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Conducting an Assessment of the Financial Risk of Innovative Enterprises Based on Customer Scoring Analysis

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Abstract: *The article examines the theoretical foundations of financial risk assessment. It provides an overview of foreign countries' experience in reducing financial risk. Specific proposals are made to reduce the financial risk of enterprises and their clients.*

This study examines the theoretical and practical approaches to assessing financial risk in innovative enterprises, focusing on scoring analysis as a key method. Financial risk, defined as the potential for losses due to insolvency, remains a critical challenge for financial institutions, particularly in economies with limited adoption of advanced risk management practices. The research highlights the knowledge gap in integrating robust scoring models, such as the Altman Z-score, within financial institutions in transition economies like Uzbekistan.

A qualitative methodology is employed, utilizing a comprehensive review of theoretical foundations and case studies from international practices. The study emphasizes the importance of developing customized scoring models that account for local market dynamics, financial data availability, and enterprise-specific factors. Findings reveal that while scoring models have been widely adopted in developed economies, their limited implementation in Uzbekistan hinders effective financial risk management. The research further identifies challenges related to data accessibility and regulatory constraints that impact the reliability of insolvency predictions.

The results demonstrate the effectiveness of scoring models in reducing financial risks by enabling early detection of client insolvency and informed decision-making. The implications of these findings are significant for financial institutions, suggesting the need for policy reforms, enhanced data collection practices, and integration of advanced technologies like machine learning for predictive analytics. This study provides actionable insights for strengthening financial risk assessment frameworks and calls for further research into aligning local scoring models with global best practices to enhance financial stability and economic growth.

Key words: *Financial risk, financial resources, insolvency, consumer, risk assessment, unexpected losses, financial manager, rating, scoring analysis.*

Introduction

Relevance of the research topic. Nowadays, financial risk management is given special attention, since the portfolio of financial assets is the main element of the assets of financial institutions.

Financial risk is understood as the possibility of losses resulting from the inability of financial institutions to fully and promptly fulfill their obligations to consumers of financial resources.

In this regard, forecasting the probability of their insolvency on obligations is the most important component of the financial risk management process both at the stage of making a decision on granting

a loan and in the process of subsequent monitoring of financial risk. Having quantitative estimates of the probability of insolvency of consumers of financial resources, the financial manager can determine the amount of expected losses on the resources provided, which in turn will allow making a decision on the advisability of providing funds, determining the fair price of this asset (interest on the loan), and also forming reserves adequate to the financial risk accepted.

However, at present, both in the practice of financial organizations of countries with transition economies and in the practice of financial institutions of Uzbekistan, financial risk management based on the probability of direct estimates of the probability of insolvency of resource consumers has not received wide distribution. This circumstance is alarming, apparently, it is connected with the existing insufficiency of information for constructing such estimates. This, of course, in our practice limits the possibilities of model developers and reduces the reliability of the estimates obtained.

In addition, many financial institutions, including commercial banks, are currently introducing into practice, when determining the creditworthiness of a borrower, mainly independent scoring models.

Financial risk review. Availability of financial reporting will ensure ease of application of the model. It is no coincidence that special attention is paid to reforming and increasing the financial stability of enterprises to achieve high rating results. This requires the development and implementation of modern methods of scoring analysis of enterprise clients, taking into account the study of the experience of the most successful competitive enterprises in developed countries.

Based on the provisions of the scoring analysis model, it is necessary to develop our own scoring analysis model and begin active practice of its application when making decisions on the provision of financial resources or products of enterprises to clients.

Let us consider in practice the existing theoretical and methodological approaches to assessing financial risk. In accordance with some considerations, the provisions in force in practice can be conditionally called risk assessment, where approaches to determining the amount of financial risk are used:

First . These are ratings determined by independent agencies that calculate the ranges of insolvency probabilities of enterprises corresponding to each value of financial institution ratings based on accumulated statistics of public materials. This approach is often called an external rating assessment.

Second . This is an internal financial rating established by financial institutions, primarily commercial banks, for their clients based on their own methods.

