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MODERN METHODS USED IN RISK MANAGEMENT BY COMMERCIAL BANKS

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A B S T R A C T	K E Y W O R D S
The article contains information about the modern methods that can be used in the risk management of commercial banks of the Republic of Uzbekistan and the types of risk they are used in.	Risk, credit risk, fraud risk, operational risk, market risk, liquidity risk, cyber security risk, reputational risk, artificial intelligence, machine learning, deep learning, Natural Language Processing, Intelligent document processing, Big data analytics.

Introduction

As the world becomes increasingly digital, organizations are forced to adapt their systems and processes to reduce costs and increase speed. Banks are on the verge of adopting new technologies such as artificial intelligence (AI) and machine learning to reduce fraud and improve the quality and efficiency of customer service. In the article, we consider the use of artificial intelligence and other automation technologies related to risk management in banking networks.

2. Literature Review

Local and foreign scientists have conducted a number of researches and developed scientific literature on risk management in commercial banks. In the scientific works of foreign economists Joyol Bessis [1], Anthony Saunders and Marcia Millon Cornett [2], Andrea Resti and Andrea Sironi [3], the risks that may arise in commercial banks and their management have been studied. Philipp Harle [4], Andras Havas and Hamid Samandari, A. Ghosh, M. Crouhy, D. Galai, R. Marklar [5] also conducted research on effective risk management methods in their research.

3. Research Methodology

In the research process, general logical (induction, deduction, analysis and synthesis, analogy, generalization) and specific scientific (comparison, grouping, statistical analysis and economic-mathematical) methods were used.

4. Analysis and discussion of results

The bank is constantly exposed to various risks, the most common of which are:

Credit risk	The bank's profitability largely depends on timely and full repayment of loans or credit lines. AI-powered credit risk management tools scrutinize borrower authenticity and credit history, and identify early warning signs of loan defaults.
Risk of fraud	Fraud risk is the potential for any unexpected financial, reputational, or material loss due to fraudulent activity by an internal or external entity. Organizations can conduct fraud risk assessments that use artificial intelligence technology and data analytics to identify, understand and mitigate fraud risk.
Operational risk	Operational risk refers to financial losses caused by human error or disruption of internal business processes. For example, one of the most common mistakes is to extend a loan that exceeds the amount approved by the applicant. New digital systems can automate these tasks, helping to reduce errors in existing processes.
Market risk	Risk managers use AI technologies to closely monitor market factors that may affect consumer activity. For example, geopolitical unrest, global pandemics or economic downturns can affect the borrower's future financial situation. Banks and other financial institutions use this information to predict trends and make better-informed investment decisions.
Liquidity risk	Banks are required to provide customers with the ability to withdraw cash from their accounts. Liquidity risk arises as a result of the bank's inability to provide customers with cash. AI helps banks ensure they have enough liquid assets to meet customer needs
Cyber security risk	In today's fast-paced, digitized world, cybersecurity risks are more prevalent than ever. Banks and financial services firms use artificial intelligence to identify vulnerabilities at various data points and mitigate malicious activity that can lead to data breaches and other cyber attacks.
Reputational risk	Customers place their funds as deposits in banks that they believe are safe and have safe business practices. The role of the bank's reputation in maintaining loyal and reliable customers is incomparable. Customers are more likely to deposit their money with banks they believe have safe and secure business practices. Therefore, a bank's reputation is important in securing loyal and trustworthy customers. Digitization helps banks automate and ensure compliance with government and industry regulations on data reporting, privacy and security.

Figure 1. Types of risks that may arise in the activity of commercial banks [6]

The financial services sector typically deals with large volumes of data – the volume of which has grown exponentially in recent years and is expected to grow further in the future. It is estimated that in 2020, each person created an average of at least 1.7 MB of data per second; By 2025, society around the world is expected to generate 463 exabytes of data every day.

These large, complex data sets contain insights that banks can use to develop more accurate risk models, improve decision-making, and identify suspicious activity or transactions in real time. However, people themselves do not have the ability to accurately analyze this amount of information. As a result, banks

are turning to technology to efficiently process large volumes of data and improve customer experience to improve decision-making, reduce risk and identify key insights.

