ASSESSING THE EFFICIENCY OF FINANCIAL TECHNOLOGY IMPLEMENTATION IN THE ECONOMIC ACTIVITIES OF COMMERCIAL BANKS

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Abstract. *This thesis examines the efficiency of implementing financial technologies in the economic activities of commercial banks. The study analyzes how FinTech adoption influences key performance dimensions, including cost efficiency, profitability, risk management, operational effectiveness, and customer-related outcomes. Based on a structured assessment framework, the paper highlights that financial technologies contribute to reducing operating costs, improving asset quality, increasing productivity, and supporting sustainable revenue growth. The results demonstrate that FinTech implementation should be considered a strategic driver of economic performance rather than merely a technological upgrade.*

Keywords: *FinTech; commercial banks; economic efficiency; digital transformation; banking performance; financial technologies.*

In the context of rapid digital transformation, financial technologies (FinTech) have become a key driver of change in the economic activities of commercial banks. The adoption of digital banking platforms, artificial intelligence, Big Data analytics, and automated processes is fundamentally reshaping traditional banking operations, enhancing efficiency, and improving the quality of financial services. As competition intensifies and customer

expectations evolve, the ability of banks to effectively implement FinTech solutions has become a critical factor in maintaining economic sustainability and market competitiveness.

Assessing the efficiency of FinTech implementation in commercial banks' economic activities is particularly important, as digital innovations require significant financial investments and organizational changes. The effectiveness of these technologies is reflected not only in cost reduction and productivity gains, but also in improved profitability, risk management, and customer satisfaction. Therefore, a systematic evaluation of the economic outcomes of FinTech adoption is essential for understanding its real contribution to banking performance.

From this perspective, analyzing the efficiency of implementing financial technologies in the economic activities of commercial banks represents a relevant scientific and practical task, aimed at identifying key benefits, limitations, and future development directions of FinTech-driven banking transformation.

Existing international literature provides strong evidence that the efficiency of FinTech implementation is closely linked to the economic performance of commercial banks, particularly through cost optimization, productivity growth, and improved risk management.

Studies by the Basel Committee on Banking Supervision emphasize that FinTech adoption affects banks' economic efficiency by transforming core business processes such as credit assessment, compliance, and internal controls. The Committee highlights that technologies like artificial intelligence and data analytics can improve asset quality and reduce operational risks, provided that banks establish adequate governance and risk management frameworks [1].

Research conducted by the Organisation for Economic Co-operation and Development focuses on the economic impacts of digital transformation in the banking sector. According to the OECD, FinTech innovations enhance cost

efficiency, increase competitive pressure, and improve service delivery, which ultimately leads to higher profitability and productivity in commercial banks. The organization also stresses the importance of measuring FinTech efficiency through performance indicators such as cost-to-income ratios and return on assets [2].

The World Bank examines FinTech from a development and efficiency perspective, highlighting its role in improving operational performance and financial inclusion. World Bank studies show that the economic benefits of FinTech depend on institutional readiness, regulatory quality, and digital infrastructure, suggesting that efficiency outcomes may vary across countries and banking systems [3].

While individual FinTech tools generate direct efficiency gains, a comprehensive assessment of their effectiveness in commercial banks requires a broader, indicator-based approach. Such an approach allows evaluating FinTech implementation not only through cost and productivity effects, but also through profitability, risk reduction, and operational quality. In this context, Table-1 presents key efficiency assessment dimensions, relevant performance indicators, and the expected impact of FinTech adoption on commercial banks' economic activities.

Table-1

Assessment Framework for the Efficiency of FinTech Implementation in Commercial Banks

Efficiency dimension	Key performance indicators (KPIs)	Role of FinTech solutions	Expected economic outcome

Cost efficiency	Cost-to-income ratio, operating expenses	Process automation, digital channels	Lower operating costs
Profitability	ROA, ROE, net interest margin	Data-driven pricing, personalized products	Higher returns on assets and equity
Risk efficiency	NPL ratio, loan loss provisions	AI-based credit scoring, predictive analytics	Improved asset quality
Operational efficiency	Transaction processing time, error rates	Digital workflows, straight-through processing	Faster and more reliable operations
Labor productivity	Revenue per employee, transactions per staff	RPA, workflow automation	Higher productivity per employee
Customer efficiency	Customer retention rate, service usage	Digital platforms, omnichannel banking	Increased customer lifetime value

Source: Compiled by the author based on OECD, Basel Committee on Banking Supervision, and World Bank methodological approaches.

Table-1 demonstrates that the efficiency of FinTech implementation in commercial banks should be evaluated through multiple, interconnected dimensions. Cost efficiency remains one of the most immediate benefits, as automation and digital service delivery significantly reduce operating expenses and improve cost-to-income ratios.

Profitability indicators such as ROA and ROE reflect more strategic effects of FinTech adoption. By leveraging data analytics and personalized financial products, banks can improve pricing accuracy, increase cross-selling opportunities, and enhance overall returns. These effects tend to materialize in the medium term, highlighting the importance of sustained investment in digital capabilities.

Risk efficiency is another critical dimension. The integration of artificial intelligence and predictive analytics strengthens credit risk assessment and monitoring, leading to lower non-performing loan ratios and reduced provisioning costs. This not only improves economic performance but also enhances financial stability.

Operational efficiency gains are reflected in shorter processing times and lower error rates. Digital workflows and straight-through processing reduce manual intervention, increasing reliability and scalability of banking operations. Similarly, labor productivity improves as robotic process automation enables staff to focus on higher value-added activities.

Finally, customer-related efficiency highlights the indirect but significant economic impact of FinTech. Enhanced digital experiences improve customer retention and service usage, increasing customer lifetime value and supporting sustainable revenue growth.

Overall, the table confirms that FinTech efficiency is a multidimensional concept. Effective evaluation requires combining financial, operational, risk, and customer-based indicators to fully capture the economic impact of financial technologies on commercial banks.

The analysis confirms that evaluating the efficiency of financial technology implementation in the economic activities of commercial banks requires a comprehensive and multidimensional approach. FinTech innovations affect not only cost structures and operational processes, but also profitability, risk management, and customer-related performance. As

demonstrated by the assessment framework, the economic impact of FinTech extends beyond short-term efficiency gains and contributes to the long-term sustainability of banking institutions.

The findings indicate that improvements in cost efficiency, profitability, and operational performance are closely linked to the systematic adoption of digital solutions such as automation, data analytics, and artificial intelligence. At the same time, enhanced risk efficiency and customer engagement play a critical role in strengthening financial stability and supporting sustainable revenue growth.

Overall, FinTech implementation should be regarded as a strategic instrument for improving the economic performance of commercial banks rather than a purely technological upgrade. Banks that successfully integrate financial technologies into their core business processes and performance evaluation systems are better positioned to enhance competitiveness and adapt to the evolving digital economy.

LIST OF LITERATURE

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