
IMPROVING THE METHODOLOGY OF REMOTE MONITORING OF THE ECONOMIC SECURITY OF COMMERCIAL BANKS

Abdullaeva Guzal Altinbekovna*

*Researcher,

Tashkent State University of Economics,
UZBEKISTAN

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ABSTRACT

The purpose of this study is to identify and eliminate the risky or safe, strong or weak aspects of commercial banks in the Republic of Uzbekistan, to assess their resilience to potential risks and shocks, and to detect and prevent the legalization of hidden incomes by applying the coefficients of the CAMELS rating system. The research also aims to find solutions for preventing and mitigating the emergence of banking risks, as well as to regulate and remotely supervise the activities of commercial banks using the tools of the CAMELS rating system. Ultimately, the study evaluates the processes of strengthening the economic security of banks.

KEYWORDS: *Potential Risks And Shocks, Legalization Of Hidden Incomes, Macroprudential Policy Instruments, Economic Security Of Commercial Banks, CAMELS Rating System.*

INTRODUCTION

Conducting research on the regulation of commercial banks' economic security is one of the most pressing issues in contemporary academic inquiry. The effective functioning of the banking sector is vital for a country's economic growth, as it constitutes the central part of the financial system. The banking sector collects idle funds in the form of deposits and redistributes them as loans or advances to support economic development.

However, ensuring the economic security of commercial banks remains one of the most critical modern challenges, given the persistence of unresolved global financial and economic crises. In particular, national and international economists have come to recognize the importance of effectively monitoring and supervising the stability of the banking sector in the aftermath of the global financial and economic crisis of 2007–2008, the pandemic crisis of 2020–2021, and the sharp geopolitical and external economic shifts of 2022. Therefore, in order to regulate the economic security of the country's banking sector and to effectively organize its supervision, it is necessary to introduce the CAMELS rating system [1; pp. 96–116]. Ensuring the stability of commercial banks requires, above all, serious attention to their solvency, liquidity, and profitability, as well as sufficient resilience to emerging risks and shocks, the achievement of competitiveness, and the ability to secure a strong position in the global market. This necessitates a modern evaluation method aimed at ensuring the economic security of banking institutions - the CAMELS rating system.

In international banking practice, the CAMELS rating system plays an important role in regulating and monitoring the economic security of commercial banks. This rating methodology is highly effective for optimal application, providing a valuable tool for regulating and

thoroughly assessing the stability and security of commercial banks. The CAMELS framework comprehensively analyzes and evaluates banks by considering six key components: capital adequacy, asset quality, management soundness, earnings (profitability), liquidity, and sensitivity to market risk. It enables a reliable and comprehensive evaluation of commercial banks' economic security based on data provided remotely by supervisory authorities. When necessary, both quantitative and qualitative assessments, along with expert opinions, can be incorporated into the analysis, and adjustments can be made to the final evaluation results.

LITERATURE REVIEW

The CAMELS rating system has been studied extensively by economists such as J. Baral, Sarkar, Shiu, Nimalathasan, Hermus&Narang, Teker, Dincer, A. Mehta, Prasad & Ravinder, Hofmann, Rozzani& Rahman, Roman, Masood, Shaddady& Moore, and Kulshrestha& Srivastava. For example, J. Baral applied the CAMEL system to assess the condition of joint banks in Nepal and to compare the level of consolidation of joint banks with that of commercial banks. However, his findings revealed that the CAMEL parameters were relatively weak in terms of financial consolidation, particularly under conditions of wide-ranging shocks [2; pp. 12–31].

Prasad & Ravinder employed the CAMEL framework to evaluate the performance of 20 national banks in India [3; pp. 23–37]. Similarly, Shaddady& Moore used the CAMEL system to analyze the effects of regulatory measures on bank stability, covering 2,210 bank observations across European countries during the period 2000–2016. Kulshrestha& Srivastava, in their comparative study, analyzed the financial performance of public and private sector banks using the CAMEL methodology [4; pp. 67–87]. Their research developed a rating approach based on average indicator ratios and conducted statistical tests to determine significant differences. The results demonstrated that private sector banks outperformed public sector banks in terms of financial performance.

