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Improving the System of Indicators and Criteria for Assessing the Economic Security of Banks in Uzbekistan

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Abstract: Supervisory frameworks that evaluate bank economic security through isolated prudential ratios offer an incomplete picture of institutional vulnerability - a limitation felt acutely in rapidly developing banking systems. This study constructs and empirically tests an enhanced indicator framework for the Uzbek banking sector, benchmarked against Basel III standards and International Monetary Fund's Financial Soundness Indicators. Three analytical approaches are employed: a gap analysis comparing the Central Bank of Uzbekistan supervisory architecture with international requirements; the development of a Composite Economic Security Index that aggregates five risk dimensions through a weighted normalization procedure; and a zone-based classification system supporting regulatory interpretation. Applied to sector-level data through January 2026, the Composite Economic Security Index registers 59.6 points, placing the banking system in the green zone and indicating a satisfactory level of economic security. Capital adequacy and liquidity emerge as the strongest dimensions: the Capital Adequacy Ratio stands at 18.34% and the Liquidity Coverage Ratio at 207.5%, both markedly above regulatory minimums. Asset quality has improved considerably, with the non-performing loan ratio declining to 2.99% - its lowest level across the study period. The gap analysis nonetheless identifies three structural deficiencies in the current supervisory architecture: the NPL intervention threshold remains fixed at 5%, above the 3.0-3.5% range increasingly favoured in comparable jurisdictions; no formal composite monitoring index exists within the Central Bank of Uzbekistan toolkit; and benchmark values for the Loan-to-Deposit ratio, provision coverage ratio, and net interest margin are absent from the regulatory framework. The study concludes with targeted policy recommendations addressing each identified gap, and offers a replicable, data-driven instrument for integrated bank supervision in emerging-market contexts.

Keywords: Economic Security of Banks, Financial Soundness Indicators, Composite Economic Security Index, Basel III, Banking System of Uzbekistan, Capital Adequacy, NPL, Liquidity, Gap Analysis.

1. Introduction

The concept of bank economic security occupies an increasingly central position in both supervisory theory and macro-prudential policy. At its core, economic security of a bank denotes the institution's sustained capacity to withstand financial, operational, and regulatory threats while maintaining solvency, adequate profitability, and sufficient liquidity under both normal and stressed conditions.

The banking sector of the Republic of Uzbekistan demonstrated substantial expansion during the period 2022-2026, reflecting the ongoing transformation and

deepening of financial intermediation within the national economy. Total banking assets increased from 444.9 trillion sums to 924.8 trillion sums, corresponding to a compound annual growth rate of approximately 20.2%. Over the same period, the aggregate loan portfolio expanded by 85.1%, while the deposit base grew by more than 167% [1], indicating a significant strengthening of banks' funding capacity and an increase in public confidence in the banking system. Although such growth contributes positively to economic development and financial inclusion, the rapid expansion of banking operations may simultaneously increase systemic risk and financial vulnerabilities if not supported by adequate capital buffers, effective risk management practices, and a robust prudential supervisory framework.

Notwithstanding the significant improvement observed in the key Financial Soundness Indicators (FSIs) [2], several structural limitations remain within the current framework for assessing bank economic security employed by the Central Bank of Uzbekistan (CBU). First, the existing system lacks a comprehensive composite index capable of integrating multiple dimensions of financial soundness into a single analytical measure. Second, the current non-performing loan (NPL) threshold of 5% remains relatively high compared with internationally accepted benchmarks and International Monetary Fund (IMF) recommendations, potentially weakening the effectiveness of early risk detection. Third, profitability indicators are not supported by formally established benchmark values, limiting their usefulness in supervisory assessment. Fourth, the absence of regulatory ceilings for the Loan-to-Deposit Ratio (LDR) constrains the monitoring of funding stability and liquidity-related vulnerabilities. Collectively, these shortcomings reduce the predictive and early-warning capacity of the existing assessment framework and hinder effective cross-bank comparisons.

Against this background, the present study seeks to develop a scientifically grounded and empirically validated framework for enhancing the system of indicators and criteria used to assess bank economic security in Uzbekistan. To achieve this objective, the study: (1) evaluates the current assessment framework in relation to international FSI standards and best supervisory practices; (2) identifies measurable gaps and methodological weaknesses within the existing system; (3) proposes a Composite Economic Security Index (CESI) designed to provide an integrated assessment of bank stability and resilience.

Any rigorous assessment of banking sector economic security presupposes a measurement architecture capable of simultaneously capturing multiple, qualitatively distinct dimensions of financial risk and institutional resilience. Standard supervisory practice, rooted in individual prudential ratios, provides a limited vantage point: each metric illuminates one facet of institutional health while leaving the broader risk landscape largely opaque. This analytical narrowness is particularly consequential in transition and emerging-market banking systems, where structural vulnerabilities rarely manifest through a single indicator.

The present study addresses this methodological constraint by constructing a structured taxonomy of economic security indicators that anchors Basel III capital and liquidity standards within a broader multi-dimensional surveillance architecture. The proposed system incorporates additional diagnostic layers addressing asset quality deterioration, profitability trends, and sensitivity to market and funding conditions - dimensions that individually focused supervisory checklists routinely underweight. The resulting conceptual framework, designated the Composite Economic Security Index (CESI), is depicted schematically in Fig. 1.

Literature Review

The economic security of banking institutions has attracted sustained scholarly attention across multiple research traditions. The issues of banking economic security have been extensively examined in the academic literature. Significant contributions to the

development of its theoretical and methodological foundations have been made by Demirgüç-Kunt A., Pedraza A., Ruiz-Ortega C. [3], Claessens S., Kose M.A. [4], Usov A. S. [5], Conor McCaffrey, Niclas Poitiers [6], Rodchenko S. [7], Albuquerque P.H. [8], Abdelsalam O.A. [9], Choudhry M. [10], V. Yu. Sutyagin, Y. Yu. Radyukova, M. V. Bespalov, N. V. Sergeeva [11], Benjamin Tabak, Dimas Fazio, Karine C. de O. Paiva, Daniel Cajueiro [12], Svetlana Lanets [13], Sudarto Sudarto, Adawiyah Wiwiek Rabiatal, Najmudin Najmudin, Jati Dian Purnomo [14], S. V. Khokhlova, I. Yu. Afanasyev [15], Abdullaev A.Y. [16], and Vighneswara Swamy [17]. Their studies have contributed to a deeper understanding of banking stability, risk management, financial resilience, and the mechanisms for ensuring economic security under changing economic and regulatory conditions. Collectively, these works provide the conceptual and methodological basis for contemporary approaches to assessing and strengthening the economic security of banking institutions.

Notwithstanding this considerable volume of output, the literature has yet to converge on a single authoritative definition of bank economic security - a situation that reflects not terminological carelessness but the genuine conceptual complexity of the phenomenon. The stability of a banking institution is shaped by the interplay of capital-side pressures, asset quality dynamics, liquidity conditions, and systemic risk exposures that resist reduction to a single formulation [18,19]. Working across this definitional diversity, most researchers treat bank economic security as a condition of sustained protection against both endogenous and exogenous threats, one that encompasses financial resilience, solvency maintenance, adequate liquidity provision, and the capacity for long-term institutional development. Operationally, this conception has been translated into assessment frameworks built around interrelated prudential indicators spanning capital adequacy, asset quality, profitability, liquidity, funding structure, and exposure to various categories of risk. It is this indicator-centred approach that serves as the methodological foundation of the present study.

2. Materials and Methods

The methodological framework of the study is based on three complementary analytical approaches. First, a gap analysis was conducted to compare the current system of indicators monitored by the Central Bank of Uzbekistan with the requirements of the Basel III framework and the FSI methodology recommended by the IMF. This approach made it possible to identify existing institutional and methodological gaps in the assessment of bank economic security.

