



IMPROVING MODERN METHODS FOR ASSESSING ASSET QUALITY IN COMMERCIAL BANKS

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Annotatsiya: Ushbu maqolada tijorat banklarida aktivlar sifatini baholashning zamonaviy yondashuvlari ko'rib chiqilgan va ularni qo'llashni takomillashtirish bo'yicha uslubiy tavsiyalar ishlab chiqilgan. Kredit riskini baholash, muammoli kreditlar, kutilayotgan kredit yo'qotishlari, ichki reyting tizimlari, stress-test va istiqbolli tahliliy modellarga alohida e'tibor qaratilgan. Tadqiqot O'zbekiston bank sektorining hozirgi holatini tahlil qiladi va aktivlar sifatiga ta'sir qiluvchi asosiy omillarni aniqlaydi. An'anaviy moliyaviy ko'rsatkichlarni defolt ehtimoli, defolt holatidagi zarar, defolt ta'siri, makroiqtisodiy o'zgaruvchilar va ssenariy tahlili bilan birlashtiruvchi uslubiy asos taklif etilgan. Natijalar shuni ko'rsatadiki, retrospektiv baholashdan dinamik va istiqbolli yondashuvlarga o'tish kredit risklarini aniqlashning aniqligini oshirishi va tijorat banklarining moliyaviy barqarorligini mustahkamlashi mumkin.

Kalit so'zlar: tijorat banklari, aktivlar sifati, kredit riski, muammoli kreditlar, kutilayotgan kredit yo'qotishlari, MHXS 9, PD, LGD, EAD, stress-test, kredit reytingi, moliyaviy barqarorlik.

Abstract: This article examines modern approaches to assessing asset quality in commercial banks and develops methodological recommendations for improving their application. Particular attention is paid to credit risk assessment, non-performing loans, expected credit losses, internal rating systems, stress testing, and forward-looking analytical models. The study analyzes the current condition of the banking sector of Uzbekistan and identifies the main factors affecting asset quality. A methodological framework integrating traditional financial indicators with probability of default, loss given default, exposure at default, macroeconomic variables, and scenario analysis is proposed. The results demonstrate that the transition from retrospective assessment toward dynamic and forward-looking approaches can improve the accuracy of credit risk identification and strengthen the financial stability of commercial banks.

Keywords: commercial banks, asset quality, credit risk, non-performing loans, expected credit losses, IFRS 9, PD, LGD, EAD, stress testing, credit scoring, financial stability.

Абстрактный: В данной статье рассматриваются современные подходы к оценке качества активов в коммерческих банках и разрабатываются методические рекомендации по совершенствованию их применения. Особое внимание уделяется оценке кредитных рисков, проблемным кредитам, ожидаемым кредитным убыткам, внутренним рейтинговым системам, стресс-тестированию и перспективным аналитическим моделям. В исследовании анализируется текущее состояние банковского сектора Узбекистана и выявляются основные факторы, влияющие на качество активов. Предложена методологическая основа, интегрирующая традиционные финансовые показатели с вероятностью дефолта, убытками при дефолте, риском дефолта, макроэкономическими переменными и анализом сценариев. Результаты показывают, что переход от ретроспективной оценки к динамичным и перспективным подходам может повысить точность идентификации кредитных рисков и укрепить финансовую устойчивость коммерческих банков.

Ключевые слова: коммерческие банки, качество активов, кредитный риск, неработающие кредиты, ожидаемые кредитные потери, МСФО (IFRS) 9, PD, LGD, EAD, стресс-тестирование, кредитный рейтинг, финансовая устойчивость.

Introduction (Kirish/Vvedenie).

Asset quality is one of the fundamental indicators determining the financial stability and risk profile of commercial banks [3; 4]. Since lending represents a major component of banking assets, the quality of the loan portfolio directly influences profitability, liquidity, capital adequacy, and the ability of banks to withstand financial shocks [3; 4].

Traditional approaches to asset quality assessment are generally based on historical indicators such as the ratio of non-performing loans (NPLs), overdue loans, loan-loss provisions, and the concentration of credit exposures [4; 10]. Although these indicators remain important, they may not fully capture emerging risks because they are often based on information about credit deterioration that has already occurred [3].

Modern banking supervision increasingly emphasizes forward-looking credit risk assessment [3]. IFRS 9 introduced an expected credit loss (ECL) framework in which banks incorporate information about past events, current conditions, and reasonable and supportable forecasts when measuring credit losses [1; 2].

