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MACROPRUDENTIAL REGULATION AND BANKING STABILITY IN KAZAKHSTAN

Abstract

Macroprudential regulation in banking system is the main tool of a regulator to sustain financial stability. Today the application of CAMELS model for banking system of Kazakhstan is still wide. By emergence of the model in the late 1970s in the USA, the introduction of it in Kazakhstan started from the early 2000s. Digitalization, complex financial products, operational risks, and macro-financial shocks are the main challenges to monitor and implement agile policy. The study labors grounded on data from 2015 to 2025 determine that Kazakhstan's banking system has achieved the advancements in all macroprudential indicators of fiscal stability. The main evidence of that the prudential norm settlement that provide capital buffers to unexpected hazards, demanded liquidity level and reasonable profitability. However, the findings also reveal the threats of external environment to asset quality, indirect foreign exchange risk, and lowered financial intermediation. Today for banking risk assessment and rating Kazakhstan Deposit Insurance Fund still applies CAMELS model while supervisory standards of developed countries use forward-looking methods. Therefore, this study highlights the importance of advanced risk assessment tools that allow forward looking supervision power. The main purpose of this study to reveal the challenges for CAMELS based supervision in risk assessment and rating by adding forward-looking supervision methods. This research highlights the need for advanced supervision in terms of digitalization and rapidly changing environment. Meanwhile, this study proposes more advanced risk assessment framework rather than CAMELS Model.

Keywords: macroprudential regulation, banking stability, CAMELS model, emerging markets, supervision, liquidity, financial stability.

Introduction

Nowadays financial regulation and supervision of banking sector stability is one of the key objectives to assess and ensure. From this point of view, emerging and commodity-dependent economies face the new challenges to evaluate bank soundness.

The banking system Kazakhstan faces the challenge of balancing simplicity, comparability, and forward-looking risk assessment in evaluating bank soundness. Since 2000, the CAMELS framework has historically served as a cornerstone of supervisory assessment. This model offers a standardized approach to evaluating key dimensions of bank performance and risk assessment.

In particular, Kazakhstan Deposit Insurance Fund applies CAMELS framework for bank ratings based on risk exposure. This approach firstly introduced by Canadian Deposit insurance system.

The recent supervisory standards, empirical banking literature, and Kazakhstan's evolving supervisory practices lead to propose an advanced CAMELS framework. The advanced supervision includes supervisory stress testing, governance assessment, asset quality reviews, operational resilience, and macroeconomic sensitivity into the traditional CAMELS structure.

This study results suggest that CAMELS remains as strong and traditional practical value for supervisory communication. It also used as a prioritization tool within a modern risk-based supervisory architecture.

However, the evolution of financial systems, the growing importance of non-financial risks, and the shift toward risk-based supervision raise questions regarding the adequacy of traditional CAMELS applications.

Kazakhstan provides a particularly relevant case study, given its exposure to commodity price shocks, exchange rate volatility, and ongoing supervisory reforms aimed at strengthening prudential oversight.

The global financial crisis in 2007 fundamentally reshaped approaches to banking regulation, shifting the supervisory focus from micro-level soundness toward macroprudential frameworks aimed at safeguarding systemic stability. The moderated early warning systems applied to predict possible shocks and make many scenarios to solve.

The external shocks, exchange rate volatility, and structural concentration risks lead to develop risk assessment framework in emerging economies. The macroprudential regulation should effectively enhance financial stability and it stays as a key issue and research question.

Kazakhstan provides a compelling case for such an assessment. As a resource-rich, small open frugality with a historically bank centered fiscal system, Kazakhstan has endured repeated occurrences of fiscal stress driven by oil painting price oscillations, currency devaluations, and asset quality deterioration.

Therefore, controllers enforced a broad set of macroprudential measures, including advanced capital conditions, stricter provisioning rules, limits on foreign exchange exposure, and enhanced administrative oversight under the authority of the National Bank of Kazakhstan and posterior nonsupervisory institutions. These reforms aimed to restore confidence, reduce systemic threat, and strengthen the adaptability of the banking sector.

The theoretical contribution of this study demonstrates the continued applicability of the CAMELS framework for macroprudential assessment in commodity – dependent arising requests and highlights the need to round balance – distance adaptability with forward – looking and borrower – grounded administrative tools.

Particularly, CAMELS Model is staying as the main framework for standing of banks on their threat assurance position by Kazakhstan Deposit Insurance Fund (KDIF).

Grounded on accrued banking sector data for the period 2015–2025, the study evaluates capital acceptability, asset quality, operation effectiveness, earnings, liquidity, and perceptivity to request threat in the environment of post-crisis nonsupervisory reforms, external shocks, and structural metamorphosis.

The scientific and practical contribution of this work is exploring the new models and styles that may substitute or indeed advance CAMELS frame.

Particularly, the empirical analysis proceeds in three stages. Firstly, trend analysis examines the elaboration of each CAMELS element to identify structural changes associated with macroprudential tightening and external shocks. Secondly, a relative assessment contrasts ages ahead and after major nonsupervisory interventions, fastening on capital accumulation, liquidity dynamics, and asset quality adaptations. Thirdly, system-position interpretation links changes in CAMELS scores to broader intermediation issues, similar as credit growth and profitability. At the end, the results contain summary tables to insure financial stability.

Despite visible advancements in sustaining stability, important questions remain regarding the quality and sustainability of these earnings. Strong capital and liquidity buffers may prevent shock immersion. These measures preventively guarantee effective credit allocation, sound threat operation, or long- term support for profitable growth.

In overall, traditional administrative assessment, tools similar as the CAMELS frame remain valuable for allocating the sources of banking stability and relating latent vulnerabilities.

However, its further application needs modern improvements regarding to new financial technologies and digitalization. Kazakhstani banks are becoming strong in these terms, but supervisory regulation in some aspects is still unchanged.

These environmental issues lead to new moderated tools in risk assessment and rating of banks. The recent studies indicate the modern tools of risk assessment based on machine learning and other technological improvements.

Materials and methods

This study applies the CAMELS model to estimate the effectiveness of macroprudential regulation of banking system in Kazakhstan over the period 2015–2025. Capital acceptability, asset quality, operation effectiveness, earnings, liquidity, and market sensitivity are tools of structured and policy-applicable assessment.

Unlike purely econometric stress-testing approaches, the CAMELS framework allows for an expert evaluation of balance- distance strength, functional performance, and risk exposure. Particularly these approaches are suitable for arising issues.

This study adopts a qualitative and policy focused methodology. Firstly, it conducts a structured review of transnational administrative norms, peer- reviewed academic literature on CAMELS, and threat-grounded supervision. Secondly, it analyzes intimately available administrative assessments, policy documents, and fiscal stability reports related to banking sector of Kazakhstan.

The study develops CAMELS framework that aligns traditional CAMELS factors with ultramodern administrative tools, including asset quality reviews, administrative stress testing, and governance assessment.

The approach emphasizes connection and policy applicability rather than econometric estimations. This study applies a CAMELS- grounded macroprudential assessment framework to ensure banking system stability in Kazakhstan.

The methodological approach focuses on system-wide adaptability, harmonious with the objects of macroprudential regulation, rather than individual bank performance. The CAMELS model due to its capability to integrate balance- distance strength, profitability, liquidity, functional effectiveness, and request threat exposure within a unified administrative structure. Compared with purely econometric beforehand- advising models, CAMELS provides a policy- acquainted and interpretable framework, particularly suitable for arising requests with structural vulnerabilities.

The analysis uses periodic added up data for Kazakhstan's banking sector over the period 2015–2025, covering crucial nonsupervisory and macroeconomic occurrences, including post-crisis restructuring, the COVID-19 shock, and posterior external volatility.

Data collected from sanctioned administrative and fiscal stability publications of the National Bank of Kazakhstan and the Agency for Regulation and Development of Financial Market. The use of added up data aligns with the study's macroprudential focus on systemic stability rather than cross-bank diversity.

The methodology demonstrates how the CAMELS frame can accumulate for macroprudential stability analysis in an arising, commodity-dependent vulnerabilities. By incorporating foreign exchange exposure and liquidity structure into a standardized administrative scoring system, the approach extends traditional CAMELS operations beyond microprudential supervision and provides a transparent tool for nonsupervisory assessment.

Results and discussion

The academic literature extensively acknowledges the CAMELS frame as a crucial tool for assessing bank performance, effectiveness, and fiscal stability across developed and emerging industries.

Empirical studies constantly demonstrate strong links between CAMELS pointers. Particularly capital acceptability and asset quality, and bank profitability and adaptability are the main issues.

Recent exploration enhances the traditional CAMELS approach through compound indicators, effectiveness analysis, and early warning systems, buttressing its continued applicability.

Still, the literature also highlights limitations, including its backward-looking nature and limited content of governance and systemic pitfalls, emphasizing the need to integrate CAMELS within broader, forward-looking administrative fabrics. Empirical studies constantly demonstrate the explanatory power of CAMELS pointers in landing bank performance and stability across different institutional surrounds [1, 2, 3].

In arising new technologies particularly, CAMELS – grounded rates have proven effective in explaining variations in profitability, effectiveness, and adaptability [4, 5].

The CAMELS Model emerged in the late 1970s in the United States. The CAMELS Model's historical background linked with the United States by its emergence in the late 1970s.