Second, a CESI was developed to provide an integrated assessment of the overall level of bank economic security. The index is constructed using a weighted multi-pillar methodology encompassing five key dimensions of financial soundness. Individual indicators are normalized and aggregated into a composite score ranging from 0 to 100, enabling a comprehensive evaluation of banking sector resilience.

Third, a zone-based classification approach was applied to facilitate the interpretation of results and support managerial decision-making. Under this framework, both individual indicators and the overall CESI score are assigned to one of three categories: the red zone, indicating values below the minimum regulatory threshold; the yellow zone, representing compliance with minimum requirements but remaining below the target benchmark; and the green zone, reflecting full compliance with or exceeding the proposed enhanced standards of economic security.

3. Results and Discussion

An integrated assessment of bank economic security necessitates the reduction of a multidimensional set of financial soundness measures to a single synthetic indicator capable of capturing the overall state of a banking institution across all critical risk dimensions. To address this need, the present study proposes the Composite Economic Security Index (CESI), which aggregates the principal components of financial resilience into one analytically tractable measure.

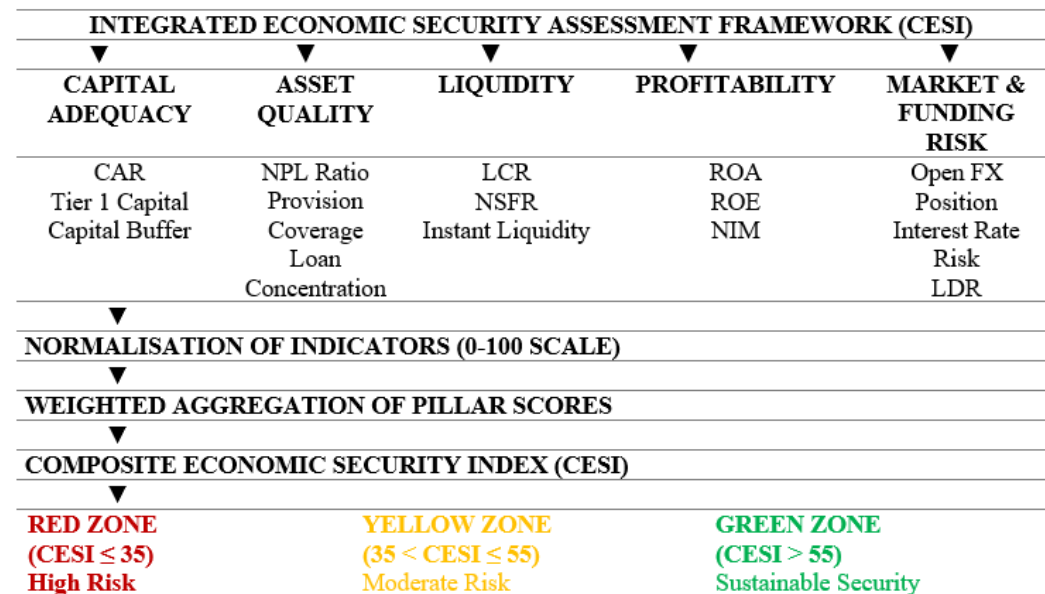


Figure 1. Composite Economic Security Index (CESI): Structural Architecture of the Proposed Assessment Framework.

The architecture presented in Figure 1 consists of five analytical pillars: capital adequacy, asset quality, liquidity, profitability, and market and funding risk. Each pillar draws on a core set of regulatory indicators originating from Basel III prudential requirements and the IMF FSIs, extended by supplementary metrics with demonstrable early-warning relevance. The incorporation of these secondary indicators reflects the objective of constructing a monitoring instrument capable of detecting systemic stress at an earlier stage than conventional binary compliance measures ordinarily permit.

By embedding capital adequacy, asset quality, liquidity, profitability, and market risk within a single structured evaluative framework, the CESI model furnishes supervisory bodies, bank management, and policy analysts with a unified, internally consistent instrument for risk assessment - one that transcends the diagnostic limitations inherent in conventional single-pillar approaches that evaluate these dimensions in isolation from one another.