METHODOLOGY

The economic security of the banking sector in the context of artificial intelligence technologies It would be appropriate to identify a number of tasks to be carried out in the future to analyze and evaluate the threats based on the CAMELS rating system, and to systematically assess safe activities. For this, in finding a solution to the problematic issue posed to perform experimental calculations functional It is necessary to develop hardware, software, information support and other organizational and methodological measures. This is precisely the economic security of the banking sector. When analyzing and mathematically describing the processes of assessing threats, it is necessary to take into account the quantitative and qualitative indicators that represent them. Therefore, we have developed computational models and algorithms for analyzing the economic security of a bank in accordance with the conditions for mathematically describing the economic security of the banking sector in the following order:

I. Capital Congruence (C) algorithms:

1. Regulatory capital (C_{rk}) is the amount of risk-weighted assets (C_{ra}) is equal to the ratio

$$C_1 = C_{rk} / C_{ra}$$

2. Regulatory capital (C_{rk}) is the ratio of total assets (C_{ua}) is equal to the ratio

$$C_2 = C_{rk} / C_{ua}$$

3. between capital and fixed assets ($C_{rk} - C_{ov}$) is equal to the ratio of total assets (C_{ua})

$$C_3 = (C_{rk} - C_{av}) / C_{um}$$

4. Total liabilities (C_{um}) are equal to the ratio of total assets (C_{ua})

$$C_4 = C_{rk} / C_{um}$$

5. Government securities (C_{qq}) are equal to the ratio of total investments (C_{ui})

$$C_5 = C_{qq} / C_{ui}$$

II. Asset Quality (A) algorithms:

6. Earnings-generating assets (A_{dk}) are equal to the ratio of total assets (C_{ua})

$$A_1 = A_{dk} / C_{ua}$$

7. Total investments (A_{uk}) of total assets (C_{ua}) is equal to the ratio

$$A_2 = A_{ui} / C_{ua}$$

8. Non - performing loans (NPL) are a percentage of total loans and advances. (A_{uk}) is equal to the ratio

$$A_3 = A_{kd} / A_{uk}$$

9. Provisions for potential loan losses (A_{kz}) are the percentage of total loans and advances. (A_{uk}) is equal to the ratio

$$A_4 = A_{kz} / A_{uk}$$

10. Total loans and borrowings (A_{uk}) of total assets (C_{ua}) is equal to the ratio

$$A_5 = A_{yk} / C_{ua}$$

III. Management Quality (M) algorithms:

11. Profit per employee (M_{bx}) (M_{sf})

$$M_1 = M_{sf} / M_{bx}$$

12. Business share per employee (M_{bz})

$$M_2 = M_{sf} / M_{bz}$$

13. Debt to total assets (C_{ua}) is equal to the ratio

$$M_3 = M_{qm} / C_{ua}$$

14. Revenues are equal to the ratio of expenses

$$M_4 = M_{dd} / M_{xt}$$

15. Total loans and advances (A_{uk}) of total deposit equal to the ratio

$$M_5 = A_{uk} / M_{jd}$$

IV. D aromad (profitability) algorithms (E):

16. Net profit (loss) (E_{sf}) is equal to the ratio of return on assets (E_{ar})

$$E_1 = E_{sf} / E_{ar}$$

17. Net profit (loss) (E_{sf}) is equal to the ratio of return on equity (E_{ar})

$$E_2 = E_{of} / E_{cr}$$

18. Operating profit (E_{of}) is equal to the ratio of return on assets (E_{ar})

$$E_3 = E_{of} / E_{ar}$$

19. Interest income (E_{fd}) is equal to the ratio of return on assets (E_{ar})

$$E_4 = E_{fd} / E_{ar}$$

20. Interest-free income (E_{df}) is equal to the ratio of return on assets (E_{ar})

$$E_5 = E_{df} / E_{ar}$$

V. Liquidity (L) algorithms:

21. Liquid assets (L_{av}) as a percentage of total assets (C_{ua}) equal to the ratio

$$L_1 = L_{av} / C_{ua}$$

22. Liquid assets (L_{av}) are equal to the ratio of short-term liabilities (L_{qm})

$$L_2 = L_{av} / L_{qm}$$

23. Liquid assets (L_{av}) are equal to the ratio of total deposits (M_{jd})

$$L_3 = L_{av} / M_{jd}$$

24. Government securities (C_{qq}) are equal to the ratio of total assets (C_{ua})

$$L_4 = C_{qq} / C_{ua}$$

VI. Market risk sensitivity (S) algorithms:

25. Bank assets (S_{ba}) are equal to the ratio of total banking sector assets (S_{ua})

$$S_1 = S_{ba} / S_{sa}$$

Therefore, it is possible to use models and algorithms built according to the rules of the bank's economic security analysis processes for a specific period (month, quarter, year). Their typical terms summarize and systematize economic indicators, taking into account both quantitative and qualitative aspects, in proportion to the planning period.

