AMERICAN JOURNALS
Open Access, Peer Reviewed Journals
American Journal of Business Management, Economics and Banking
ISSN (E): 2832-8078 Volume 11, | April, 2023

IMPORTANCE OF EARLY WARNING SYSTEMS IN IDENTIFYING RISK

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A B S T R A C T	K E Y W O R D S
The article provides information on the importance of early warning systems for identifying risks in commercial banks of the Republic of Uzbekistan, as well as what early warning indicators can be used, types of risks, their classification, theoretical mechanisms for their assessment and minimization in the field of investment and business are presented. Also, this article presents the opinions of foreign and domestic scientists about the risks.	early warning system, early warning indicator, risk, credit risk, risk management strategy.

Introduction

An early warning system is a system designed to identify and warn people before a potential hazard or disaster occurs. These systems use various technologies and methods to monitor and analyze data related to potential risks such as natural disasters, industrial accidents or terrorist attacks. Early warning systems can provide critical information to emergency responders, government officials, and the public, enabling them to take appropriate actions to mitigate or prevent the effects of a disaster. Examples of early warning systems include tsunami warning systems, earthquake early warning systems, and severe weather warning systems.

An early warning system in banks is a risk management tool that helps identify potential credit risks and borrowers financial difficulties at an early stage. These systems use a variety of data sources, such as financial statements, credit reports, and market data, to analyze borrowers financial health and identify signs of financial distress.

Early warning systems in banks typically use quantitative models to assess the risk of default. The models use various financial indicators, such as debt-to-equity ratio, liquidity ratio and profitability ratio, to assess the financial condition of borrowers. The models also take into account other factors such as industry trends, economic conditions and borrower behavior to provide a comprehensive risk assessment.

2. Literature Review

Risk management can be understood as a set of actions aimed at determining the rational combination of risk and profit [1].

Martina Merkova, Josef Drabek expressed the following thoughts about risk: "Risk is an inevitable part of any business, so it is very important to analyze it, but at the same time, the paradox is that it is a part of the project that cannot be evaluated until the end [2]".

Risk is understood as a potential, numerically measured probability of loss. The risk of an investment project means the degree of risk of successful implementation of the project. Currently, a wide range of methods and approaches are used to analyze the risk of investment projects [3].

The approach of the famous foreign scientist P.S. Rose is the most constructive and is based on the assumption that the essence of asset and liability management in banks is the formation of a strategy and the implementation of activities that bring the bank's balance sheet structure in line with its strategic programs. In his opinion, "... the main goal of asset and liability management is to maximize or at least stabilize the bank's margin (the difference between interest income and interest costs) with an acceptable level of risk [4]".

The analysis of this problem revealed the lack of comprehensive studies on the issue of capitalization of commercial banks in Uzbekistan. There are no clearly developed and used in practice measures on this topic. The very concept of capitalization is still not associated with the market interpretation of this term in relation to domestic credit institutions. Until now, both in the scientific community and the banking community, capitalization is understood only as an increase in the bank's own capital. For example, Peter S. Rose notes that "we often use the term capitalization, meaning by this own funds or equity capital of banks and its sufficiency to cover risks [5]".

The research of LG Batrakova, the nature of interest rate risk in the implementation of deposit policy, assessment, management and the process of establishing a system of measures for insurance are studied [6].

In particular, Raymond Barr, a foreign economist, describes the stock market as follows. "The stock market, as a technical institution, performs the function of redistribution of free funds, assesses property rights, redistributes risks, redistributes information among participants in the business cycle. Therefore, the stock market is a long-term idle capital market that collects and consolidates funds. These funds will be directed to long-term immobilization networks [7]".

Thus, digital technologies have made it possible to move from a product-oriented approach to a customer-oriented one. The leaders in terms of banking innovation in the digital economy are Germany, Japan, the US, South Korea and the UK. The reverse side of this process is the growth of Internet fraud, which is one of the main modern banking risks [8].

3. Research Methodology

Classical methods of finance in risk minimization are researched, and the article presents infographic classification and tabular data. It also deals with data synthesis analysis and theoretical foundations.

4. Analysis and Discussion of Results

- The advantages of implementing early warning systems in banks are:

- Improve data quality: early warning systems require high quality data to be effective. Banks should improve their data management processes to support the implementation of an early warning system.