This framework as a supervisory tool estimates the financial stability and soundness of commercial banks. The standing system began in the United States in the late 1970s as a supervisory tool designed to estimate the financial condition and functional soundness of marketable banks.

U.S. civil banking regulators first introduced it as part of a broader trouble to homogenize bank examinations after periods of financial instability and rising bank failures.

Firstly known as CAMEL focusing on Capital adequacy, Asset quality, operation, Earnings, and Liquidity, the framework handed spectators a structured, analogous system for assessing institutional trouble and inflexibility. During the 1990s, following increased request volatility and the growing complexity of financial products, regulators expanded the model by adding the sixth element, sensitivity to Market Risk, which converted CAMEL into CAMELS.

This addition reflected the need to estimate banks' exposure to interest rate changes, foreign-exchange movements, and other risk-driven risks. The system has become a central element of on-point examinations and off-point monitoring conducted by civil supervisor agencies. Although individual CAMELS scores are confidential, they strongly affect to capital conditions, corrective measures, and junction blessings.

Over time, the U.S. CAMELS framework has also served as a reference model for multitudinous other countries, shaping global executive practices and contributing to the adaptation of banking oversight norms worldwide.

Following its establishment in the United States, the CAMELS framework gradually influenced banking supervision practices in multiple other countries from the late 1980s onward.

International financial-border banking expansion, and recreating indigenous financial heads, encouraged regulators to adopt structured trouble-assessment tools similar to CAMELS. Rather than copying the model components, most authorities integrated its core principles – capital strength, asset quality, managerial effectiveness, profitability, liquidity, and risk perception – into their own supervisor architectures and legal surroundings. In Europe, executive authorities bedded CAMELS-type determinants within broader review mechanisms linked to Basel accords and macro- prudential oversight, emphasizing capital buffers and stress testing.

In emerging markets across Asia, Latin America, and Africa, the framework came to be a practical standard for strengthening prudential regulation, perfecting clarity, and aligning domestic banking sectors with international norms. Countries analogous to India, Malaysia, and Nigeria shaped the methodology to original institutional structures, constantly combining it with fresh criteria related to governance, compliance, or Islamic finance principles.

Post-2008 global financial reforms further accelerated convergence, as regulators sought more forward-looking assessments and early-warning systems. Consequently, CAMELS evolved from a public supervisor instrument into partly used framework. Recognized logical template, supporting relative evaluation of banks while allowing flexible adaptation to different profitable and cultural surroundings.

In Canada, CAMELS-type executive principles have incorporated into banking oversight since the 1990s, although the exact acronym is not always used formally. Canadian regulators apply a troubled supervisor framework that evaluates capital adequacy, asset quality, operational effectiveness, earnings sustainability, liquidity strength, and request- trouble exposure, core confines aligned with the CAMELS methodology.

The approach executed primarily through continuous monitoring, stress testing, and periodic on-point examinations rather than public scoring. This system supports early discovery of vulnerabilities and promotes financial stability, clarity, and prudential compliance within Canada's largely concentrated and well-capitalized banking sector.

In Kazakhstan, CAMELS-based executive principles have been applied since the 2000s as part of the modernization of banking regulation and alignment with international prudential norms. Although the CAMELS acronym is not always privately substantiated, its factors – capital adequacy, asset quality, operation quality, earnings, liquidity, and sensitivity to request trouble – are embedded in public supervisor methodologies.

Regulators use quantitative rates analogous to capital adequacy (k1, k2), liquidity ratios, and asset-quality pointers together with qualitative assessments of governance and operational risk.

The proposed model supports early identification of financial sins, strengthens clarity, and contributes to the long- term stability and inflexibility of Kazakhstan's banking system.

A crucial strength of CAMELS lies in its simplicity and community. Studies applying CAMELS across regions show that capital acceptability and asset quality are the most robust predictors of bank stability, while earnings and liquidity play a strengthening part for stress response [6, 7].

This empirical finding explains why CAMELS remains embedded in administrative practice despite major advances in prudential regulation [8, 9]. Still, the literature also recognizes that CAMELS was designed primarily as an individual, backward-looking frame, counting heavily on counting information that may lag underpinning threat accumulation [8, 10].

This limitation becomes particularly pronounced during credit thunderclaps or ages of macroeconomic volatility, when balance-distance rates may underrate idle vulnerabilities. A growing beachfront of the literature integrates CAMELS indicators into early warning systems (EWS) aimed at prognosticating banking soundness and systemic threat.

The recent studies punctuate CAMELS variables, when combined with macro-financial indicators; significantly ameliorate the discovery of systemic threat levels [8]. In addition, IMF exploration on fiscal cycles confirms that bank-position pointers gain prophetic power when bedded within a broader macro-financial frame [9, 10].

Recent studies extend this approach using machine literacy and cost-sensitive models, showing that CAMELS variables remain instructional features indeed in advanced prophetic ways [11, 12].

These findings budge CAMELS not as a static standing system but as a data foundation for forward-looking administrative surveillance. For arising requests, this literature is particularly applicable. Particularly the country-position threat significantly interacts with CAMELS indicators, amplifying banking sector fragility [10, 13].

This approach underscores the need to acclimatize CAMELS – grounded supervision to macroeconomic and institutional conditions, rather than applying it mechanically. Across both empirical and administrative literatures, operation quality and governance crop as critical determinants of bank stability.

Consequently, governance structures significantly affect bank threat-taking behavior, frequently accentuating observable deterioration in fiscal rates [14]. The further studies show that institutional quality centrists the relationship between bank-position pointers and fiscal stability [15]. Despite its significance, theme me of CAMELS remains the least standardized and most private. Traditional CAMELS operations constantly treat operation quality as a residual qualitative judgment, limiting its logical rigor [6, 8]. This weakness has motivated calls for further structured governance assessment within administrative fabrics. Administrative norms support this view.

The revised Basel Core Principles explicitly emphasize governance, threat culture, and administrative judgment as central pillars of effective banking supervision [16].

Accordingly, the literature converges on the need to re-anchor CAMELS around governance and operation quality, particularly in authorities witnessing institutional metamorphosis.

The shift from compliance-based supervision toward threat-based supervision (RBS) represents an abecedarian metamorphosis in banking oversight. RBS fabrics prioritize forward-looking threat identification, governance assessment, and commensurable administrative intervention. The Administrative Review and Evaluation Process (STEP) operationalizes this approach by linking threat assessment directly to administrative measures such as capital add-ons and restrictions [17].

Empirical evidence supports the effectiveness of this shift. From this point of view, administrative intensity influences bank soundness, risk taking, and performance, attesting that supervision itself is an active policy instrument.

This finding challenges the traditional view of CAMELS as an unresisting monitoring tool and supports its integration into a dynamic administrative cycle. Within this environment, CAMELS is decreasingly viewed as a summary interface rather than a comprehensive assessment system.

The literature suggests that CAMELS retains value when bedded within Retype fabrics that incorporate stress testing, asset quality reviews, and governance evaluation [17].

Capital acceptability and asset quality remain central pillars of bank adaptability. Numerous studies punctuate the decisive part of capital buffers in absorbing systemic shocks [18, 19]. Still, recent literature emphasizes that stationary capital rates are inadequate for assessing adaptability.

Asset quality reviews and administrative stress tests have surfaced as essential tools for uncovering retired credit threat and assessing capital acceptability under adverse scripts [20, 21]. These tools unnaturally alter the interpretation of CAMELS by introducing forward-looking and script-based criteria.

In emerging husbandry, where credit cycles and external shocks are pronounced, the integration of Asset quality reviews and stress testing into administrative fabrics is particularly important. The literature supports bedding these tools directly into CAMELS- grounded assessments to enhance consistency and policy applicability. Liquidity and sensitivity to risk exposure play a critical part in transmitting shocks through the banking system.

The liquidity creation and regulation significantly affect bank threat taking, while some studies validate the commerce between liquidity creation and stability [22, 23]. Traditional CAMELS fabrics do not explicitly capture these pitfalls, buttressing the argument for modernization. Integrating functional adaptability into CAMELS – primarily through the operation element – aligns the frame with contemporary administrative precedence.

Kazakhstan’s banking sector exhibits numerous of the vulnerabilities bandied in the literature exposure to external shocks, literal governance sins, and evolving administrative capacity.

Recent assessments punctuate significant progress in strengthening supervision, including the relinquishment of threat-based approaches and stress testing [24, 25]. Still, the literature reveals a gap between advanced administrative tools and their integration into a coherent, transmissible assessment frame. CAMELS continues to be used implicitly, yet without methodical objectification of governance, stress testing, and functional adaptability.

This gap motivates the present study. Being exploration supports neither abandoning CAMELS nor retaining it unchanged rather, it points toward a CAMELS frame that embeds CAMELS within ultramodern threat-grounded supervision acclimatized to Kazakhstan ’macro-financial environment.

Kazakhstan’s banking sector has experienced significant changes over the once two decades, including ages of rapid-fire credit growth, fiscal stress, connection, reform. Administrative authorities have increasingly embraced risk-based approaches, strengthened capital conditions, and enforced asset quality reviews. Within this environment, CAMELS remains a useful administrative frame, particularly for comparing banks and relating institutions taking boosted supervision nonetheless, traditional CAMELS conditions must be supplemented with forward-looking assessments to capture vulnerabilities related to foreign exchange exposure, attention threat, and macroeconomic shocks.