Formally, the CESI is computed as a weighted linear combination of five normalized pillar scores. Let S_{cap} denote the score for capital adequacy, S_{aq} for asset quality, S_{liq} for liquidity, S_{prof} for profitability, and S_{fund} for funding stability. The index takes the form:

$$CESI = 0.25 \cdot S_{cap} + 0.25 \cdot S_{aq} + 0.20 \cdot S_{liq} + 0.15 \cdot S_{prof} + 0.15 \cdot S_{fund}$$

The weighting structure reflects the relative importance of each pillar in sustaining bank resilience under conditions of financial stress. Capital adequacy and asset quality are each assigned the highest weight of 25%, on the grounds that solvency and credit risk exposure constitute the primary determinants of institutional viability. Liquidity receives a weight of 20%, given the systemic consequences of illiquidity shocks, while profitability

and funding stability are weighted at 15% each, reflecting their role as supporting rather than foundational dimensions of economic security.

Prior to aggregation, all component indicators are normalized to a uniform scale ranging from 0 to 100. This transformation ensures dimensional homogeneity and eliminates the distortions arising from differences in measurement units, magnitudes, or directionality across the constituent ratios. As a consequence, the resulting CESI is bounded between 0 and 100: a score approaching zero indicates a critically vulnerable state in which the bank faces severe threats to its economic security across multiple dimensions, while a score approaching 100 reflects a condition of high financial resilience and compliance with enhanced prudential requirements.

For the purposes of analytical interpretation and regulatory monitoring, the CESI score is mapped to a three-zone classification system, the thresholds of which are calibrated with reference to empirically observed risk levels and supervisory practice. The red zone encompasses values at or below 35, denoting a high degree of vulnerability and the need for immediate corrective intervention. The yellow zone covers the range from 35 to 55 (exclusive of the lower bound), signaling a moderate level of risk and the requirement for heightened supervisory attention and enhanced monitoring procedures. Finally, the green zone applies to scores exceeding 55, indicating a satisfactory level of economic security and general compliance with strengthened prudential norms.

The normalization procedures applied to each component indicator, together with the detailed calculation methodology, are set out in Table 1 below. The specific transformations employed differ across pillars in accordance with the nature of the underlying ratio and the direction of its relationship with financial soundness.

Table 1. CESI Methodology: Pillar Weights, Thresholds, and Normalization Formulas.

Pillar	Key Indicators	Weight	Min (Red $\leq$)	Target (Green $\geq$)	Norm. Score Formula	CESI Contribution
Capital Adequacy	CAR, Tier-1, Buffer	25%	12.5 %	16.0%	$(\text{CAR}-12.5)/3.5 \times 100$	max 25
Asset Quality	NPL, Provisions	25%	NPL $>5\%$	NPL $<3\%$	$(7-\text{NPL})/4 \times 100$	max 25
Liquidity	LCR, NSFR, Instant	20%	LCR <100	LCR ≥ 150	$(\text{LCR}-100)/50 \times 100$	max 20
Profitability	ROA, ROE, NIM	15%	ROA $<0.5\%$	ROA $\geq 1\%$	$(\text{ROA}-0.5)/0.5 \times 100$	max 15
Stable Funding	NSFR, L/D Ratio	15%	NSFR <100	NSFR ≥ 120	$(\text{NSFR}-100)/20 \times 100$	max 15
TOTAL WEIGHT	—	100%	—	—	Σ weighted scores	0-100

Table 1 sets out the methodological basis upon which the CESI is constructed. The model brings together five dimensions of financial soundness - capital adequacy, asset quality, liquidity, profitability, and funding stability - each weighted in proportion to its

contribution to the overall resilience of a banking institution. For every pillar, the table specifies the minimum regulatory threshold established by the Central Bank of Uzbekistan and the Basel III framework, alongside a target benchmark that corresponds to best supervisory practice. Individual indicators are converted into dimensionless scores through pillar-specific normalization formulas, thereby enabling meaningful aggregation across measures that would otherwise differ in units, scale, and direction of risk sensitivity. The weighted sum of pillar scores yields a composite index bounded between 0 and 100, which serves as a unified basis for classifying the economic security of a bank and for supporting evidence-based supervisory decisions.