Analysis of the economic security and financial condition of the bank can provide an opportunity to analyze financial indicators and formulate their strategic directions according to the developed scenarios.

Although the CAMELS rating system is used in the supervision of US commercial banks, this system determines the impact of each component on bank management in order to determine the rating, indicates the final assessment level and, in turn, predetermines the attitude of supervisory authorities towards the bank.

Now let's discuss the components of the CAMELS rating system.

Capital adequacy. The capital adequacy component (C–capital adequacy) is one of the main components of the CAMELS rating system . This component serves to protect the potential interests of depositors and creditors, determine the adequacy of the amount of capital, and determine the level of stability and efficiency of the country's financial system. Bank capital consists of the sum of core capital (Tier I capital) and additional capital (Tier II capital).

The capital adequacy ratio is defined as the ratio of total capital to risk-weighted assets. The higher this ratio, the higher the economic security and financial stability of the bank, or vice versa. The higher the capital adequacy ratio, the more conservatively the bank uses its own capital . According to the recommendations of the Basel Committee, the capital adequacy ratio requirements should not be less than 10%. Ensuring this ratio is very important for maintaining the trust of stakeholders, protecting against bankruptcy and ensuring the economic security of the bank.

Table 1

**PARAMETERS OF THE CAPITAL ADEQUACY RATIO OF COMMERCIAL BANKS
IN UZBEKISTAN IN 2018 - 2024**

Bank name	$C_{rk} / C_{ra}; C_{rk} / C_{ua}; (C_{rk} - C_{ov}) / C_{ua}; C_{um} / C_{ua}; C_{qq} / C_{ui};$ Group Rank											
	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank
Agrobank	20.69	7	12.83	6	7.83	7	81.67	9	83.74	8	34.63	6
Aloqabank	18.39	10	10.21	9	6.43	9	79.86	9	79.21	9	32.52	9
Asakabank	25.01	2	14.91	3	10.67	2	90.83	2	88.97	3	38.57	2
Mikrokreditbank	20.78	7	10.34	8	7.11	7	82.26	9	81.00	8	33.75	7
O‘zmilliybank	26.12	1	15.54	1	9.01	4	93.60	1	93.21	3	39.75	1
Ipotekabank	20.11	8	10.98	8	6.89	8	78.54	10	79.73	9	32.88	8
Xalqbanki	24.11	4	14.34	3	10.93	2	92.57	3	83.71	1	37.57	3
IpakYo‘libanki	18.97	10	9.03	11	5.67	10	78.47	10	76.33	10	31.58	10
Qishloqqurilish bank	21.07	5	12.86	6	8.11	6	88.86	8	81.37	8	35.88	5
Ravnaqbank	16.51	11	9.27	11	4.07	11	72.51	11	69.81	11	28.81	11
O‘zsanoatqurilishbank	23.76	4	12.89	5	7.79	6	91.21	4	84.31	7	36.83	4
EronSoderotbank	15.86	12	8.77	12	3.47	12	71.21	12	68.32	12	27.77	12

Asset quality. The asset quality (A–asset quality) component assesses the level of return on assets from customers and the degree of impact of problem debts on financial resources. Risky assets are usually divided into groups such as special assets, non-standard assets, doubtful assets and bad assets. Here, special assets are classified by the amount of 0%, non-standard assets - 20%, doubtful assets - 50% and bad assets - 100%.