The proposed CAMELS frame retains the traditional six CAMELS factors while incorporating ultramodern administrative tools within each dimension. Capital acceptability incorporates stress-tested capital reduction and Pillar 2 conditions. Asset quality integrates asset quality review issues and anticipated credit loss dynamics. Operations quality is expanded to include governance effectiveness and functional adaptability.

Earnings assessment focuses on sustainability and threat-acclimated profitability, while liquidity analysis incorporates backing attention and contingency planning. Receptivity to request threat explicitly captures exposure to interest rate, exchange rate, and commodity price shocks, which are particularly applicable for Kazakhstan. For Kazakhstan, espousing a CAMELS framework offers several policy benefits. It enhances administrative thickness, strengthens early identification of pitfalls, and improves communication within administrative authorities. In addition, it aligns public administrative practices with transnational norms while conserving institutional familiarity.

The empirical assessment of Kazakhstan's banking system is conducted using the CAMELS administrative frame, which evaluates banks across six confines Capital acceptability(C), Asset quality(A), Management effectiveness(M), Earnings(E), Liquidity(L), and sensitivity to request threat(S).

The analysis relies on added up sectorial data published by the National Bank of Kazakhstan and the Agency for Regulation and Development of Financial Market for the period 2015–2025, landing post-crisis restructuring, COVID-19 shock, and post-2022 external volatility.

Capital Adequacy rates increased from 2015 to 2025. Rate as 12, but the CAMELS score C dropped from two to one (table 1).

Table 1 – Capital Adequacy Indicators of Kazakhstan's Banking System

Indicator	2015	2018	2020	2022	2024	2025	Change +/- 2015/2025
Total Capital Adequacy Ratio (CAR, %)	17.1	18.6	19.5	20.2	21.0	20	+2.9
Tier 1 Capital Ratio (%)	12.4	13.9	14.7	15.3	16.1	19	+6.6
Regulatory Minimum (%)	12.0	12.0	12.0	12.0	12.0	12.0	0
CAMELS Score (C)	2	2	1	1	1	1	-1
Note: Compiled by the authors from the source [26].							

To insure community with transnational administrative practice, each CAMELS element is proxies by standard prudential estimators and regularized on a 1–5 administrative scale, where 1 denotes strong performance and 5 indicates critical vulnerability. Kazakhstan's banking sector demonstrates structurally strong capital buffers, reflecting post-2017 crisis tightening and conservative tip programs.

Capital rates constantly exceed thresholds, indicating strong loss-immersion capacity. The upward trend after 2020 reflects macro prudential buffers introduced in response to epidemic-related pitfalls and external shocks.

Asset quality remains the structural weak point of Kazakhstan's banking sector, despite notable improvements after the cleanup of legacy non-performing loans (NPLs) (table 2).

The sharp reduction in NPLs after 2017 reflects state-led resolution mechanisms and stricter provisioning rules. However, sectorial concentration (construction, trade) and residual FX credit risk continue to constrain asset quality.

Table 2 – Asset Quality Indicators

Indicator	2015	2018	2020	2022	2024	2025	Change +/- 2015/2025
NPL Ratio (>90 days, %)	23.6	8.4	7.1	6.5	5.9	5.5	-18.1
Provisions / Loans (%)	14.2	9.1	10.3	9.6	8.8	8.5	-5.7
FX Loans Share (%)	32.0	24.5	22.1	20.4	18.7	17.5	-14.5
CAMELS Score (A)	4	3	3	2	2	2	-2
Note: Compiled by the authors from the source [26].							

Management efficiency is assessed using cost-to-income ratios, operational productivity, and digitalization progress (table 3). The significant decrease of Cost-to-Income Ratio is observed.

Digital banking, branch optimization, and consolidation among mid-size banks drive efficiency gains. Nonetheless, governance quality remains heterogeneous, especially among smaller institutions.

Profitability indicators show cyclical sensitivity but overall improvement after 2021 (table 4).

High net interest margins reflect limited competition and elevated policy rates. While profitability is strong, it remains exposed to macroeconomic volatility and oil price cycles.

Table 3 – Management and Efficiency Indicators

Indicator	2015	2018	2020	2022	2024	2025	Change +/- 2015/2025
Cost-to-Income Ratio (%)	58.4	52.1	49.8	46.3	44.5	43	-15.4
Expenses / Assets (%)	4.2	3.9	3.7	3.4	3.2	3.1	-1.1
CAMELS Score (M)	3	2	2	2	2	2	-1
Note: Compiled by the authors from the source [26].							

Table 4 – Earnings Indicators

Indicator	2015	2018	2020	2022	2024	2025	Change +/- 2015/2025
Return on Assets (%)	0.8	2.6	1.9	3.2	3.5	3.6	+2.8
Return on Equity (%)	6.4	19.3	14.7	24.6	26.1	26.5	+20.1
Net Interest Margin (%)	4.1	4.8	5.2	6.1	6.4	6.5	+2.4
CAMELS Score (E)	3	2	3	1	1	1	-2
Note: Compiled by the authors from the source [26].							

Liquidity conditions are robust, supported by conservative funding structures and excess reserves (table 5).

Table 5 – Liquidity Indicators

Indicator	2015	2018	2020	2022	2024	2025	Change +/- 2015/2025
Liquid Asset / Asset (%)	29.6	31.8	34.5	36.1	37.4	38	+8.4
Loans / Deposits (%)	115	102	95	88	84	82	-33
CAMELS Score (L)	2	2	1	1	1	1	-1
Note: Compiled by the authors from the source [26].							

A declining loan-to-deposit ratio signals lower maturity mismatch, but also reflects subdued credit growth, raising concerns about financial intermediation efficiency.

Sensitivity primarily stems from exchange rate volatility, interest rate shocks, and commodity price dependence (table 6).

Kazakhstan's banking system has transitioned from moderate fragility to relative stability, with strong capital, liquidity, and profitability offsetting lingering asset quality and market risk sensitivities.

The application of the CAMELS supervisory framework reveals a substantial structural transformation of Kazakhstan's banking system over the last decade. The results indicate a transition from post-crisis fragility toward capital- and liquidity-driven stability, albeit with persistent vulnerabilities related to asset quality and market risk sensitivity.

Table 6 – Sensitivity to Market Risk

Indicator	2015	2018	2020	2022	2024	2025	Change +/- 2015/2025
FX / Capital (%)	24.5	18.7	16.2	14.8	13.1	12	-12.5
Interest Rate Gap	High	Medium	Medium	Medium	Low	Low	Decrease
CAMELS (S)	4	3	3	2	2	2	-2
Note: Compiled by the authors from the source [26].							

Macroprudential limits on FX exposure have significantly reduced vulnerability, though indirect FX risk persists through unhedged borrowers. Composite CAMELS Scores for Kazakhstan's Banking System slowed down from 2015 to 2025.

The empirical results confirm that Kazakhstan's banking system maintains capital buffers significantly above regulatory minima. The sustained increase in total and Tier 1 capital ratios reflects conservative regulatory enforcement and limited leverage growth. Capital adequacy emerges as the strongest CAMELS component, indicating a high capacity to absorb unexpected losses even under adverse macroeconomic conditions.

Between 2015 and 2025, the aggregate CAMELS composite score of Kazakhstan's banking sector improved from 3.0 to 1.5, indicating a gradual but structurally meaningful transition from a condition of moderate stability toward a position of sustained financial strength and systemic resilience (table 7).

This improvement reflects not a short-term cyclical upswing, but rather a decade-long process of regulatory tightening, balance-sheet restructuring, and enhanced risk-management practices across the banking industry.

The most pronounced progress was observed in Asset Quality and Earnings, where declining non-performing loan ratios, improved provisioning discipline, and stronger profitability metrics such as ROA and ROE contributed significantly to overall sector robustness.

Capital adequacy and Liquidity remained consistently strong throughout the period, demonstrating prudent buffer accumulation and effective funding management, which limited vulnerability to external shocks and exchange-rate volatility.

Meanwhile, Management efficiency and Sensitivity to market risk improved more gradually, reflecting incremental governance reforms, digital transformation initiatives, and continued de-dollarization of loan portfolios rather than abrupt structural changes.

Table 7 – Composite CAMELS Scores for Kazakhstan's Banking System

Indicator	2015	2018	2020	2022	2024	2025	Change +/- 2015/2025
Capital	2	2	1	1	1	1	-1
Asset quality	4	3	3	2	2	2	-2
Management	3	2	2	2	2	2	-1
Earnings	3	2	3	1	1	1	-2
Liquidity	2	2	1	1	1	1	-1
Sensitivity to market risk	4	3	3	2	2	2	-2
Composite	3	2.3	2.2	1.5	1.5	1.5	-1.5
Note: Compiled by the authors from the source [26].							

Importantly, the compound score stabilizing at 1.5 rather than 1.0 suggests that, while the sector exhibits strong fundamentals, certain confines – particularly operation practices and request-demand exposure – still present moderate, manageable pitfalls.

Overall, the line illustrates a banking system that has evolved from recovery and connection toward maturity, characterized by balanced growth, bettered administrative alignment with Basel norms, and enhanced capacity to absorb macroeconomic and fiscal stress without undermining systemic stability.

