state governance and regulation are destroyed;
- Data about citizens is collected not through national companies, but through global social networks, and the most important technologies are concentrated in the hands of a few powerful corporations. This leads to the loss of information sovereignty;
- The development of digital technologies reduces the life of companies: over the past 50 years, the average life of companies has decreased from 60 to 18 years [2].

According to B. Panshin, the basis for expanding the digital sector of the economy is the growth of the transactional sector. This sector includes:

- Public administration;

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- b. Consulting and information services;
- c. Finance;
- d. Wholesale and retail trade;
- e. Utilities;
- f. Social services [3].

According to E. Shakirova, the Bank Payment Obligation is an irrevocable obligation of the recipient bank (Obligor Bank), which guarantees the transfer of the payment amount to the notifying bank, but there should be no discrepancies when comparing documents [4].

According to a group of economists, one of the important issues in making payments for imports through electronic letters of credit is ensuring the timely electronic exchange of information about payments made between the exporter and the importer [5].

M. Swan, who is famous for his research on blockchain technology, In his book "Blockchain. The Scheme of the New Economy", identifies three conditional areas where this technology can be used:

- a. Blockchain 1.0 - cryptocurrencies and their financial transactions;
- b. Blockchain 2.0 - contracts for economies and financial markets that work with financial instruments such as stocks, bonds, futures, hard collateral, assets;
- c. Blockchain 3.0 - applications in the field of public administration, healthcare, science, education [6].

Indeed, research on blockchain technology shows that this technology can radically change the principles of operation of the financial sector in the near future. According to forecasts made by analysts at the international conference "Blockchain & Bitcoin Conference, Russia-2016", by 2027 the share of the world's GDP that is engaged in blockchain will reach 10% [7].

## 2. Materials and Methods

The purpose of the study is to develop scientific proposals aimed at improving management modeling in commercial banks.

The subject of the study is the financial relations that arise in the process of managing the assets of commercial banks.

The information base of the study includes statistical data on the activities of commercial banks in Uzbekistan, empirical studies conducted by international experts.

## 3. Results

It is worth noting that blockchain technology is widely used in stock market trading, which is carried out mainly in the securities market. In particular, the NASDAQ exchange, which specializes in trading shares of high-tech companies, has conducted several experiments on the use of blockchain technology, and the JEG company, which unites the London Stock Exchange (LSE) and the Japanese stock exchange, is also conducting experiments on the use of blockchain technology [8].

J. Sinki, as a result of his scientific research on the management of the loan portfolio of commercial banks, concludes that analyzing the cash flow of a borrower plays an important role in reducing credit risk in the loan portfolio and is one of the necessary conditions for ensuring the quality of the loan portfolio. In this case, analyzing the client's cash flow should provide answers to the following relevant questions:

- a. Is the client's net profit sufficient to pay off the current part of its long-term debts?
- b. How much money does the company receive?
- c. How does the company finance its operations?
- d. What actions of management or what external influences determine the current state of the company [9].

According to H. Markowitz's theory, one of the mistakes that can be made is that the investor always provides a portfolio that provides low risk for an acceptable level of profitability or that provides high returns for an acceptable level of risk. To avoid this mistake, the investor should choose a portfolio in which the expected return cannot increase without increasing risk or, conversely, the risk cannot decrease without decreasing the expected return [10].

