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REVOLUTIONIZING RISK MANAGEMENT: INNOVATIVE APPROACHES IN COMMERCIAL BANKING

Yuldasheva Shahnoza Baxrom kizi
Master's student at the Higher School of Business and Entrepreneurship

Annotation: This article explores innovative approaches to risk management in commercial banks, focusing on the integration of advanced technologies, such as Artificial Intelligence (AI), Blockchain, and Machine Learning (ML), as well as new methodologies like stress testing and RegTech. It discusses the benefits of these innovations in enhancing risk prediction, compliance, fraud detection, and overall financial security. Additionally, it highlights the importance of data-driven decision.
Key Words: risk management, artificial intelligence (AI), machine learning (ML), blockchain, stress testing, regulatory technology (regtech), fraud detection, credit risk, data analytics, compliance.

Introduction. Risk management has always been at the core of operations in commercial banks. However, the evolving financial landscape—shaped by rapid technological advancements, globalization, and regulatory changes—has prompted the need for innovative approaches. In recent years, the banking sector has embraced new tools and strategies to mitigate risks more effectively and efficiently.

As traditional risk management techniques (e.g., manual credit scoring, simple portfolio diversification) evolve, modern technologies such as Artificial Intelligence (AI), Machine Learning (ML), and Blockchain are revolutionizing how banks approach risk mitigation. By leveraging these tools, financial institutions can detect fraud, assess credit risk more accurately, conduct stress testing under a variety of scenarios, and streamline compliance processes. In this article, we will examine these innovations in detail and assess their impact on commercial banking.

1. Artificial Intelligence (AI) and Machine Learning (ML) in Risk Management. AI and ML have transformed traditional risk management models. Banks are increasingly relying on these technologies to enhance their capabilities in fraud detection, credit scoring, and predictive analytics.

Fraud Detection and Prevention: AI-powered systems analyze transaction patterns in real time, identifying anomalies and preventing fraudulent activity. Machine learning algorithms improve over time as they process more data, enhancing their ability to flag potential fraud.

Credit Risk Assessment: AI and ML enable more accurate credit scoring by evaluating a wider range of data beyond traditional credit histories. This includes behavioral and transactional data, allowing for more personalized and accurate risk assessments.

Statistical Data Example: A study by McKinsey & Company found that AI-based fraud detection systems can reduce false positive rates by up to 50% compared to traditional rule-based systems.

2. Blockchain for Transparency and Security. Blockchain technology, known for its secure and decentralized nature, is another innovation transforming risk management in banking. By providing transparent, immutable transaction records, it mitigates risks associated with fraud, data breaches, and operational inefficiencies.

Enhanced Security: Blockchain provides a highly secure method of verifying transactions, reducing the likelihood of fraud and counterparty risk.

Smart Contracts: These self-executing contracts reduce operational risks by automating transactions and ensuring that terms are met without human intervention. This also minimizes the risk of errors and discrepancies in contract execution.

Statistical Data Example: According to PwC's 2020 Global Blockchain Survey, 61% of financial services organizations are already incorporating blockchain into their operations, with over 30% using it for risk management purposes.

3. Stress Testing and Scenario Analysis. Stress testing is essential for evaluating the resilience of a bank's portfolio under adverse conditions. Recent advancements have made stress testing more dynamic, enabling more comprehensive risk management strategies.

Dynamic Stress Testing: With powerful data processing tools, banks can simulate various economic and geopolitical scenarios to assess how their portfolios would perform under stress. This helps identify vulnerabilities and prepare for worst-case situations.

Scenario Analysis with Big Data: By utilizing big data sources, banks can forecast potential risks more accurately. For example, analyzing real-time market data, geopolitical developments, and even social media sentiment can inform risk management decisions.

Statistical Data Example: In 2023, the European Central Bank (ECB) reported that 80% of EU banks used dynamic stress testing models that integrate macroeconomic data, financial market indicators, and historical crisis data for more comprehensive risk assessments.

4. RegTech for Enhanced Compliance. Regulatory technology (RegTech) is another area where innovation has streamlined risk management. With financial regulations becoming increasingly complex, RegTech tools help banks automate compliance processes and mitigate legal and reputational risks.

Automated Compliance Monitoring: RegTech platforms provide real-time monitoring for compliance with local and international regulations, reducing the risk of penalties and operational disruptions.

Anti-Money Laundering (AML) and KYC: RegTech tools are used to automate the process of Know Your Customer (KYC) checks and Anti-Money Laundering (AML) monitoring, improving accuracy and reducing manual errors.

Statistical Data Example: Deloitte reports that the use of RegTech tools can reduce compliance costs by up to 30%, while also decreasing the time spent on regulatory reporting by as much as 50%.

5. Data-Driven Decision-Making. The vast amounts of data generated by financial transactions and market activity provide banks with valuable insights into potential risks. Banks are increasingly adopting data-driven decision-making to improve the accuracy and timeliness of their risk assessments.

Predictive Analytics: By using big data and machine learning models, banks can predict emerging risks, such as loan defaults, market downturns, or liquidity shortages, and take proactive measures to mitigate these risks.

Real-Time Dashboards: Data visualization tools enable banks to monitor their risk exposure in real-time, ensuring they can quickly respond to shifts in market conditions or internal operations.

Statistical Data Example: A Gartner report suggests that 62% of banks that adopted data analytics for risk management reported an improvement in their decision-making capabilities and risk mitigation strategies.

Conclusion. Innovative risk management approaches are fundamentally reshaping the way commercial banks assess, manage, and mitigate risks. Technologies such as AI, ML, Blockchain, and RegTech are providing banks with more accurate, real-time insights into their risk exposure, enabling them to respond proactively to emerging threats.

As the financial industry continues to evolve, the integration of these technologies will play a pivotal role in enhancing the resilience and security of financial institutions. However, the adoption of these innovations requires continuous investment in both technology and human capital to ensure that banks are prepared for an increasingly complex risk environment.
The future of risk management lies in leveraging these innovations to not only safeguard against risks but also drive growth and competitive advantage in an ever-changing global economy.

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