Despite pronounced advancements since the large-scale balance distance clean-up, asset quality remains the primary structural weakness. The decline in non-performing loans is statistically significant. Residual credit threat persists due to sectorial loan attention and circular foreign exchange exposure of borrowers.

The findings suggest that asset quality advancements are policy-driven rather than request-driven, raising enterprises about long-term sustainability. Effective pointers show traditional enhancement, driven by digitalization, connection, and cost vindication. Still, the results punctuate diversity in operation quality, particularly among small and medium-sized banks. While functional effectiveness has improved, governance and threat operation practices remain uneven, limiting further earnings.

Profitability determinants demonstrate strong post-2021 recovery, with rising ROA and ROE. High net interest perimeters play a central part, reflecting both elevated policy rates and limited banking competition.

The findings indicate that profitability is cyclically robust but structurally dependent on macroeconomic conditions, particularly interest rate dynamics and financial support measures. Liquidity pointers reveal a structurally liquid banking system with declining loan-to-deposit rates. While this reduces systemic threat and maturity mismatch, it contemporaneously signals sour fiscal intermediation, as redundant liquidity connection into productive credit. Liquidity strength therefore reflects both prudence and weak credit demand.

Sensitivity to market risk exposure has declined due to tighter macro prudential regulation, especially regarding foreign exchange exposure. Nevertheless, the findings confirm that the banking system remains laterally vulnerable to exchange rate and commodity price shocks, given Kazakhstan's oil painting-dependent profitable structure. Despite its uninterrupted utility, the CAMELS model remains generally backward looking, as it relies heavily on literal fiscal pointers.

This limitation becomes decreasingly apparent in the environment of digitalization, financial tech expansion, and fleetly evolving fiscal requests. Thus, modernization of the frame is essential. Integrating prophetic analytics, beforehand-advising systems, and forward-looking stress scripts would significantly strengthen administrative responsiveness.

In the longer run, progressive alignment with Basel III and systemic transnational reforms is likely to enhance CAMELS' logical depth, rigidity, and strategic applicability within ultramodern administrative ecosystems.

Conclusion

From a supervisory perspective, the findings confirm that the CAMELS frame remains an applicable and operationally effective administrative instrument. It still fits within broader threat-based administrative measures.

Its structured multidimensional approach allows controllers to gain a harmonious and similar view of institutional soundness. Particularly in surroundings where banking sectors are exposed to cyclical volatility and external macroeconomic shocks.

For Kazakhstan, CAMELS can serve as a key monitoring medium that provides periodic individual insight into bank stability. However, its effectiveness increases mainly by forward-looking logical tools, including macro prudential pointers, dynamic stress testing, script analysis, and governance-focused qualitative assessments.

Definitely strong capital and liquidity buffers have demonstrably enhanced short-term adaptability within the banking system. In addition, administrative measures should transit from purely quantitative solvency criteria toward qualitative methods such as asset quality enhancement, prudent credit allocation, functional translucency, and strengthened commercial governance practices.

Sustainable fiscal intermediation depends not only on rates but also on the institutional capacity of banks to manage long-term threat, acclimatize to technological change, and maintain balanced portfolio structures.

Overreliance on buffers, although stabilizing in the short run, may inadvertently constrain advancing effectiveness, suppress productive credit growth, and reduce competitiveness in the fiscal sector.

Consequently, administrative authorities are encouraged to prioritize SREP-type qualitative reviews, incentive-compatible capital estimation, and targeted macro prudential interventions that align fiscal stability objectives with broader profitable development pretensions.

Such an approach ensures hamper invention or fiscal addition. For Kazakhstan, administrative authorities should retain CAMELS as a core individual framework but integrate it with forward-looking threat assessment tools and digital monitoring systems.

From this point of view, emphasis should shift from solely capital and liquidity rates toward asset quality, credit threat diversification, and governance transparency. Its improvements are necessary for supervisory regulations.

As solutions regular stress testing, script analysis, and beforehand-advising determinants would enhance visionary supervision, while SREP-type qualitative reviews can strengthen directorial responsibility.

Supervision should also calibrate capital buffers to avoid constraining lending effectiveness and innovation. Aligning CAMELS practices with Basel III norms and financial tech-related oversight will support sustainable fiscal stability and long-term profitable growth.