**Table 1.** Asset composition of commercial banks of Uzbekistan, in percent.

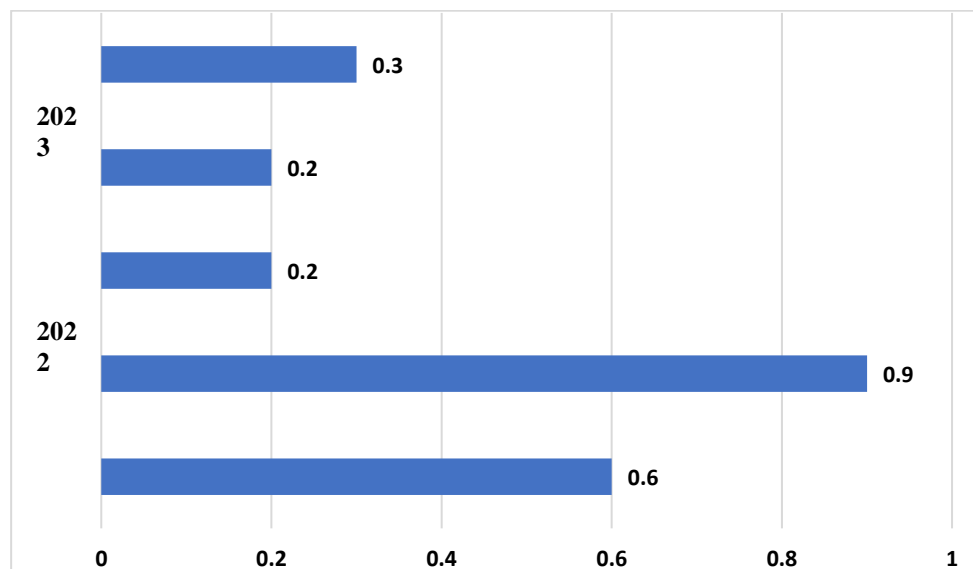
Composition of assets	2019 y.	2020 y.	2021 y.	2022 y.	2023y.
Cash assets include:	17,1	17,2	17,3	18,1	20,0
Cash in the cash register and other payment documents	2,5	2,4	2,7	2,4	3,5
Funds in the Central Bank	5,3	5,4	5,1	7,1	6,6
Funds in another bank-resident	3,0	3,7	3,6	3,0	3,1
Funds in another bank - non-resident	6,3	5,7	5,9	5,6	6,8
Investments in securities	1,1	1,2	2,6	4,4	5,7
Obligations of clients on financial instruments	0,9	0,2	0,4	0,3	0,3
Credits	76,8	76,1	73,8	71,1	68,1
Basic tools	1,6	2,1	2,3	2,5	2,6
Interest accrued on assets	1,3	1,2	2,2	2,1	2,2
Other assets	1,2	2,0	1,4	1,5	1,1
<b>Assets - total</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>

Table 1 It is clear from the data in Table 1 that loans have the highest weight in the assets of commercial banks in our country, followed by cash assets. In fact, investments in securities should be in the structure of bank assets after investments in loans. This is because the following types of activities are recognized as the main sources of income of the bank, which are: granting loans and investments in securities. Investments in securities take the third place in terms of weight in the structure of assets of commercial banks in our republic.

The lack of improvement of the practice of commercial banks in the country with fund assets negatively affects, firstly, the solvency of these banks, and secondly, their current liquidity (highly liquid fund assets are taken into account in the quantitative measurement of liquidity).

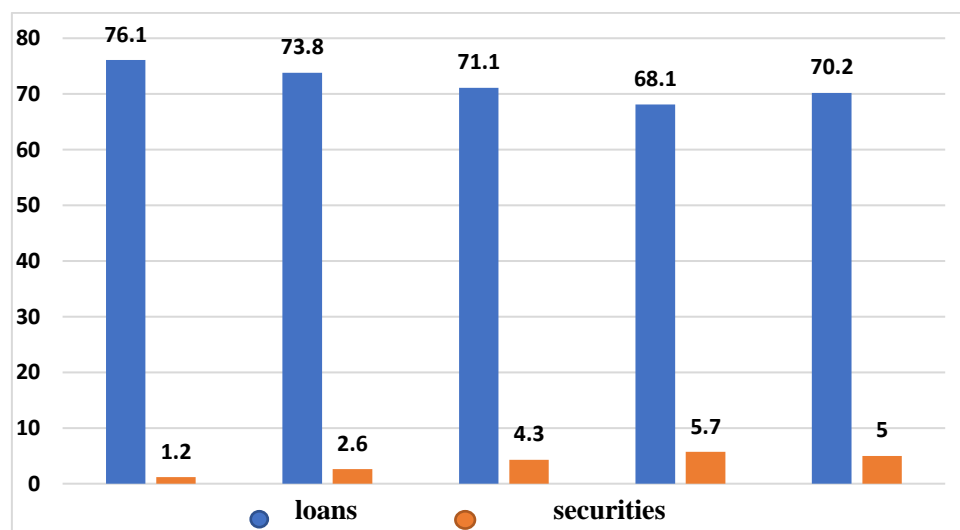
It is important to note that if highly liquid fund assets have a small share in the structure of gross assets, then the share of non-returnable liquid assets in the structure of gross assets will be high.

The Central Bank can create an opportunity to increase the amount of fund assets of banks through Repo transactions. For this, the volume of issuance of government securities should be large. In turn, the volume of issuance of government securities depends on the level of the state budget deficit. Because the issuance of government securities in the national currency is a non-inflationary way to cover the state budget deficit.



**Figure 1.** The level of net profit in the Joint-Stock Commercial JSC "Asakabank" relative to the amount of assets at risk, in percent.

Figure 1 clearly shows that the standard level of net profit (2.0%) was not achieved in Asakabank in 2019-2023, which indicates a low level of net profit.



**Figure 2.** The share of loans and investments in securities in the total assets of commercial banks of the Republic of Uzbekistan, in percent.