And this can benefit the bank in many other areas, for example, in the management process and customer analysis.
- Improving the risk culture: the introduction of an early warning system will help to build a risk management culture in the bank. By providing a systematic approach to risk management, early warning systems help implement risk management practices throughout the organization, from the board to the front office staff.
- Enhanced strategic planning: Information provided by early warning systems helps banks identify emerging risks and trends for strategic planning and decision-making. By understanding the risks and opportunities in the market, banks can develop more effective strategies and outperform their competitors.
- Increasing shareholder confidence: by implementing an early warning system, banks can demonstrate effective risk management and financial stability. This will help increase the trust of shareholders and increase the bank's reputation in the market.
- Reduced regulatory oversight: Early warning systems help banks comply with regulatory requirements such as stress tests and capital adequacy assessments.
- Improve portfolio diversification: early warning systems help banks identify potential concentration risks in their portfolios, such as over-lending to a particular industry or borrower. By identifying these risks early, banks can take steps to diversify their portfolios and reduce overall risks.
- Increasing transparency: Early warning systems can ensure transparency of the internal and external credit risk management process. This helps to build trust among shareholders such as investors and customers.
- Advanced Fraud Detection: Early warning systems help banks to detect fraudulent situations such as customer-wide loan fraud from different banks or theft of customer personal information. By identifying these risks early, banks can take steps to prevent fraud and minimize losses.

Additional benefits of early warning systems in banks include:
- Improve decision-making: Early warning systems provide banks with real-time information on the financial status of their borrowers, allowing them to make informed decisions about credit risk management and portfolio management.
- Improve efficiency: By automating the risk assessment process, early warning systems help banks reduce the time and resources needed to manage credit risks.
- Advanced risk management: Early warning systems help banks identify emerging risks and take proactive measures to mitigate these risks, such as increasing provisions for potential losses or reducing lending to certain sectors.
- Improve customer service: By identifying customers facing financial difficulties with early warning systems, the bank can help them provide tailored solutions and support, such as debt restructuring or financial advice.
- Improve profitability: By reducing loan losses and improving portfolio management, early warning systems help banks improve their profitability and financial performance.

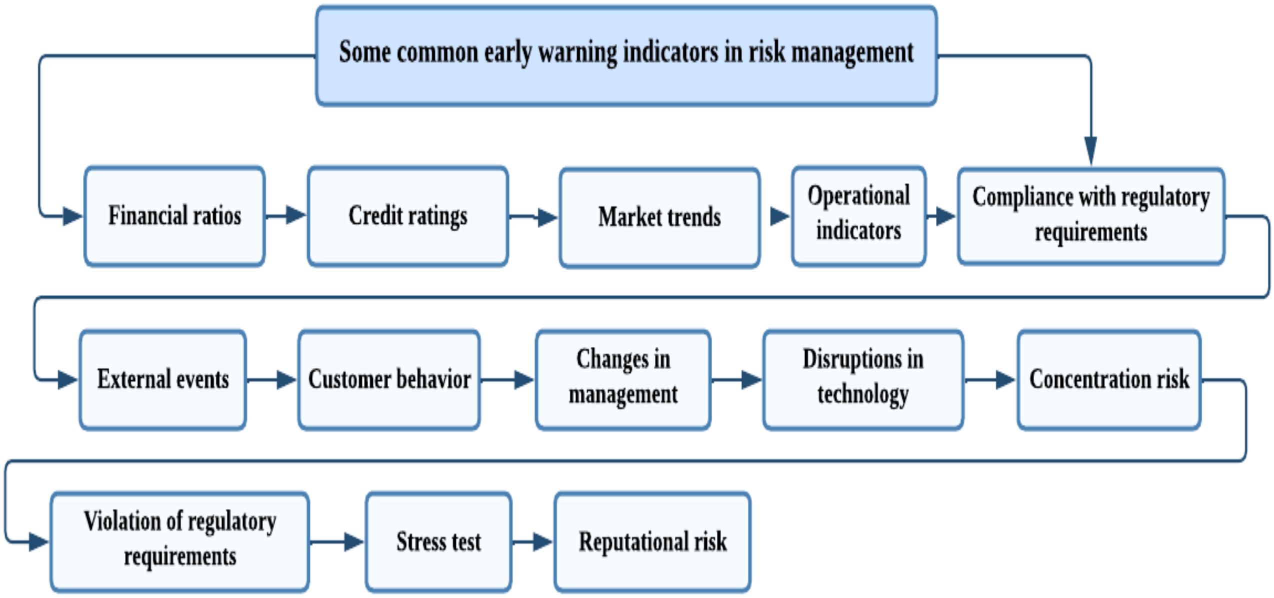

Figure 1. Early warning indicators in risk management include [9]

Early warning indicators are signals that can alert risk managers to potential problems in time, allowing them to take proactive steps to mitigate risks before they become major problems. Some common early warning indicators in risk management include:

➢ Financial Ratios: Financial ratios such as liability to equity ratio, liquidity ratio and profitability ratio can be used as early warning indicators of potential financial distress. By monitoring these ratios, risk managers can identify changes in the borrower's financial condition and take appropriate action.