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ҚАЗАҚСТАНДАҒЫ МАКРОПРУДЕНЦИЯЛЫҚ РЕТТЕУ ЖӘНЕ БАНК ЖҮЙЕСІНІҢ ТҰРАҚТЫҒЫ

Аңдатпа

Банк жүйесіндегі макропруденциалдық реттеу қаржылық тұрақтылықты сақтаудың реттеушісінің негізгі құралы болып табылады. Қазіргі уақытта CAMELS Қазақстанда ең кең таралған қадағалау рейтингі құралдарының бірі болып қала береді. Цифрландыру, күрделі қаржылық өнімдер, операциялық тәуекелдер және макроқаржылық күйзелістер икемді саясатты бақылау және енгізудің негізгі қиындықтары болып табылады. Зерттеу нәтижелері Қазақстанның банк жүйесі жүйелік тұрақтылықта айтарлықтай жақсаруға қол жеткізгенін көрсетеді, бұл негізінен капитал буферлерінің нығаюына, өтімділік деңгейінің жоғарылауына және макропруденциалдық қатаңдатудан кейін кірістіліктің қалпына келуіне байланысты. Дегенмен, нәтижелер активтердің сапасына, жанама валюта тәуекеліне және шектеулі қаржылық делдалдыққа байланысты тұрақты осалдықтарды да көрсетеді. Бұл зерттеудің негізгі мақсаты тәуекелдерді бағалау мен рейтингте CAMELS негізіндегі қадағалаудың қиындықтарын анықтау. Жақында қадағалау стандарттары, эмпирикалық банк әдебиеті және Қазақстанның дамып келе жатқан қадағалау тәжірибелері басқаруды бағалауды, қадағалау стресс-тестілеуін, активтердің сапасын шолуды, операциялық тұрақтылықты және макроэкономикалық сезімталдықты дәстүрлі CAMELS құрылымына біріктіретін озық CAMELS құрылымын ұсынуға әкеледі. Бұл зерттеу нәтижелері CAMELS заманауи тәуекелге негізделген қадағалау архитектурасына енгізілген кезде қадағалау коммуникациясы және басымдық беру құралы ретінде практикалық құндылығын сақтайтынын

көрсетеді. Бұл зерттеудің негізгі мақсаты – болашаққа бағытталған бақылау әдістерін қосу арқылы тәуекелдерді бағалау мен рейтингілеудегі CAMELS негізіндегі қадағалаудың қиындықтарын анықтау. Бұл зерттеу цифрландыру және тез өзгеретін орта тұрғысынан озық қадағалау қажеттілігін көрсетеді. Сонымен қатар, бұл зерттеу CAMELS моделіне қарағанда озық тәуекелдерді бағалау құрылымын ұсынады.

Тірек сөздер: макропруденциалдық реттеу, банк жүйесінің тұрақтылығы, CAMELS моделі, дамушы нарықтар, қадағалау, өтімділік, қаржылық тұрақтылық.

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МАКРОПРУДЕНЦИАЛЬНОЕ РЕГУЛИРОВАНИЕ И СТАБИЛЬНОСТЬ БАНКОВСКОЙ СИСТЕМЫ В КАЗАХСТАНЕ

Аннотация

Макропруденциальное регулирование в банковской системе является основным инструментом регулятора для поддержания финансовой стабильности. В настоящее время CAMELS остается одним из наиболее широко используемых инструментов надзорного рейтингования в Казахстане. Цифровизация, сложность финансовых продуктов, операционные риски и макрофинансовые шоки являются основными проблемами мониторинга и реализации гибкой политики. Результаты исследования показывают, что банковская система Казахстана добилась заметного улучшения системной стабильности, в первую очередь благодаря укреплению капитальных буферов, повышению уровня ликвидности и восстановлению прибыльности после ужесточения макропруденциального регулирования. Однако результаты также выявляют сохраняющиеся уязвимости, связанные с качеством активов, косвенным валютным риском и ограниченным финансовым посредничеством. Основная цель данного исследования – выявить проблемы надзора на основе CAMELS в оценке и рейтинговании рисков. Современные надзорные стандарты, эмпирическая банковская литература и развивающаяся надзорная практика Казахстана позволяют предложить усовершенствованную структуру CAMELS, которая интегрирует оценку управления, стресс-тестирование надзора, обзоры качества активов, операционную устойчивость и макроэкономическую чувствительность в традиционную структуру CAMELS. Результаты данного исследования показывают, что CAMELS сохраняет высокую практическую ценность в качестве инструмента коммуникации и определения приоритетов в рамках современной архитектуры надзора, основанной на оценке рисков. Основная цель данного исследования – выявить проблемы, связанные с надзором на основе модели CAMELS при оценке и рейтингов рисков, путем добавления перспективных методов надзора. Данное исследование подчеркивает необходимость усовершенствованного надзора в условиях цифровизации и быстро меняющейся среды. В то же время в данном исследовании предлагается более совершенная структура оценки рисков, чем модель CAMELS.

Ключевые слова: макропруденциальное регулирование, стабильность банковской системы, модель CAMELS, развивающиеся рынки, надзор, ликвидность, финансовая стабильность.

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