While the first of these methods is widely used in developed countries, in modern conditions the majority of countries with transition economies have a low prevalence of the practice of obtaining ratings from “international rating agencies”, which determines the concentration of efforts of financial managers on the implementation of the latter approach.

The results of calculating the amount of forecast (expected) and unexpected losses are necessary for the implementation of the approach to financial risk management, often used in practice by commercial banks in accordance with the requirements of the Basel Capital Accord, according to which expected losses are covered by internal resources [8]. Taking this into account, for enterprises with an innovative nature of development, it is necessary to use the method of expected losses at the expense of reserve funds (often this is presented as a reserve financial fund). In this case, unexpected losses can be compensated by capital, attributed to certain types of assets.

Method

In the process of calculating the forecast boundary, the problem of loss is the procedure for calculating the probability of the client's insolvency. In the current conditions in the world, two approaches to assessing the probability of insolvency of enterprises have been formed [4; 5; 6; 7]:

First . Based on models that use information on the current value of debt obligations and spreads of bond yields relative to the risk-free rate , in particular, the bank interest rate (reduced-form models), the cost of equity capital and existing debt obligations (structural models).

Second . Based on the client's rating of enterprises according to their financial indicators and factors characterizing the environment of their activities (credit scoring models).

The use of one or another, but more advantageous models for assessing the probability of insolvency is widespread in the practice of Western financial companies [5]. A necessary condition for the application of these models is the assessment of the value of the assets of companies - issuers of securities. Since only a small part of the securities of financial companies is quoted on the market, this limits the possibility of using this approach to solve the problem. The applicability of this approach becomes even more limited when the fall in market quotations of securities to a greater extent reflects a decrease in investment opportunities for potential investors than the actual deterioration in the financial condition of the issuing company.

In these circumstances, the most popular in the practice of foreign financial institutions, in particular for commercial banks, are credit scoring models, the prototype of which is the creditworthiness index proposed in 1968 by Edward Altman.

The Altman Creditworthiness Index (Z -score) is a linear combination of the following financial indicators:

$$Z - s = R1 \cdot X1 + R2 \cdot X2 + R3 \cdot X3 + R4 \cdot X4 + R5 \cdot X5,$$

where:X 1 – working capital / total assets;

X2 – retained earnings / total assets;

X3 – operating profit / total assets;

X4 – market value of shares / debt;

R 1, R 2, R 3, R 4, R 5 – weighting coefficients characterizing the significance of each particular criterion.

The Altman Ratio has been the most common way to assess risk for commercial banks. It has evolved into the credit scoring models of leading rating agencies: Moody 's KMV , S & P , etc.

In these circumstances, the task of assessing the probability of insolvency based on data contained in the official financial statements remains the most acceptable option for most financial institutions.

Analysis of the state of the problem under study. Until now, the practice of obtaining direct estimates of the probability of insolvency has not become widespread among financial institutions, in particular, commercial banks operating in the territory of Uzbekistan, both because of the complexity of obtaining them and because of the lack of such requirements from government authorities.

One of the main methods of reducing financial risks is the application of the procedure for forming reserves. In the Republic of Uzbekistan, the formation of reserves for possible losses on loans is regulated by the "Procedure for classifying the quality of assets, forming and using reserves created by commercial banks to cover possible losses on them" No. 242 dated 09.11.1998, according to which the asset classification system is applied to all types of loans, including bank guarantees, credit lines, interbank loans, overdrafts. It should be added that this system is also applicable to the assessment of other banking assets, such as investments, purchase and sale of securities , accounts receivable, acquired right of claim for the fulfillment of obligations from third parties and other assets with a risk of non-repayment.

According to this provision, the classification of the resources provided begins with the assessment of the client according to the following criteria:

- the trend and future of enterprises or the industry as a whole;
- the client's financial situation;
- the client's financial history;
- economic justification (provision) of a specific project;
- the quality of management and administration at the enterprise (if the loan is provided to the enterprise).