Artificial Intelligence (AI): AI uses algorithms to analyze large, complex data sets, identify patterns, and predict outcomes. This helps banks effectively mitigate risk by identifying suspicious or anomalous activity that may indicate fraud.

Machine Learning (ML): ML is a form of intelligent automation that uses models to analyze existing data and accurately predict outcomes based on patterns. ML algorithms can be used to process large amounts of data, identify correlations, calculate risk, and inform decision-making.

Deep learning. Deep learning uses neural networks to study large data sets. Unlike ML, which uses predefined models to identify patterns, neural networks in deep learning tools use reasoning, mimicking the behavior of the human brain, to detect patterns or anomalies. In the banking industry, deep learning is used to more accurately calculate credit risk for loan or credit card applicants, as well as to identify trends or predict events that may affect the creditworthiness of an entire group.

Natural Language Processing. NLP is a type of AI that allows computers to "read" text and make sense of it. In the banking industry, organizations can use NLP to extract relevant information from structured or unstructured data sets. This can significantly increase the speed at which banks process applications, open new accounts, handle customer service inquiries, onboard new employees, or perform other tasks that require the organization to collect and synthesize text-based data.

Intelligent document processing. IDP is a form of intelligent automation that uses advanced technologies to extract semi-structured or unstructured data from files and transform them into structured, usable data. Intelligent document processing allows enterprises to eliminate manual data processing tasks, which significantly improves processing time, reduces costs and eliminates errors.

Big data analytics: banks use special technological tools to analyze large data sets to identify patterns, correlations and market trends. While these tools don't necessarily take advantage of AI capabilities, the technology allows banks and their IT teams to better understand and mitigate risk.

There are several ways that AI and related technologies can enable banks to identify and mitigate risk in a more efficient and timely manner. These include:

1. Fraud detection. Fraud detection in loan applications: ML algorithms help banks detect discrepancies in loan applications. In today's digital society, fraudsters steal fake personal information to submit credit applications. Without the help of AI or ML-enabled models, banks may struggle to find a balance between quickly processing applications and ensuring the accuracy of their documents [7].

Real-time transaction fraud detection: Manual fraud detection systems that rely primarily on human analysis are no longer a practical or effective solution for tracking digital transactions in today's environment. AI-based risk management tools and techniques offer organizations real-time data analysis, allowing them to block potentially fraudulent transactions or require verification before proceeding.

AI or ML models are expected to become more intelligent over time when it comes to fraud detection in transactional processes, such as in the lending process. That is, as the models receive more data, the possibilities of their analysis become more accurate, and the occurrence of errors in the system decreases over time [8].

2. Regulatory compliance management. Compliance with national and international regulations is a very important and complex activity in the financial sector. It is necessary to review large data sets, analyze many variables, and provide accurate documentation to the appropriate authorities. Machine

learning (ML) automates these activities and ensures that they are performed efficiently and accurately. This allows banks to optimize resources and save significant costs in the form of fines or penalties. ML technology can also reduce the number of false alerts in the compliance system, ensuring that issues are only manually processed by a human when necessary [9].

3. Credit risk modeling. Banks use AI, ML and deep learning to assess each person's individual credit risk. These models and neural networks use a variety of data, including personal data, an individual's existing assets, historical behavioral data, as well as external factors and trends that may affect the ability to repay the loan. uses.

4. Prevention of insider threat. AI and related tools and technologies are also used to monitor the activities of traders and other financial professionals to detect early signs of fraud, insider trading, data theft or other financial crimes and violations. AI-enabled tools can log, monitor and analyze phone logs, email traffic, vacation schedules, and alert the organization to potential risks and misconduct.

5. Conclusions and suggestions

The use of artificial intelligence in financial risk management opens up a number of key benefits for the banking industry, including:

• reduce operating costs and increase efficiency through process automation and resource optimization;
• improve compliance through automated monitoring and reporting;
• timely, accurate and individual risk assessment and credit risk scoring through advanced data analysis;
• reduce the possibility of human error by automating the process;
• to improve the quality of service through individualized treatment of customers based on information.

Currently, artificial intelligence is increasingly developing and entering every area of our life. It is expected that this system will be widely used in the global banking system in the near future. By integrating artificial intelligence into the banking system, it can prevent or minimize the risks that may be encountered in banking activities. The more accurate information these systems have, the more efficient they are and the fewer errors there are [10].

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