Table 2 provides a systematic comparative assessment of current regulatory thresholds, Basel III international standards, and the enhanced target levels proposed in this study.

Table 2. Current vs. Proposed Indicator System: Uzbekistan Banking Sector (as at 01.01.2026).

Indicator	Category	Min (CBU)	Min (Base I III)	Target (Proposed)	Current Status (Jan. 2026)	Assessment
CAR (%)	Capital Adequacy	12.5	12.5	16.0	18.34	High level of resilience
Tier-1 CAR (%)	Capital Adequacy	10.0	10.0	13.0	15.21	High level of resilience
Capital Buffer (pp)	Capital Adequacy	0.0	2.5	4.0	5.84	High level of resilience
NPL Ratio (%)	Asset Quality	< 5.0	< 5.0	< 3.0	2.99	High level of resilience
Provision Coverage (%)	Asset Quality	-	≥ 100	≥ 110	Proposed Indicator	Recommended for implementation
LCR (%)	Liquidity	100	100	150	207.5	High level of resilience
NSFR (%)	Liquidity	100	100	112	119.9	High level of resilience
Instant Liquidity (%)	Liquidity	25	-	60	134.7	High level of resilience
ROA (%)	Profitability	-	-	≥ 1.5	2.18	Adequate level
ROE (%)	Profitability	-	-	≥ 12	12.38	Adequate level
Loans/Deposits (%)	Funding Risk	-	-	≤ 150	144.8	Adequate level
CESI Score (0-100)	Integrated Assessment	-	-	≥ 55	59.6	Enhanced economic security level

The results indicate that, as of January 1, 2026, the majority of key banking economic security indicators not only comply with the minimum prudential requirements established by the Central Bank of Uzbekistan and Basel III standards but also exceed the proposed target benchmarks. The strongest positions are observed in capital adequacy, asset quality, and liquidity indicators. The calculated CESI score of 59.6 places the banking sector within the “green zone”, indicating a high level of resilience and economic security.

While the overall assessment confirms a high level of economic security and resilience within the banking sector, the gap analysis reveals several structural shortcomings in the current supervisory architecture.

The gap analysis identifies three principal deficiencies in the current regulatory architecture. First, the NPL monitoring threshold remains codified at 5%, whereas IMF FSI guidance and supervisory best practices in comparable banking jurisdictions increasingly employ 3.0-3.5% as the operative threshold for proactive intervention. Although the prevailing NPL ratio (2.99% in 2026) now falls below even the proposed 3% target, the regulatory ceiling has not been formally revised, thereby sustaining a supervisory blind spot when NPL approaches but does not breach the 5% threshold. Second, no formal composite monitoring index exists within the supervisory architecture. Third, the L/D ratio, provision coverage, and net interest margin (NIM) remain without officially established thresholds in the CBU regulatory framework.

Fig. 2 presents a radar analysis comparing the Uzbekistan banking system’s FSI profile in 2022 and 2026 against Basel III regulatory minimums. The analysis normalizes indicators to a common scale for visual comparability.

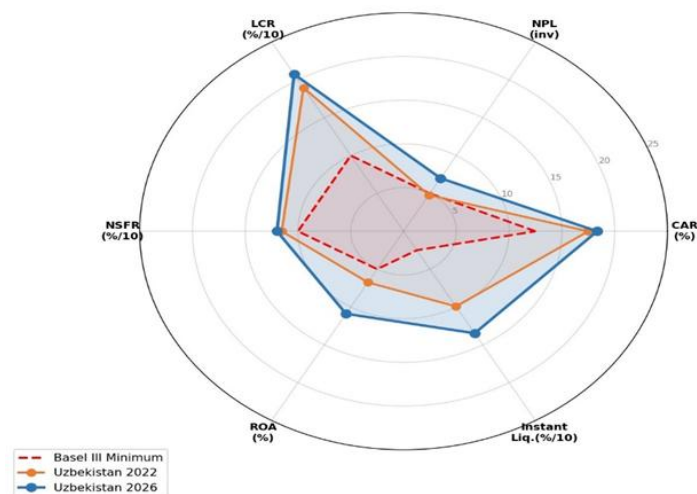


Figure 2. Radar Analysis: Uzbekistan Banking System FSI Profile vs. Basel III Benchmarks (2022 vs. 2026).