Table 2

PARAMETERS OF THE ASSET QUALITY RATIO OF COMMERCIAL BANKS IN UZBEKISTAN IN 2018 - 2024

Bank name	$A_{dk} / C_{ua} : A_{ui} / C_{ua} : A_{kd} / A_{uk} : A_{kz} / A_{uk} : A_{uk} / C_{ua}$:Group Rank											
	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank
Agrobank	90.57	7	16.74	6	2.01	7	1.42	6	70.91	6	30.44	6
Aloqabank	87.72	10	13.32	9	1.97	9	1.32	9	69.91	9	29.21	9
Asakabank	95.91	2	19.03	2	3.49	3	1.50	3	71.19	1	32.02	2
Mikrokreditbank	90.11	7	15.56	7	2.34	7	1.38	7	69.79	8	30.03	7
O'zmilliybank	96.23	1	19.83	2	3.81	1	1.52	2	71.27	1	32.28	1
Ipotekabank	89.46	8	14.21	8	2.04	8	1.35	10	70.04	9	29.68	8
Xalqbanki	94.32	3	19.01	3	3.49	3	1.47	4	71.15	3	31.74	3
IpakYo'libanki	87.37	10	12.17	11	1.52	10	1.28	10	69.56	10	28.82	10
Qishloqqurilish bank	92.28	5	16.89	6	2.28	6	1.45	5	70.98	5	30.81	5
Ravnaqbank	86.97	11	12.21	11	1.42	11	1.25	11	67.31	12	28.36	11
O'zsanoatqurilishbank	93.17	5	18.91	5	3.01	4	1.47	4	71.01	4	31.27	4
EronSoderotbank	86.37	11	11.08	12	1.39	12	1.21	12	67.32	12	28.06	12

Quality of governance. The governance component assesses the quality of bank management based on the results of monitoring and control systems in accordance with laws and regulations. Proper and effective governance is the key to the operation of any entity.

The CAMELS rating system analyzes the level of quality of bank management (M-management). This component determines the quality of bank management based on the assessment of the laws, regulations and results of banking activities adopted in the supervisory system and, in turn, assesses the reliability of the bank. This indicator depends on the results of the previous indicators, since banks with capital adequacy, asset quality, profitability and stability have a high level of quality management. This situation is analyzed by the level of knowledge of employees; compliance with regulatory and legal documents; the perfection of personnel policy, credit policy, investment policy, interest rate policy and banking policy, and, in turn, their correct selection.

After evaluating each of the CAMELS rating system components separately, the final rating of the bank is determined. In most cases, the rating is carried out using assessment coefficients. In such cases, the impact on the final rating is either increased or decreased. The final rating provides information to the inspectors about whether the bank is “good”, “satisfactory”, “adequate” or “unsatisfactory”.

Table 3

**PARAMETERS OF THE GOVERNANCE QUALITY COEFFICIENT OF
COMMERCIAL BANKS IN UZBEKISTAN IN 2018 - 2024**

Bank name	$M_{sf} / M_{bx} : M_{sf} / M_{bz} : M_{qm} / C_{ua} : M_{dd} / M_{xt} : A_{uk} / M_{jd} : Gr. Rank$											
	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank
Agrobank	2.68	6	86.74	6	45.76	8	5.02	6	88.31	6	38.25	6
Aloqabank	1.96	9	63.32	9	44.79	9	3.84	9	81.52	10	32.74	9
Asakabank	3.68	2	129.23	2	53.71	3	6.51	2	92.59	2	47.79	2
Mikrokreditbank	2.39	7	69.56	8	46.87	7	4.78	7	87.79	8	35.40	7
O'zmilliybank	3.96	1	129.01	2	56.81	1	6.93	1	93.67	1	48.56	1
Ipotekabank	2.23	8	69.21	8	45.74	8	4.29	10	81.94	9	34.05	8
Xalqbanki	3.39	3	105.11	4	53.67	3	6.17	4	91.16	3	43.42	3
IpakYo'libanki	1.59	10	57.17	11	43.52	10	3.28	10	77.56	10	30.69	10
Qishloqqurilish bank	2.99	5	94.34	6	46.89	7	5.68	5	89.21	5	40.02	5
Ravnaqbank	1.27	11	39.21	11	36.19	12	2.15	11	76.85	12	26.11	11
O'zsanoatqurilishbank	3.02	4	94.97	5	51.83	4	5.86	4	90.67	4	41.23	4
EronSoderotbank	1.28	11	36.78	12	36.18	12	1.33	12	75.70	12	25.37	12

Profitability. The earnings component (E-earnings) assesses the efficiency of the bank's activities, which determines the possibility of obtaining sufficient profit in the future. The use of data for three years is associated with the phase of the earnings cycle. In this case, the profitability criterion can be highly stable, and the level of cyclical fluctuations can be low.

