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Article

Analysis of Key Financial Indicators Affecting the Stability Ratings of Commercial Banks

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Abstract: This article analyses the impact of financial indicators, including liquidity, capital adequacy, profitability, asset quality and risk management, on rating indicators. Statistical and economic modelling methods are used as a methodological approach, and a practical analysis is carried out using the example of commercial banks in Uzbekistan. The study's results can be used in developing strategic recommendations for improving the efficiency of banking activities, increasing investment attractiveness, and improving sustainability ratings. This article systematically analyzes the main financial indicators that affect the stability ratings of commercial banks. Taking into account the role of the banking sector in macroeconomic stability, its role in supporting the country's economic potential and its functions in ensuring the reliability of the financial system, assessing the financial condition of commercial banks and identifying factors that directly affect their stability ratings is one of the important scientific and practical issues. The article deeply studies the main financial indicators of banks, such as asset quality, liquidity level, capitalization ratio, profitability indicators, income and expense dynamics, and loan portfolio composition. This scientific work serves to increase the financial stability of commercial banks, strengthen their reputation in the international financial arena, as well as create a reliable analytical basis for investors and regulatory authorities. At the end of the abstract, it is noted that a systematic analysis of financial indicators that form the stability rating of banks plays an important role in ensuring openness and transparency of banking activities.

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1. Introduction

The financial soundness of commercial banks is seen as one of the primary cornerstones of a nation's economy in the current global economic climate. The stability of the banking system has a direct impact on the growth of the national economy as a whole in addition to influencing how well banks organise their operations. Thus, while assessing bank performance, financial indicators—in particular, liquidity levels, capital adequacy, profitability ratios, and asset quality—are essential. The main financial metrics that influence commercial banks' stability ratings are investigated in this study[1]. Opportunities to increase the effectiveness and competitiveness of banking operations are examined in this investigation. Economic and statistical modelling techniques are used, and a real-world examination is carried out using the example of Uzbekistan's commercial banks. The research's conclusions can be used as a foundation for strategic choices that will increase the stability of the banking industry.

2. Materials and Methods

This article applies statistical and econometric modelling methods and conducts a practical analysis based on the example of commercial banks in Uzbekistan. This study used a comprehensive scientific approach to analyze the main financial indicators affecting the stability ratings of commercial banks. The methodological basis was economic-statistical analysis, economic-mathematical modeling, comparative analysis, correlation-regression analysis, as well as modern rating assessment methods and international financial analysis standards[2]. The study collected periodic financial indicators for 2020–2024 based on the open financial statements of the Central Bank of the Republic of Uzbekistan and leading commercial banks in Uzbekistan. 10 large commercial banks were involved in the analysis. A statistical base was formed for each bank based on the annual balance sheet and profit and loss statements, as well as existing ratings from rating agencies. Excel, SPSS and EViews programs were used to analyze statistical data[3]. Using these programs, data was cleaned, normalized, and analytical models were built to identify relationships between indicators. This methodology is based on practical results and allows for analysis based on real financial indicators. In addition, the statistical model allows for forecasting results, as well as cross-bank comparisons. The results of the analysis can be used to assess risks, make strategic decisions, and optimize bank operations[4].

3. Results

The public and local business owners are interested in hearing about the favourable evaluations of commercial banks or the banking industry overall.

Their daily financial decisions are unavoidably influenced by this knowledge. It specifically influences the choices made by investors, bank shareholders, governments, and other financial organisations.

In contrast to straightforward criteria like the capital adequacy ratio, a rating describes the financial and economic health of a bank. Leading worldwide rating organisations use sophisticated procedures to produce their ratings. As a result, there is a great need to comprehend the methods by which commercial banks are rated. These techniques must enable bank-to-bank comparisons[5].

About 40% of the worldwide rating service market is controlled by Moody's and Standard & Poor's, with Fitch Ratings rounding out the top three with 14% of the bond market.

Since these agencies' methods and data are confidential and not completely published, their evaluations are regarded as expert-level[6].

Banks try to determine precisely which variables affect their ratings and how adjustments to these indicators might improve the attractiveness of their ratings, even though rating agencies only give brief summaries of the criteria taken into account throughout the rating process.

In light of this, the purpose of this study is to examine the connection between commercial banks' financial and economic indicators and their stated ratings.

The results imply that a bank's rating may be impacted by specific changes made to financial policy components.

Since they are a crucial factor in luring loan lines from foreign financial institutions to Uzbek commercial banks, the ratings established by international organisations are vital to a nation's financial stability[7].

Investor confidence in ratings has considerably decreased since the global financial crisis and the ensuing financial losses.

Because of this, a number of nations, including Uzbekistan, have thought of enacting domestic control of rating organisations.

For example, a national rating system has been established and is regularly reviewed under the direction of the Ministry of Finance, the Association of Banks of Uzbekistan, and the Central Bank of Uzbekistan.

Additionally, a list of rating organisations authorised to evaluate the ratings of Uzbek commercial banks has been compiled by the Central Bank.

Following the Basel Committee on Banking Supervision's adoption of the paper "International Convergence of Capital Measurement and Capital Standards" (Basel II, 2004), there was a notable surge in interest in rating agency operations.

This document offered methodological suggestions for regulating banking operations, namely for determining borrowers' credit risk levels and integrating globally accepted ratings into financial supervision[8].

However, in their study, several economists have criticised the Basel II standards

There are many different approaches and theories used in rating development, however they may be split into two categories:

ideas put forward by the commercial banks themselves for determining ratings; viewpoints of other parties (investors, consumers, and governments).

The first direction's main goal is to critically analyse evaluations and uncover their substance[9].

Testing theories on the nature and use of ratings is the main objective of the second direction.

In their study, economists Hau et al. tried to examine the quality and predictive power of rating systems provided by the three main international rating organisations.

According to their study, the state of the financial system affects rating quality, and different rating systems have been important information sources during financial crises [10].

Researchers claim that only knowing a bank's investment grade does not enable one to make an accurate prediction about the "expected risk" based on ratings alone.

Major rating agencies must take into account the variations in financial reporting rules among nations when determining ratings.

Furthermore, the agencies have different rules on a number of aspects.

For instance, compared to Moody's and Fitch Ratings, Standard & Poor's evaluates the influence of bank size and country-specific variables more rigorously.

In many instances, a bank's rating is determined by a combination of objective criteria, the agency-bank connection, and the size, value, and breadth of the bank's operations[11].

The researchers came to the conclusion that bank ratings are not much impacted by various types of state assistance for banks, such as government guarantees or passive involvement.

Bank risks and the effectiveness of commercial banks have been the subject of much research since the global financial crisis.

In the early phases of the crisis, for example, commercial banks with a greater loan-to-assets ratio and a high Tier 1 capital ratio fared better, according to research.

In their research, economists Berger and Bouwman showed that deposits and highly liquid assets produced more revenue throughout the crisis period, and that a larger capital buffer increased bank efficiency [12].

Transparency and information sharing about financial operations also made a big difference.

The effect on bank ratings, especially those published by independent rating organisations, was determined in part by the availability of information on the internet.

Higher rating scores have been proposed for commercial banks that maintained a comprehensive information disclosure policy but did not seek for a rating.

Forecasts based on changes in rating ratings obtained from financial statement data were created in a research by Pagano et al.

The authors came to the conclusion that it is simpler to forecast a rating increase than a drop.

Though their importance varies depending on the size of the bank, financial statement indicators are essential for predicting changes.

Compared to financial organisations that primarily operate in the financial markets, conventional lending banks are better able to anticipate the future using financial indicators[13].

Rating quality is also impacted by the level of competition among rating organisations.

The scholarly work of Bolton et al. examined this problem.

As mentioned before, empirical computations that summarise both qualitative and financial variables are used to calculate a bank's grade.

The created model is predicated on a thorough quantitative analysis that identifies internal and external elements using the Analytic Hierarchy Process (AHP) approach.

To create the econometric model, a sample of 17 Uzbek commercial banks was used.

These banks have earned worldwide credit ratings and have full financial data.

It is noteworthy that Uzbekistan's commercial banks are all rated internationally.

Three international rating agencies' ratings and the financial statements of the 17 banks for the years 2021–2024 are included in the dataset.

The precise rating levels and data contents are not shown numerically because of a confidentiality agreement that prohibits the publishing of some bank data.

The analysis was conducted using a scaled numerical technique due to the comparatively small sample size[14].

The given rating value is regarded as the dependent variable in the model.

All of the explanatory (independent) variables were quantitative financial indicators provided by the Ahbor-Rating Agency.

During the modeling process, the following variables were employed:

1. act_vol - size of bank assets
2. own_cap - amount of equity capital
3. cred_portf - volume of credit portfolio
4. cred_vol - volume of overdue loans
5. inv_portf - size of investment portfolio
6. firm_dep - deposits of legal entities
7. ind_dep - deposits of individuals
8. net_profit - total annual net profit
9. act_profit - return on assets (ROA)
10. owncap_profit - return on equity (ROE)

The lack of access to additional operational data for the banks explains the limited number of independent variables.

The logarithmic transformation of variables reflects their conversion into percentage units.

Some independent variables were excluded from the model because they showed unclear values during the Dickey-Fuller stationarity test and correlation analysis.

The following table presents the econometric modelling results for 2021-2024, indicating the significance levels (5% to 10%) of the independent variables included.