The radar analysis reveals a pronounced outward expansion of the banking sector’s financial soundness profile between 2022 and 2026, indicating a broad-based strengthening of economic security across all assessed dimensions. The most significant improvements are observed in liquidity-related indicators, particularly the LCR and instant liquidity ratio, both of which demonstrate substantial margins above the minimum prudential requirements. Capital adequacy indicators also exhibit a positive trajectory, reflecting the continued strengthening of the sector’s loss-absorption capacity and overall financial resilience.

A notable enhancement is observed in the asset quality dimension, represented by the inverse NPL indicator, where higher values correspond to lower levels of problem loans. The improvement reflects the reduction in the NPL ratio from 5.20% in 2022 to 2.99%

in 2026, indicating a significant strengthening of credit portfolio quality. Importantly, the 2026 radar profile remains consistently above the Basel III minimum benchmark across all assessed dimensions, confirming the soundness of the banking sector and its capacity to withstand potential adverse shocks while maintaining a satisfactory level of economic security.

4. Conclusions

The research yielded an enhanced system of indicators and corresponding evaluation criteria for monitoring the economic security of commercial banks operating in Uzbekistan. The primary motivation was to close the methodological and regulatory gaps that were identified within the existing supervisory architecture of the CBU - gaps that, as the preceding analysis demonstrated, limit the system's capacity for early identification of systemic vulnerabilities.

Empirical findings based on data through January 2026 present a broadly favourable picture. Assessed across all five analytical dimensions of the proposed framework, the Uzbek banking sector exhibits considerable financial robustness. The CESI, calculated at 59.6 points, situates the sector in the green zone - a classification corresponding to a satisfactory level of economic security under the proposed taxonomy.

Capital adequacy and liquidity stand out as the strongest dimensions in the assessment. The CAR reached 18.34%, while the LCR registered 207.5% - figures that substantially exceed both the statutory minimums set by the regulator and the more demanding benchmarks embedded in the enhanced framework developed in the course of this study.

Progress in asset quality also warrants attention. The NPL ratio contracted to 2.99% by the close of the observation period, representing the lowest reading recorded throughout the entire timeframe of the analysis. This trajectory is consistent with the broader stabilization of lending practices observed in the Uzbek banking sector over recent years.

Notwithstanding the sector's strong overall performance, the gap analysis (see above) identified three residual regulatory deficiencies: an NPL intervention threshold set at 5% - above the 3.0-3.5% range favored in comparable jurisdictions; the absence of a formal composite supervisory index; and the lack of officially established benchmarks for the LDR, provision coverage ratio, and net interest margin. On the basis of these findings, the study formulates the following policy recommendations. First, the CBU should revise the NPL threshold downward to 3% in line with IMF FSI guidance, adopting a graduated two-tier intervention protocol (enhanced monitoring at 3-3.5%; corrective action above 3.5%). Second, the CESI framework developed in this study should be formally incorporated into the CBU's supervisory toolkit as a mandatory quarterly monitoring instrument, enabling integrated cross-bank and time-series comparisons. Third, regulatory benchmark values should be established for the LDR ($\leq 150\%$), provision coverage ratio ($\geq 110\%$), and net interest margin ($\geq 3.5\%$), providing normative anchors for indicators that currently operate without defined thresholds. Implementation of these measures would materially strengthen the early-warning capacity of the supervisory architecture and bring the CBU's assessment framework into closer alignment with international best practice.