➢ Credit Ratings: Credit ratings issued by credit rating agencies can be used as early warning indicators of potential credit risk. Lowering the borrower's credit rating indicates a deterioration in the borrower's creditworthiness and increases the risk of default.

➢ Market Trends: Changes in market trends such as interest rates, commodity prices and exchange rates can be used as early warning indicators of potential risks. By monitoring market trends, risk managers can identify emerging risks and take appropriate action.

➢ Operational metrics: Operational metrics such as customer complaints, employee dissatisfaction, and productivity can be used as early warning indicators of potential operational risks. By monitoring these indicators, risk managers can identify emerging risks and take appropriate action.

➢ Regulatory compliance: Non-compliance with regulatory requirements can be used as an early warning indicator of potential legal and reputational risks. By monitoring compliance with regulatory and legal documents, risk managers can identify emerging risks and take appropriate measures.

➢ External Events: External events such as natural disasters, political instability and economic downturns can be used as early warning indicators of potential risks. By monitoring external events, risk managers can identify emerging risks and take appropriate action.

➢ Internal Control: Internal control weaknesses such as inadequate segregation of duties, lack of oversight and ineffective monitoring can be used as early warning indicators of potential operational and financial risks. By monitoring internal controls, risk managers can identify emerging risks and take appropriate action.

- Customer Behavior: Changes in customer behavior such as late payments, increased disputes, and changes in cost structure can be used as early warning indicators of potential credit and operational risks. By monitoring customer behavior, risk managers can identify emerging risks and take appropriate action.
- Changes in Management: Changes in management such as dissatisfaction, resignations and reorganizations can be used as early warning indicators of potential operational and strategic risks. By monitoring changes in management, risk managers can identify emerging risks and take appropriate action.
- Technology disruptions: Technology disruptions such as cyber-attacks, system failures and data breaches can be used as early warning indicators of potential operational and reputational risks. By monitoring technological disruptions, risk managers can identify emerging risks and take appropriate action.
- Concentration Risk: Concentration risk arises when an institution allocates large amounts of loans to a single borrower, industry, or geographic region. Concentration risk can be used as an early warning indicator of potential credit and market risks. By monitoring concentration risk, risk managers can identify emerging risks and take appropriate measures.
- Regulatory Violations: Violations of internal policies, industry regulations, and legal requirements can be used as early warning indicators of potential legal and reputational risks. By monitoring regulatory compliance violations, risk managers can identify emerging risks and take appropriate action.
- Stress testing: Stress testing involves simulating extreme scenarios to assess the impact on an organization's financial position. A stress test can be used as an early warning indicator of potential risks under adverse conditions. By conducting stress tests, risk managers can identify potential risks and take appropriate action.
- Reputational risk: Reputational risk occurs when an institution's reputation is damaged due to negative publicity, customer complaints, or other factors. Reputational risk can be used as an early warning indicator of potential legal and operational risks. By monitoring reputational risk, risk managers can identify emerging risks and take appropriate action.