The results of the analysis and classification of assets depend on such factors as the financial position of the client, the history of loan payments and the availability of collateral formalized in an appropriate manner. It is very important to use these factors in identifying and assessing the risks present in the financial portfolio and other assets.

In this case, the classification of assets must be made in the following order and in accordance with the following categories: good, standard, substandard , doubtful and hopeless. Based on the quality category of the asset, a corresponding reserve is created.

Conclusions and proposals on the topic of the study. The indicators on the basis of which the financial position of the client is assessed are selected by enterprises independently, based on their own financial policy. However, it should be noted that, despite the significant differences in the internal methods used to assess the financial position, most of them are based on standard coefficients of liquidity, financial stability, capital structure, turnover, profitability and cost effectiveness, debt burden, interest coverage, etc.

In addition to financial ratios, of great importance in the process of assessing the client's creditworthiness are indicators characterizing its ownership structure, position in the market for manufactured products/services, the situation and trends in the industry, reputation in the market, competitive advantages, management experience, etc., i.e. characteristics of the client's business environment.

Result

The above indicators in one or another combination are used by individual financial institutions in the process of assigning internal creditworthiness classes to a client. This approach has become very widespread in the practice of financial institutions.

However, the process of obtaining sufficiently detailed information about the business environment, constructing analytical balances that bring financial ratios closer to international financial reporting standards, in addition to significant time and effort costs of enterprises, requires the client's willingness to provide the necessary information, which is not always possible.

The task of developing a scoring model for assessing the probability of a client's insolvency, independent of the point of view of a specific analyst, based on official accounting data remains relevant. In the event of identifying relationships that allow for a direct assessment of the probability of a client's insolvency, the said model can be used at the stage of preliminary selection of prospective clients with subsequent in-depth study at the decision-making stage, as well as in the process of monitoring the financial condition of borrowers as a method of early warning about deterioration in the quality of clients' financial obligations.

The first steps have already been taken by the major financial institutions of the republic. Thus, as an appendix to the financial policy of enterprises, a method for calculating the creditworthiness of

individual entrepreneurs (scoring analysis) is proposed. Also, such factors as the age, work experience of the entrepreneur, the presence of property in the form of buildings, structures, the presence of production facilities, the technical condition of production facilities, the presence of own transport and many other factors obtained from the analysis of the client's financial history and his business plan should play an important role in the basis of this analysis.

Based on the results of the conducted scoring analysis, 4 classes of clients (individual entrepreneurs) can be derived, a risk level is assigned and the final result is derived in the form of points scored, within which the need to issue funds or provide a reasoned refusal to finance the client will be determined. This analysis will allow enterprises to reduce the risks associated with issuing funds to insolvent clients.

Conclusion, the global crisis caused by COVID -19 has provided risk managers with new opportunities in terms of choosing financial risk assessment models due to the emergence of default statistics. This circumstance allows us to build a financial scoring model for short-term forecasting of the probability of a client's insolvency based on their financial statements.

This study underscores the critical importance of employing advanced scoring models for assessing financial risks in innovative enterprises. The findings highlight the necessity of adopting structured methodologies like scoring analysis to predict client insolvency and mitigate risks associated with lending and financial resource allocation. Key results demonstrate that while global financial institutions have widely adopted credit scoring models, their integration into Uzbekistan's financial practices remains limited due to inadequate data availability and regulatory challenges. This highlights a significant knowledge gap and the need for more robust frameworks to enhance risk management processes in transitioning economies.

The implications of these findings extend to financial managers and policymakers, emphasizing the importance of tailoring scoring models to local contexts while leveraging global best practices. Further research is essential to refine these models, incorporating advanced techniques like machine learning for predictive analytics and exploring the role of alternative data sources in improving credit risk assessments. Additionally, a deeper theoretical exploration into the alignment of scoring methodologies with international financial reporting standards can strengthen their application and reliability. By addressing these areas, the study paves the way for a more resilient and effective financial risk management system, ensuring sustainable development for enterprises in both emerging and developed economies

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