The development of modern methods is particularly relevant for Uzbekistan's banking sector. According to the Central Bank of Uzbekistan, as of December 1, 2025, total banking-sector assets amounted

to 892.9 trillion UZS, while total loans reached 595.3 trillion UZS. State-owned banks accounted for 65% of total assets and 68% of total loans [6].

At the same time, the Central Bank's financial stability report indicates that non-performing loans declined during 2025, contributing to the strengthening of banking-sector resilience [8].

Therefore, improving the methodology for assessing asset quality is important not only for identifying existing problem assets but also for predicting potential deterioration in credit portfolios [3; 8].

Literature review (Mavzuga oid adabiyotlar tahlili/O'zroq literaturasi).

The theoretical foundations of bank asset quality assessment are closely related to credit risk management. The Basel Committee emphasizes that effective credit risk management should cover both individual exposures and the overall credit portfolio and should include sound credit-granting processes, effective monitoring, and appropriate internal controls [3]. These principles form an important methodological basis for assessing the quality and risk profile of bank assets.

The introduction of the expected credit loss (ECL) model under IFRS 9 significantly changed the methodology of credit-risk assessment. IFRS 9 requires expected credit losses to be measured using an unbiased and probability-weighted assessment that considers the time value of money

and reasonable and supportable information about past events, current conditions, and forecasts of future economic conditions [1]. Therefore, modern asset-quality assessment increasingly incorporates forward-looking information rather than relying exclusively on historical indicators.

The development of credit-risk models has also strengthened the role of quantitative risk parameters. The Basel framework identifies probability of default (PD), loss given default (LGD), and exposure at default (EAD) as important components of internal credit-risk assessment [4]. The application of these parameters makes it possible to estimate expected losses at the level of individual borrowers and credit portfolios.

Basel Committee guidance further indicates that banks may apply different methodologies for estimating expected credit losses, including loss-rate approaches and PD/LGD-based models, depending on the characteristics of particular exposures or portfolios [2]. The quality of such models depends on the reliability of historical data, internal ratings, assumptions, collateral information, and forward-looking economic forecasts.

Another important methodological direction is stress testing. Stress testing enables banks to assess the potential impact of adverse changes in macroeconomic conditions on borrowers' repayment capacity and portfolio quality. Macroeconomic variables such as GDP growth, unemployment, interest rates, inflation, exchange rates, and other relevant indicators can therefore be incorporated into forward-looking credit-risk models [1; 2].

Recent international supervisory guidance also emphasizes that ECL methodologies should be supported by relevant data, documented assumptions, regular model validation, and appropriate monitoring procedures [2]. Consequently, contemporary approaches to asset-quality assessment are increasingly based on the integration of traditional accounting indicators, quantitative credit-risk parameters, macroeconomic forecasting, and scenario analysis.

The literature review demonstrates that there is a methodological shift from predominantly retrospective assessment toward integrated and forward-looking approaches. This creates a basis for developing an asset-quality assessment methodology adapted to the specific characteristics of Uzbekistan's banking sector.

Research Methodology (Tadqiqot metodologiyasi/Методы).

The study applies a combination of comparative, analytical, statistical, and systemic approaches to examine modern methods of commercial-bank asset quality assessment.

The research is based on the following methodological sequence:

Traditional indicators → credit-risk classification → PD/LGD/EAD assessment → ECL calculation → macroeconomic adjustment → stress testing → integrated asset-quality assessment.

The main indicators used in the proposed methodology include:

1. Non-performing loan ratio;
2. Loan-loss coverage ratio;
3. Probability of default;
4. Loss given default;
5. Exposure at default;
6. Expected credit loss;
7. Loan concentration ratio;
8. Collateral coverage ratio;
9. Stress-test sensitivity;
10. Sectoral and geographical credit concentration.

The proposed methodology is designed to move from a purely retrospective assessment of asset quality toward a more comprehensive forward-looking model [1; 3; 4].

Results and Discussion (Tahlil va natijalarlar/Анализ и результаты). Current condition of the banking sector

The scale of the Uzbek banking sector demonstrates the importance of systematic asset-quality assessment. Official Central Bank data show that by December 1, 2025, banking-sector assets reached 892.9 trillion UZS and the loan portfolio reached 595.3 trillion UZS.

Table 1.

Major Indicators of Uzbekistan's Banking Sector

Indicator	Value as of Dec. 1, 2025
Total banking-sector assets, trillion UZS	892.9
Total loans, trillion UZS	595.3
Total regulatory capital, trillion UZS	133.1
Total deposits, trillion UZS	391.0
State-owned banks' share of assets	65%
State-owned banks' share of loans	68%

The data indicate that loans represent approximately two-thirds of total banking-sector assets. Therefore, systematic monitoring of loan quality remains a central element of overall asset-quality management [6].