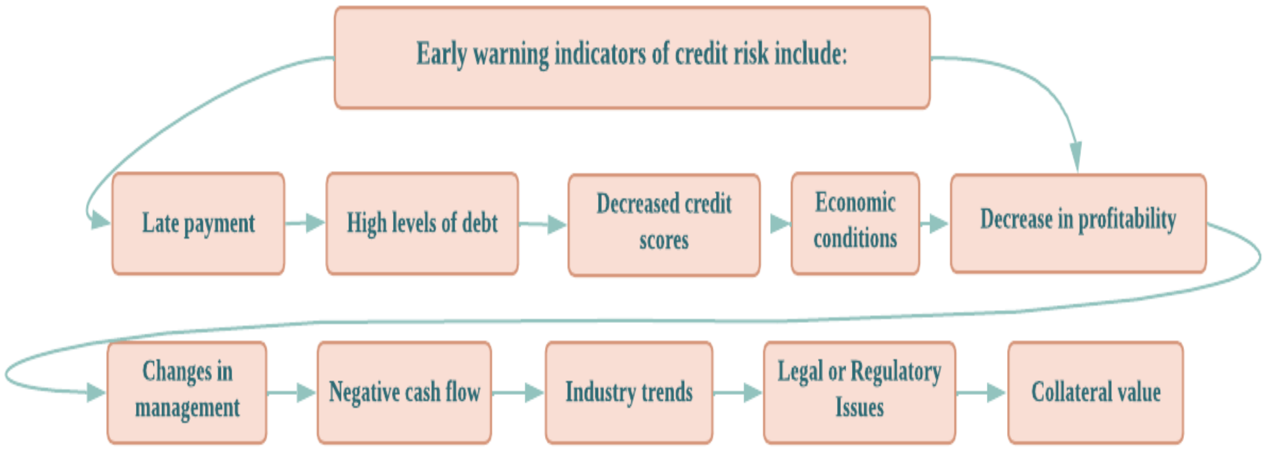

Figure 2. Early warning indicators for credit risk are [10]

Credit risk refers to the possibility of damage (loss) and (or) not being able to receive the planned income that may occur as a result of non-fulfillment (inadequate fulfillment) of the debtor's obligations to the bank within the terms and (or) conditions specified in the contract or legal documents. Early warning indicators are signals that a borrower may be at risk of defaulting on their loan.

Early warning indicators of credit risk include:
1. Late payments: Late or missed payments are a clear sign that a borrower is having trouble meeting their financial obligations.
2. *High levels of debt:* Borrowers with high levels of debt relative to their income or assets may be at risk of default if they experience a financial crisis.
3. *Decline in Credit Score:* A decline in a borrower's credit score may indicate that they are having trouble managing their finances.
4. *Declining profitability:* Declining profitability for businesses means they are struggling to generate enough cash flow to meet their financial obligations.
5. *Economic Conditions:* Changes in economic conditions, such as a recession or rising interest rates, can increase the risk of default for borrowers.
6. *Changes in Management:* For businesses, changes in management or key personnel can indicate that the company is experiencing financial difficulties.
7. *Negative Cash Flow:* The fact that a borrower is spending more than their income can indicate that they are unable to meet their financial obligations.
8. *Legal or regulatory problems:* Legal or regulatory problems, such as lawsuits or fines, may indicate that the borrower is facing financial difficulties.
9. *Industry Trends:* Changes in industry trends, such as increased competition or technological disruption, may increase the risk of default for borrowers in this industry.
10. *Value of Collateral:* For secured loans, a decrease in the value of collateral may increase the risk of default for the borrower.

By monitoring these early warning indicators, lenders can take proactive steps to manage their credit risk and reduce the likelihood of losses. It should be noted that the above early warning indicators are not definitive signs of credit risk, but rather potential signals that require further investigation. Lenders must use quantitative and qualitative analysis to assess credit risk and make informed lending decisions [11].

By identifying potential credit risks early, banks can take proactive measures to manage these risks, such as restructuring loans, increasing collateral requirements, or reducing credit limits. This helps prevent defaults and reduce losses for the bank. In addition, early warning systems help banks comply with regulatory requirements such as conducting stress tests and assessing capital adequacy [12].

The following strategies are used in risk management:
• Risk Transfer: Risk transfer involves transferring risk to another party, such as an insurance company or a third-party vendor. This helps to reduce the organization's exposure to risk and limit possible losses.
• Risk Avoidance: Risk avoidance involves avoiding activities or investments that pose a significant risk to the organization. This helps to reduce the probability of losses and protect the financial stability of the institution.

• Risk Mitigation: Risk mitigation involves taking steps to reduce the likelihood or impact of a risk. This may include exercising control, diversifying investments, or hedging against market fluctuations.
• Risk Acceptance: Risk acceptance involves preparing for possible losses. This includes setting aside reserves or creating contingency plans to mitigate the impact of a risk event.
• Risk monitoring: Risk monitoring involves continuously monitoring risks in the organization and changing risk management strategies as needed. This helps ensure that the organization is prepared for potential risks and can quickly respond to emerging threats.

5. Conclusions and Suggestions

In general, effective risk management requires a combination of strategies tailored to an organization's unique risk profile and objectives. By implementing a comprehensive risk management program, financial institutions can protect their financial stability and ensure long-term success.

In short, early warning indicators are an important component of effective risk management. By monitoring a number of indicators, risk managers can identify potential risks and take proactive measures to mitigate these risks before they become major problems. This helps ensure the long-term financial stability and success of the organization.

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