Figure 2 clearly shows that in 2019-2023, fund assets had a very small share in the assets of commercial banks of Uzbekistan

#### 4. Conclusion

During the research, we have formulated the following conclusions:

- The growth of the transaction sector is the basis for expanding the digital sector of the economy;
- Bank Payment Obligation is an irrevocable obligation of the recipient bank (Obligor Bank), which guarantees the transfer of the payment amount to the notifying bank, but there should be no discrepancies when comparing documents;
- One of the important issues in making payments for imports through electronic letters of credit is ensuring the timely electronic exchange of information about payments made between the exporter and the importer;

- d. Blockchain technology can radically change the principles of the financial sector in the near future;
- e. One of the mistakes that investors make is that they always provide a portfolio that provides low risk with an acceptable level of profitability or high return with an acceptable level of risk. To avoid this mistake, the investor should choose a portfolio in which the expected return cannot increase without increasing risk or, conversely, the risk should not decrease without decreasing the expected return;
- f. In the structure of the assets of commercial banks in our country, loans have the highest weight, followed by cash assets. In fact, investments in securities should be in the structure of bank assets, after investments in loans;
- g. In 2019-2023, fund assets had a very small share in the structure of the assets of commercial banks in Uzbekistan.

In our opinion, the following measures should be taken to improve the practice of modeling management in commercial banks of our republic:

- a. In order to successfully model the decision-making process to ensure the financial stability of commercial banks, first of all, the structure of information technologies should be formed around the decision-making system; secondly, all components of the information system should allow for a quick assessment of the degree of influence of the main factors affecting the financial stability of the bank; thirdly, the interaction between the bank and clients should be fully reflected in the information system; fourthly, the process of forming the main sources of income of the bank should be fully automated.
- b. In order to increase the efficiency of modeling in bank management, in order to implement simulation modeling in practice, firstly, it is necessary to create a discrete-event model of financial transactions between the bank and clients; secondly, it is necessary to use the Any Logic model to ensure prompt control over the process of ensuring the timely receipt and execution of client orders.

The Any Logic model allows for prompt monitoring of processes in the form of a line diagram and includes the following 4 objects:

- a. Source: In this object, the creation of an order occurs in the system, that is, the client's arrival at the bank branch is simulated.
- b. Queue: This object forms the order of orders in the system, i.e., simulates the queue of customers.
- c. Delay: This object models the temporary delay of orders in the system, i.e., simulates the provision of services to customers in each functional unit of the bank.
- d. Sink: This object destroys orders, i.e., simulates the departure of customers from the bank.

## REFERENCES

- [1] Decree of the President of the Republic of Uzbekistan dated May 12, 2020 No. PF-5992 "On the Strategy for Reforming the Banking System of the Republic of Uzbekistan for 2020-2025" // KHMMB: No. 06/205992/0581. 13.05.2020.
- [2] V. Dravica V., Kurbatsky A. Industrial revolution Industry 4.0//Science and innovation. - Minsk, 2016. - No. 157. - P. 13-16.
- [3] Panshin B. Digital economy: features and development trends//Science and innovation. - 2016. Vol. 3, No. 157. - P. 17-20.
- [4] Shakirova E. Bank Payment Obligation (BPO): a new method of payment and financing of international trade.//Conference "New accents in trade and export financing in 2013" Moscow - April 22, 2013 - Access mode: URL: [http://www.interbankclub.com/LoadedFiles/Shakirova\\_Elvira-MBO-Prague-2013.pdf](http://www.interbankclub.com/LoadedFiles/Shakirova_Elvira-MBO-Prague-2013.pdf).

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- [5] Savinov Yu.A., Masyukova T.D., Krivonozhkin K.D. Evolution of payment instruments in international trade // Russian Foreign Economic Bulletin. - 2014. - No. 8. - P. 33-41.
- [6] Swan M. Blockchain. Scheme of the new economy. Transl. from English. - M.: Olimp-Business, 2017. -- 240 p.
- [7] Rudina M. Results of Blockchain & Bitcoin // Proceedings of the conference Blockchain & Bitcoin Conference Russia, 2016 // <https://moscow.blockchainconf.world/ru>.
- [8] Australian Stock Exchange switches to blockchain // <https://hightech.fm/2017/12/07/blockchain-based-stock-exchange>.
- [9] Sinkey J. Financial management in a commercial bank and in the financial services industry. Transl. from English – M.: Alpina Publisher, 2017. – P. 485 - 486.
- [10] Markowitz, H. 'Portfolio Selection/ The Journal of Finance, 1952 – №7. – P. 77-91.