The concentration of assets and loans in state-owned banks also indicates the importance of differentiated assessment methods that consider the business model, borrower structure, sectoral exposure, and risk profile of individual banks [6; 8].

Non-performing loans as a traditional asset-quality indicator

NPLs remain one of the most widely used indicators of banking-sector asset quality [7; 10]. According to the Central Bank, as of January 1, 2025, total commercial-bank loans amounted to 533.1 trillion UZS, while NPLs amounted to 21.2 trillion UZS, corresponding to an NPL ratio of 4.0% [7].

However, an NPL ratio alone cannot provide a complete assessment of asset quality. A bank may have a relatively low current NPL ratio while simultaneously experiencing a significant increase in loans migrating toward higher-risk categories [3; 10].

Therefore, modern assessment should combine the NPL ratio with early-warning indicators [3; 10].

Table 2.

Comparative Framework for Modern Asset-Quality Assessment

Assessment method	Main indicator	Information orientation	Main advantage
NPL analysis	NPL ratio	Retrospective	Simple and transparent
Provision analysis	Coverage ratio	Current	Shows loss absorption capacity
Credit scoring	Borrower risk score	Current/forward-looking	Supports individual credit decisions
PD/LGD/EAD model	Expected loss	Forward-looking	Quantifies credit risk
IFRS 9 ECL model	Expected credit loss	Forward-looking	Incorporates probability-weighted losses
Stress testing	Loss under adverse scenarios	Forward-looking	Identifies vulnerability to shocks
Portfolio concentration analysis	Sector/borrower concentration	Structural	Identifies concentration risk
Early-warning system	Risk migration indicators	Predictive	Enables early intervention

The table demonstrates that no single indicator is sufficient to assess asset quality comprehensively. An integrated approach provides a more complete picture because it combines historical, current, and forward-looking information.

Proposed integrated methodology

Based on the analysis, an integrated asset-quality assessment model can be proposed:

Stage 1 — Portfolio segmentation.

Loans are divided by product, sector, borrower type, geographical location, collateral, maturity, and risk characteristics.

Stage 2 — Borrower risk assessment.

Financial ratios, repayment history, cash flows, credit history, collateral, and qualitative factors are incorporated into the borrower assessment.

Stage 3 — PD estimation.

The probability of default is estimated using historical default rates, internal ratings, scoring models, and relevant macroeconomic variables.

Stage 4 — LGD estimation.

Expected recovery rates and collateral values are assessed to determine potential losses in case of default.

Stage 5 — EAD estimation.

The expected exposure at the moment of default is calculated, including relevant undrawn commitments where applicable.

Stage 6 — ECL calculation.

Expected credit losses are estimated using probability-weighted scenarios.

Stage 7 — Stress testing.

The portfolio is tested against adverse economic scenarios.

Stage 8 — Management response.

The results are used to adjust credit limits, provisioning, monitoring frequency, restructuring policies, and risk appetite [3; 4].

Basel guidance emphasizes that ECL methodologies should use relevant forward-looking information and consider factors such as GDP, inflation, interest rates, unemployment, liquidity conditions, and borrower behavior [3].

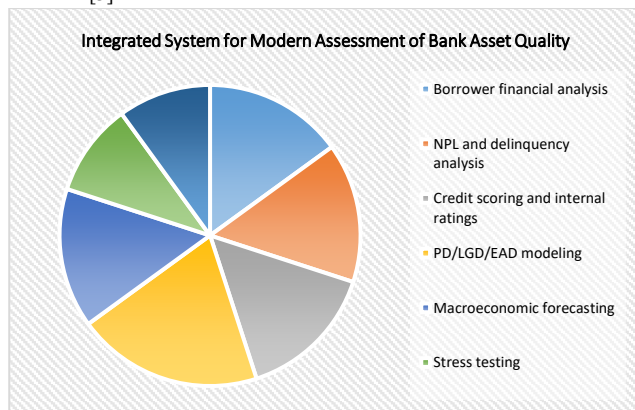


Figure 1. Integrated System for Modern Assessment of Bank Asset Quality

The proposed model assigns the largest methodological weight to PD/LGD/EAD-based quantitative assessment because these indicators allow banks to estimate potential credit losses more systematically [4; 9]. The model also emphasizes borrower analysis, NPL monitoring, macroeconomic forecasting, and stress testing [3; 5].