Table 4

**PARAMETERS OF THE INCOME (PROFITABILITY) RATIO OF COMMERCIAL
BANKS IN UZBEKISTAN IN 2018 - 2024**

Bank name	$E_{sf} / E_{ar} : E_{of} / E_{kr} : E_{of} / E_{ar} : E_{fd} / E_{ar} : E_{df} / E_{ar} : Group Rank$											
	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank
Agrobank	1.49	6	15.67	2	3.69	6	2.84	6	2.25	10	4.49	6
Aloqabank	1.12	9	13.99	9	3.57	9	3.14	9	2.75	7	4.26	9
Asakabank	1.71	1	19.47	2	6.11	2	3.81	2	3.56	2	5.94	2
Mikrokreditbank	1.38	7	13.17	10	4.17	8	3.58	7	2.75	7	4.34	7
O'zmilliybank	1.71	1	19.47	2	6.31	1	4.13	1	3.76	1	6.06	1
Ipotekabank	1.24	8	14.11	8	3.69	9	3.29	10	2.71	8	4.32	8
Xalqbanki	1.54	3	15.67	3	5.83	3	3.36	4	3.36	3	5.13	3
IpakYo'libanki	1.09	10	13.17	10	3.52	10	2.28	10	2.25	11	3.89	10
Qishloqqurilish bank	1.29	5	14.93	5	5.13	5	2.72	6	3.07	5	4.72	5
Ravnaqbank	0.98	11	9.21	11	3.52	10	1.81	11	1.25	11	2.96	11
O'zsanoatqurilishbank	1.42	4	14.93	5	5.56	4	3.36	4	3.27	4	4.92	4
EronSoderotbank	1.09	10	9.03	12	1.51	12	1.34	12	1.14	12	2.52	12

Liquidity. The liquidity component (L-liquidity) determines the degree to which a bank is sufficiently liquid in terms of timely fulfillment of obligations. Bank liquidity assesses the readiness of a bank to timely meet the credit requirements of its customers. The analysis of this component, like the income component, determines the content, volume and scale of bank operations, which differ from other banks. There is currently no single formula for assessing the liquidity of banks.

The liquidity of an individual bank is assessed taking into account the level of dependence on non-permanent deposits, credit resources, the degree of sensitivity to changes in interest rates, liquid assets in the form of cash , access to the money market, the efficiency of asset and liability management, and the purpose and amount of the estimated use of future obligations.

Table 5

LIQUIDITY RATIO PARAMETERS OF COMMERCIAL BANKS IN UZBEKISTAN IN 2018 - 2024

Bank name	L_{av} / C_{ua}		:		L_{av} / L_{qm}		:		$L_{av} / L_{dt}; C_{qq} / C_{ua}$		:		Group Rank	
	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank	Ave	Rank
Agrobank	27.31	6	1.43	6	35.78	5	17.27	6	16.56	6				
Aloqabank	26.16	8	1.31	9	33.79	9	12.74	9	15.00	9				
Asakabank	29.43	2	1.51	3	36.12	2	19.01	2	17.42	2				
Mikrokreditbank	26.38	7	1.39	7	34.92	7	17.27	6	16.19	7				
O'zmilliybank	30.76	1	1.53	2	36.87	1	19.76	1	17.98	1				
Ipotekabank	26.16	8	1.39	8	34.37	8	12.74	9	15.13	8				
Xalqbanki	29.43	2	1.51	3	35.84	3	18.88	3	17.33	3				
IpakYo'libanki	24.93	10	1.17	10	33.79	9	14.35	11	15.05	10				
Qishloqqurilish bank	27.96	5	1.48	4	35.78	5	15.89	5	16.25	5				
Ravnaqbank	23.98	11	1.08	11	30.52	10	10.25	11	13.37	11				
O'zsanoatqurilishbank	28.37	4	1.51	3	35.43	4	18.27	4	16.92	4				
EronSoderotbank	24.93	10	1.02	12	30.04	12	9.11	12	13.22	12				

Market risk. The sensitivity to market risk (S – sensitivity to market risk) component of the CAMELS rating system serves to assess market risks. Market risk includes interest rate risk, currency risk and fund risk. In this case, interest rate risk affects the value of financial instruments in the securities market and changes in interest rates, as well as profit, as well as bank capital. Currency risk, in turn, affects bank profits, bank capital and exchange rate changes. Fund risk, in turn, affects the level of change in the value of the securities market with funds in the bank's trading portfolio, bank profits and bank capital.

Market risk assessment determines the impact of bank profits on bank capital, changes in interest rate levels, non-trading positions in banks, reserves to cover potential losses on trading operations and securities-related operations. The market risk management system serves to assess, control and regulate the solvency of banks.

Table 6

**PARAMETERS OF THE MARKET RISK SENSITIVITY COEFFICIENT OF
COMMERCIAL BANKS IN UZBEKISTAN IN 2018 - 2024**

S_{ba} / S_{sa}	Group Rank				
Bank name		-----			
Ave	Rank	Ave Rank			
Agrobank		11.97	6	11.97	6
Aloqabank		8.98	9	8.98	9
sakabank		15.78	2	15.78	2
Mikrokreditbank		10.47	7	10.47	7
O'zmilliybank	16.19	1		16.19	1
Ipotekabank		9.89	8	9.89	8
Xalqbanki		14.86	3	14.86	3
IpakYo'libanki	7.53	10		7.53	10
Qishloqqurilish bank		12.89	5	12.89	5
Ravnaqbank		5.87	11	5.87	11
O'zsanoatqurilishbank		13.61	4	13.64	4
Eron Soderot bank		4.39	12	4.39	12

The current rating for banks based on the CAMELS rating system is calculated based on an assessment of the state of key indicators. The risk category is reviewed quarterly along with the current rating, resulting in changes to the composition of the main component. The final rating calculated according to the CAMELS system is taken into account in the final assessments.

After each of the CAMELS rating system components is evaluated separately, the final rating of the bank is determined. In most cases, the rating is carried out using rating coefficients. In this case, the influence of the final rating is either increased or decreased. The final rating provides managers with information about whether the bank is “good”, “satisfactory”, “adequate” or “unsatisfactory”.

Table 7

**GENERAL PARAMETERS OF COMMERCIAL BANKS IN UZBEKISTAN ACCORDING TO
THE CAMELS RATING SYSTEM IN 2018 - 2024**

Bank nameC	A	M	E	L	S	AVG	Rating			
Agrobank			34.63	30.44	38.25	4.49	16.56	11.97	19.62	6
Aloqabank		32.52	29.21	32.74	4.26	15.00	8.98	17.67		9
Asakabank		38.57	32.02	47.79	5.94	17.42	15.78	22.65		2
Mikrokreditbank		33.75	30.03	35.40	4.34	16.19	10.47	18.74		7
O'zmilliybank			39.75	32.28	48.56	6.06	17.98	16.19	23.11	1
Ipotekabank		32.88	29.68	34.05	4.32	15.13	9.89	18.14		8
Xalqbanki		37.57	31.74	43.42	5.13	17.33	14.86	21.58		3
IpakYo'libanki	31.58	28.82	30.69	3.89	15.05	7.53	16.94		10	
Qishloqqurilish bank			35.88	30.81	40.02	4.72	16.25	12.89	20.22	5
Ravnaqbank		28.81	28.36	26.11	2.96	13.37	5.87	15.21		11
O'zsanoatqurilishbank			36.83	31.27	41.23	4.92	16.92	13.61	20.83	4
Eron Soderot bank			27.77	28.06	26.37	2.52	13.22	4.39	14.62	12

The diagram below shows the level of economic security of commercial banks, calculated as an average, using the data in Table 7.