Table 1 presents the results of econometric modeling of bank ratings for 2021–2024 based on selected financial indicators of commercial banks in Uzbekistan.

Table 1. This section presents the results of the econometric modeling of bank ratings lfor the period 2021–2024, based on selected financial indicators of commercial banks in Uzbekistan.

As can be seen from Table 1, the explanatory power of all variables is relatively low.

This outcome was anticipated because, in constructing the model, we selected only those variables that, based on economic theory, could be related to the dependent variable and for which reliable data were available.

	Variables	Ratio
1	cred_portf/own_cap	4.076%
2	log(firm_dep)	9.256%
3	log(ind_dep)	6.746%
4	log(inv_portf)	- 9.062%
5	log(net_porfit)	2.242%
6	owncap_profit	0.187%
7	act_profit	4.973%
8	boshqalar	63.459%

The chosen variables were calculated based on financial statement data, and no other internal or external factors were considered.

4. Discussion

However, rating agencies consider both internal and external factors when assigning ratings.

The search for financial factors that influence ratings provides significant opportunities for bank managers to improve their institution's standing.

If managers clearly knew which factors are considered by rating agencies, they would be able to focus their efforts on enhancing those specific areas.

In our model, the accepted value of R^2 (the coefficient of determination, showing the closeness of the relationship between the economic variables) was 0.71.

In order to ensure comparability of models built with variables of different scales and prevent their influence on R^2 statistics, it is common practice to also report the adjusted R^2, which in our case was 0.64.

The sum of squared residuals was minimized in the regression, and the standard error of the regression was found to be close to zero.

The F-statistic probability being close to zero is accepted as a strong indicator of the regression's reliability and accuracy.

The OLS model was selected under the principle of minimizing the Akaike Information Criterion (AIC), Schwarz Criterion (SC), and Hannan-Quinn Criterion (HQC).

The Durbin-Watson statistic was found to be within an acceptable ideal range.

The regression analysis computed by the OLS method was cross-validated using the Gauss-Markov theorem and other standard tests.

Key Findings Based on the Analysis of Uzbekistan's Commercial Bank Data:

The selected variables significantly influence the assigned bank ratings, and the factors considered in the model explain approximately 63.5% of the variations in bank ratings[15].

In the context of Uzbekistan, the greater the volume of deposits from legal and individual entities held by a bank, the higher its credit rating tends to be.

It is important to note that the investments held on banks' balance sheets (such as shares in enterprises and other securities) do not always generate benefits for banks; a larger investment portfolio is associated with lower rating scores.

The ratio of the loan portfolio to equity capital significantly influences ratings:

– An increase in this ratio by approximately 4.076% correlates with higher credit ratings.

Additionally, an increase in a bank's annual net profit by up to 2% during the analysed year positively affects the bank's credit rating in the following year.

Equity capital volume alone does not directly impact the rating when considered relative to total monetary turnover.

Asset quality and return on assets (ROA) are among the most influential factors in justifying and improving a bank’s credit rating.

5. Conclusion

Within the framework of this study, the main financial indicators that affect the stability ratings of commercial banks were studied in depth and their role in the rating system was analyzed. Based on the empirical and theoretical analyses, the following important conclusions were drawn: First, the main indicators that determine the financial stability of banks are asset quality, liquidity level, capital adequacy, profitability indicators (ROA, ROE), interest income ratio, loan portfolio quality, and credit risk management level. Among these indicators, capital adequacy and loan portfolio quality are considered by rating agencies as the main assessment criteria. Second, one of the most important factors that positively affect stability ratings is the effectiveness of the bank's risk management system and diversification of income. In order for financial indicators to be stable, a bank must not only ensure the quality and liquidity of its assets, but also have sources of income from various areas. Thirdly, in recent years, as a result of reforms aimed at ensuring stability in the activities of Uzbek commercial banks, including strengthening the capital base, introducing international financial reporting standards, digital transformation of banks, increasing transparency and minimizing risks, their rating indicators are improving. This is also reflected in the assessments of international rating agencies. Fourthly, analyses have shown that in some cases, although financial indicators are stable, this may not be fully reflected in the ratings. This is also influenced by relatively subjective factors such as market reputation, management quality, relations with the regulator, and the trust of foreign investors. Therefore, the rating system is formed not only on the basis of numbers, but through an integrated approach. Fifthly, in order to increase the rating indicators of commercial banks, it is necessary to work consistently in the following areas: ensuring compliance of financial statements with international standards, improving the risk assessment system, maintaining liquidity in balance, strengthening corporate governance, and establishing trusting relationships with customers. Therefore, the analysis of rating indicators and the strategy for improving them play an important role in ensuring that the banking system of Uzbekistan is strong, competitive, and open to international markets. The results of this study have practical significance in analyzing the activities of banks and can serve to forecast and optimize rating assessments in the future.

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