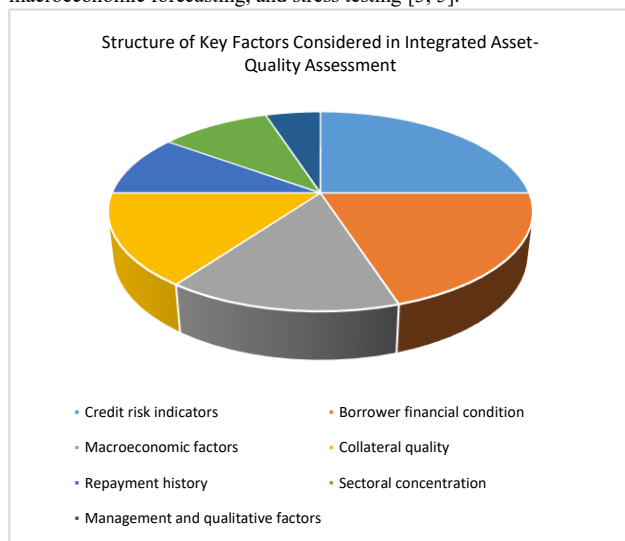


Figure 2. Structure of Key Factors Considered in Integrated Asset-Quality Assessment

The pie chart demonstrates the proposed structure of factors used in comprehensive asset-quality assessment. Credit risk indicators and the borrower's financial condition receive the largest shares, while macroeconomic conditions, collateral, repayment history, concentration risk, and qualitative factors complement the assessment.

Early-warning systems and digital technologies

A significant improvement in asset-quality assessment can be achieved through the implementation of automated early-warning systems. Such systems can continuously monitor changes in borrower behavior and identify signs of potential deterioration before a loan becomes non-performing.

Potential warning indicators include:

- deterioration in repayment discipline;
- decline in account turnover;
- deterioration of financial ratios;
- increase in leverage;
- decline in collateral value;
- significant changes in sectoral conditions;
- foreign-exchange exposure;
- changes in macroeconomic conditions.

The Basel Committee emphasizes that credit-risk methodologies should be periodically reviewed and updated as banks' business models, underwriting practices, data, and economic conditions change.

The use of machine-learning techniques can further expand the analytical capabilities of banks. However, automated models should be subject to validation, explainability requirements, data-quality controls, and human oversight.

Methodological improvements proposed for commercial banks

Based on the research, the following improvements are proposed:

First, banks should combine traditional NPL analysis with forward-looking ECL models.

Second, PD, LGD, and EAD parameters should be regularly recalibrated using updated historical and macroeconomic data.

Third, banks should develop borrower-level and portfolio-level early-warning systems.

Fourth, stress testing should become an integral part of asset-quality assessment rather than a separate analytical exercise.

Fifth, credit concentration should be assessed not only by borrower but also by economic sector, region, currency, collateral type, and maturity.

Sixth, data warehouses should integrate accounting, credit, collateral, customer, and macroeconomic information to improve the quality of risk models.

Seventh, model validation and back-testing should be conducted regularly to compare predicted losses with actual credit losses.

These measures are consistent with international supervisory principles emphasizing sound credit-granting processes, effective monitoring, internal controls, and robust ECL methodologies.

Conclusion and Recommendations (Xulosa va takliflar/Vыводы и предложения).

The study demonstrates that modern assessment of commercial-bank asset quality should move beyond a narrow focus on historical NPL indicators. Although NPLs remain an important measure, they mainly reflect already materialized credit deterioration. A more comprehensive methodology should integrate traditional indicators with expected credit losses, PD/LGD/EAD models, borrower scoring, portfolio concentration analysis, macroeconomic forecasting, and stress testing [1; 3; 4].

For Uzbekistan's banking sector, this approach is particularly relevant given the substantial size of the loan portfolio. As of December 1, 2025, commercial-bank loans amounted to 595.3 trillion UZS, while total banking-sector assets reached 892.9 trillion UZS [6].

The following recommendations are proposed:

1. Develop integrated asset-quality assessment systems combining NPL, ECL, PD, LGD, and EAD indicators [1; 3; 9].
2. Strengthen forward-looking macroeconomic analysis in credit-risk models [1; 3].
3. Introduce automated early-warning systems for identifying potential deterioration in borrower quality [3].

4. Improve stress-testing methodologies at both individual-bank and portfolio levels [3; 5].

5. Increase the frequency of model validation and back-testing [3].

6. Strengthen data quality and integration between accounting, credit-risk, collateral, and customer databases [3; 5].

7. Improve transparency of credit-risk measurement and ECL assumptions [1; 3].

8. Develop specialized analytical models for different loan segments and economic sectors [3; 4].

Consequently, the proposed integrated methodology can improve the timeliness and accuracy of asset-quality assessment and contribute to stronger credit-risk management and banking-sector resilience [3; 8].

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