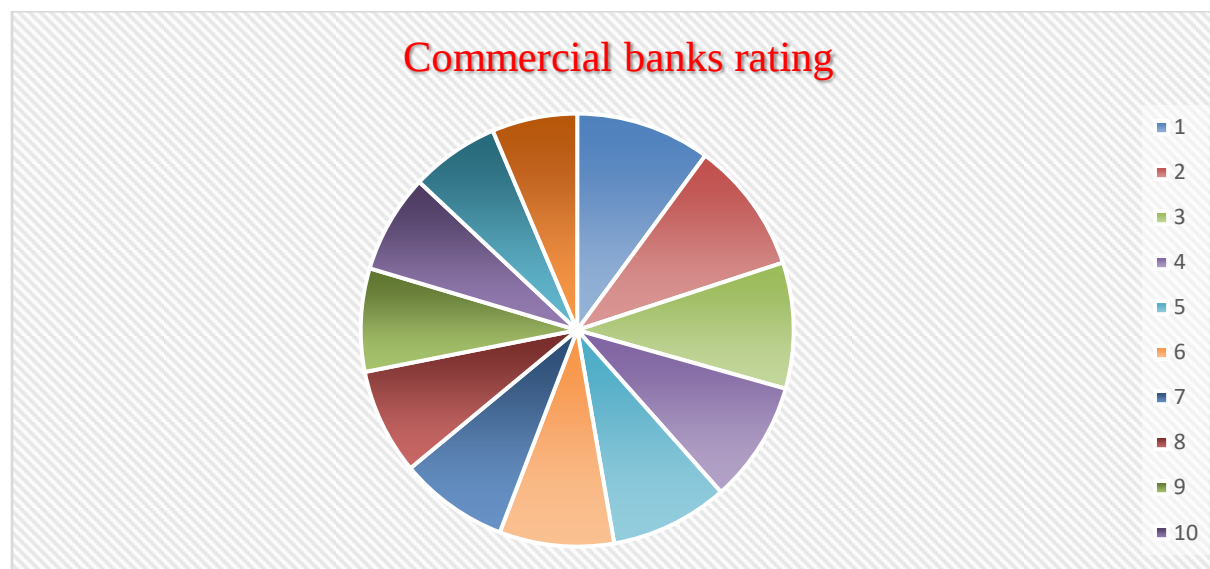


Fig.1. Diagram of ensuring the economic security of commercial banks, based on the average amount

Functional for performing experimental calculations on a computer to solve the given problem develop hardware, software, information support, and other organizational and methodological measures.

Is based on models and algorithms related to ensuring solvency, taking into account the conditions and characteristics of the enterprise's activities. Its models and the connection between algorithms is ensured through a single database. The single database forms the basis of information support. In information processing, the information source is The data to be entered and printed is divided into separate groups. separated. Data set commercial banks financial statements, accounting, it consists of standards and other similar types of information.

Through data entered into computer memory ensuring the economic security of each bank the optimal value of the indicators for ensuring the economic security of each bank is formed by making changes to the initial parameters within the accepted limits.

The results obtained Depending on the level of availability, the experimenter decides whether to continue or terminate the study. Therefore, based on the principle of systematic information and logical connections of the problematic issue we posed, we developed a scheme for assessing the degree of solvency of enterprises using software (Fig.2).

In the study, we created solution parameters for the problem posed by implementing algorithms and models for assessing the level of economic security of commercial banks and finding solutions for rapid forecasting.

Assessing the economic security of commercial banks are balanced, managers at different levels will comparatively evaluate the results of decisions made on alternative options.

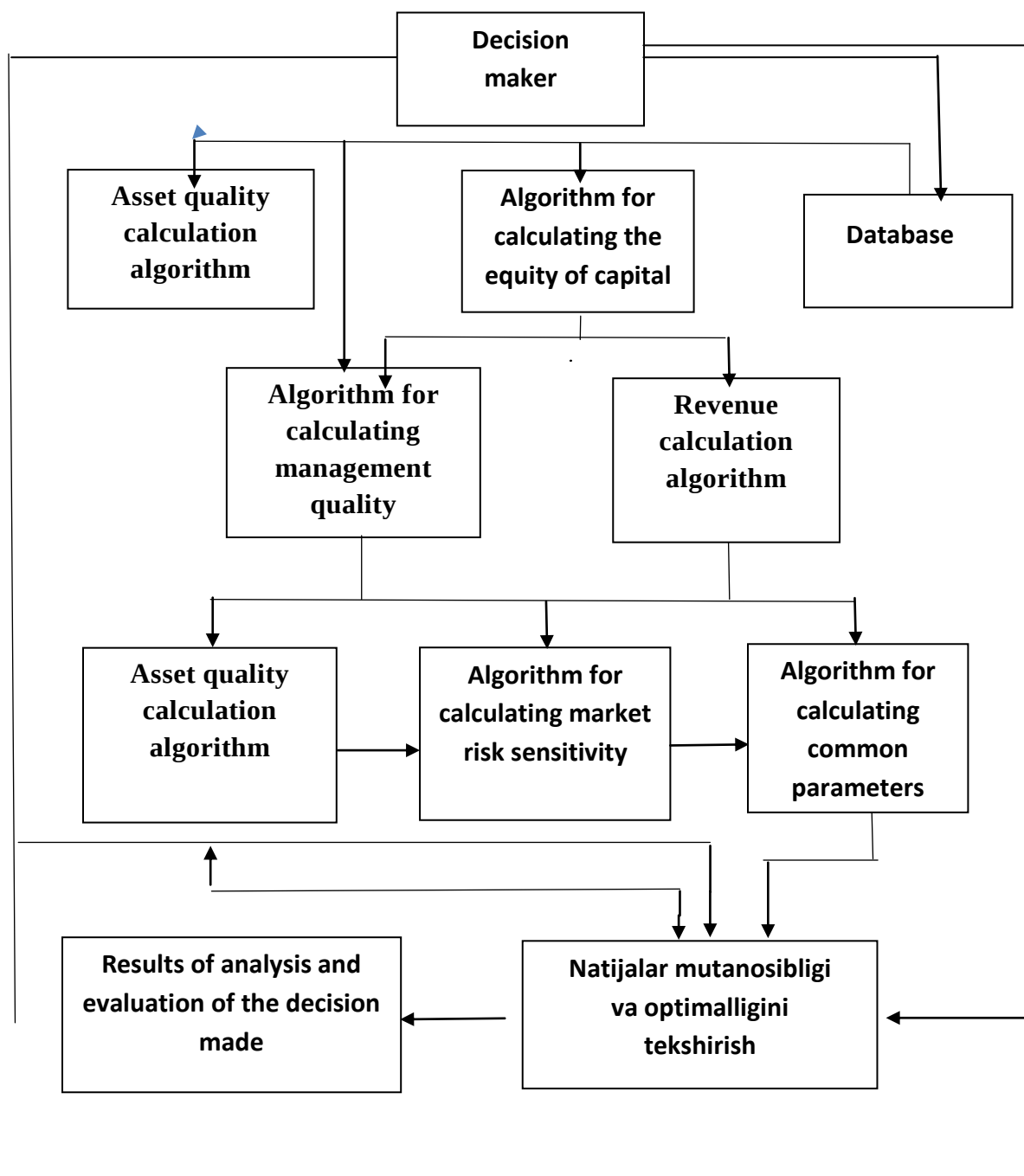


Fig. 2. Mechanism for assessing the economic security of commercial banks based on the CAMELS rating system

If the results of any of the generated alternative scenarios do not satisfy the experimenter, managers at different levels return to the database and re-implement the algorithms and models using new quantitatively large amounts of data. The iterative procedure continues until the results of the assessment of the economic security of commercial banks are found for each scenario.

The database provides for the possibility of using information with systematic consideration of the economic conditions of the bank.

CONCLUSION

The CAMELS rating system helps users to assess not only the current state of economic security of commercial banks, but also their economic security, early detection of economic threats and risks, assessment of their prevention and elimination, and increase the efficiency of making operational management decisions. For example, table 7 shows the general economic indicators of 12 commercial banks selected for analysis by the CAMELS rating system. Among the banks, the National Bank of Uzbekistan and Asakabank achieved high-level indicators and took first and second places with an average score of 23.11 and 22.65 points, respectively. However, Ravnaqbank and Iran Soderot Bank achieved the lowest-level indicators and took the average score of They ranked eleventh and twelfth with scores of 15.21 and 14.62, respectively. This situation shows the weakness of Ravnaqbank and Iran Soderot Bank, which are exposed to internal and external threats, it shows that it is unable to adequately withstand risks and shocks, and that customer trust is waning.

REFERENCES

1. Abdullaeva G.@Abdullaev G. (2025). Analysis of the state of economic security of commercial banks and development trends // Journal of Agribusiness, Science and Technologies, 2025, No. 3/[3], pp. 96–116.
2. Baral, J. (2005). Health Check-up of Commercial Banks in the Framework of CAMEL: A Case Study of Joint Venture Banks in Nepal. The Journal of Nepalese Business Studies. II(1).
3. Prasad, KVN and Ravinder, G. (2012). A Camel Model Analysis of Nationalized Banks In India. International Journal of Trade and Commerce-IIARTC, 1(1), 23–3.
4. Kulshrestha, P., & Srivastava, A. (2022). Use of Camel Rating Framework: A Comparative Performance Analysis of Selected Commercial Banks In India. Copernican Journal of Finance & Accounting, 11(1), 67-87.