REFERENCES

- [1] Central Bank of the Republic of Uzbekistan, "Statistical Bulletin." [Online]. Available: <https://cbu.uz/en/statistics/buletten>. [Accessed: Jun. 2026].
- [2] International Monetary Fund, Financial Soundness Indicators Compilation Guide 2019. Washington, DC, USA: International Monetary Fund, 2019.

- [3] A. Demirgüç-Kunt, A. Pedraza, and C. Ruiz-Ortega, "Banking sector performance during the COVID-19 crisis," *Journal of Banking & Finance*, vol. 133, Art. no. 106305, 2021.
- [4] S. Claessens and M. A. Kose, *Financial Crises: Explanations, Types, and Implications*, IMF Working Paper WP/13/28. Washington, DC, USA: International Monetary Fund, 2013.
- [5] A. S. Usov, "Possibilities of different methodological approaches in assessment of economic security of the commercial bank," *Scientific Notes of the Russian Academy of Entrepreneurship*, vol. 20, no. 3, 2021.
- [6] C. McCaffrey and N. Poitiers, "Instruments of economic security," in *Paris Report 2: Europe's Economic Security*, vol. 1, J. Pisani-Ferry, B. Weder di Mauro, and J. Zettelmeyer, Eds. London, UK: Centre for Economic Policy Research, 2024, ch. 6.
- [7] S. Rodchenko, "Definitions of financial and economic security of the bank," 2018. doi: 10.35774/econa2018.04.155.
- [8] P. H. Albuquerque and W. Rajhi, "Banking stability, natural disasters, and state fragility: Panel VAR evidence from developing countries," *Research in International Business and Finance*, 2019.
- [9] O. A. Abdelsalam, M. O. Elnahass, and J. Williams, "Asset securitizations and bank stability: Evidence from different banking systems," *Global Finance Journal*, 2020.
- [10] M. Choudhry, *The Principles of Banking*, 2nd ed. Singapore: John Wiley & Sons, 2022.
- [11] V. Yu. Sutyagin, Y. Yu. Radyukova, M. V. Bessalov, and N. V. Sergeeva, "Financial factor for ensuring economic security of Russia," *Russian Journal of Industrial Economics*, vol. 12, no. 3, 2019.
- [12] B. Tabak, D. Fazio, K. C. de O. Paiva, and D. Cajueiro, "Financial stability and bank supervision," *Finance Research Letters*, vol. 18, pp. 322-327, 2016.
- [13] S. Lanets, "Financial stability of banks in times of crisis," *Baltic Journal of Economic Studies*, vol. 1, no. 1, 2015.
- [14] Sudarto, R. Adawiyah Wiwiek, Najmudin, and J. D. Purnomo, "The impact of ownership and financial stability on bank liquidity creation," *Studia Universitatis 'Vasile Goldis' Arad – Economics Series*, vol. 35, no. 1, pp. 30-48, 2025.
- [15] S. V. Khokhlova and I. Yu. Afanasyev, "Financial stability of banks: Traditional methods of the Central Bank against self-organizing Kohonen cards," *Entrepreneur's Guide*, vol. 19, no. 2, 2026.
- [16] A. Yangibayevich and A. Altinbekovna, "Methodology for ensuring economic security of commercial banks," *SAARJ Journal on Banking & Insurance Research*, 2022. doi: 10.5958/2319-1422.2022.00004.2.
- [17] V. Swamy, "Banking system resilience and financial stability: An evidence from Indian banking," MPRA Paper, University Library of Munich, Germany, 2013.
- [18] J. F. Sinkey, *Commercial Bank Financial Management in the Financial-Services Industry*, 6th ed. Upper Saddle River, NJ, USA: Prentice Hall, 2002.
- [19] L. A. Laeven and F. V. Valencia, "Systemic Banking Crises Database: A Timely Update in Covid-19 Times," CEPR Discussion Paper No. DP14569, Apr. 2020. [Online]. Available: <https://ssrn.com/abstract=3594190>.