

APPLICATION OF ARTIFICIAL INTELLIGENCE IN AUTOMATED FINANCIAL RISK MANAGEMENT SYSTEMS

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Financial risk management is a key area in the activities of financial institutions, banks and corporations. In today's conditions of dynamic market development and high competition, automated financial risk management systems (AFS) have become an integral part of collecting, processing and analyzing large amounts of data for timely identification of potential threats and decision-making.

Problem statement

Automated financial risk management systems integrate a variety of tools and technologies, including statistical analysis and modeling methods, as well as the latest intelligent approaches. In recent years, considerable attention has been paid to the use of artificial intelligence (AI) algorithms, which can increase the accuracy of forecasts and the adaptability of systems to changing conditions. Structurally, ICS consists of data collection modules, analytical tools, decision support systems, and monitoring and control modules [1]. Financial risk management also requires the use of AI-based decision support systems that integrate real-time analytics, simulate various scenarios, and make recommendations for management. Thus, artificial intelligence technologies in the financial sector create new opportunities for improving the efficiency of financial risk management, automation of analytical processes and adaptive response to external and internal threats, which confirms their important role in modern automated management systems. The use of modern technologies in the financial sector makes it possible to significantly reduce various risks, optimize processes and increase the efficiency of institutions.

Purpose of the study

The purpose of the study is to apply artificial intelligence in automated financial risk management systems in order to increase the accuracy, efficiency and efficiency of managerial decision-making in the financial sector.

Research results

Financial risk management traditionally involves risk assessment, monitoring and making appropriate management decisions. AI allows you to significantly improve these processes by automating routine tasks, increasing the accuracy of forecasts, and reducing the subjectivity of assessments. Within the framework of the study, a practical case of building a model for forecasting the credit risk of bank customers was implemented. The main goal is to create an intelligent classification system capable of determining whether the client will be able to service the loan in a timely manner in the future. Such a system allows the bank to reduce the likelihood of losses due to non-repayment of loans, increase the effectiveness of risk management and make informed credit decisions. For the simulation, an open dataset from the Kaggle platform — Home Credit Default Risk — was used. This dataset contains more than 300,000 records of

clients with various characteristics such as age, income level, number of dependents, credit history, type of housing, employment, etc.

Conclusions and prospects

The study analyzed the opportunities, benefits, and challenges of applying artificial intelligence in automated financial risk management systems. The analysis of theoretical foundations, classification of financial risks, technical features of the implementation of intelligent systems, as well as practical modeling on the example of credit risk forecasting was carried out. General approaches to financial risk management are considered, their classification and features in modern economic conditions are determined. The basic principles of building automated control systems have been analyzed and the feasibility of introducing intelligent methods, in particular machine learning and neural networks, into financial analytics has been substantiated. An analysis of modern methods of artificial intelligence used for risk analysis and forecasting is carried out. The features of deep learning models, decision trees, ensemble methods, as well as criteria for evaluating their effectiveness are considered. A practical case has been implemented to build a model for forecasting the credit risk of a bank client. Real data was pre-processed, several models were built and tested, and accuracy was evaluated using metrics. In general, the results of the study confirm the high efficiency of using artificial intelligence methods for automated analysis and forecasting of financial risks.

References

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AUTOMATE USER FEEDBACK ANALYSIS USING NATURAL LANGUAGE PROCESSING

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In today's digital world, user feedback analysis has become a critical element for any business looking to improve the quality of its products and services. However, the scale and unstructured nature of these data pose significant challenges for traditional analysis. The main problem solved in this study is the inefficiency and limitations of manual analysis of large volumes of text user reviews.

Problem statement

This problem has several important aspects: