



The Impact of Financial Technology on Banking Financial Performance: An Analysis of Efficiency and Profitability

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Abstract

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This study aims to analyze the influence of the application of Financial Technology on banking financial performance, especially in the dimensions of operational efficiency and profitability. This study uses a descriptive qualitative method based on a literature study by reviewing various empirical results of the last five years from national and international sources. The results of the analysis show that FinTech has a positive influence on bank efficiency through process digitization, service automation, and the reduction of operational and administrative costs. Increased efficiency helps banks strengthen their competitiveness and expand the reach of technology-based financial services. However, FinTech's impact on profitability still shows mixed results between institutions, depending on the readiness of digital infrastructure, the quality of governance, and the adaptation strategies implemented. This research confirms that FinTech is a long-term strategic investment that plays an important role in strengthening banking resilience and performance in the era of digital transformation. These findings are expected to enrich the literature on financial innovation as well as become the basis for policy-making in the development of a sustainable banking system.



1. Introduction

The development of information technology has fundamentally changed the way financial institutions operate and serve society. In the last decade, the emergence of Financial Technology (FinTech) has become one of the main drivers of digital transformation in the global financial sector. FinTech is defined as the application of digital technology to improve services, efficiency, and innovation in the financial sector through the use of big data, artificial intelligence, and cloud computing (Baskerville et al., 2020). This transformation has given birth to new business models such as digital banking, peer-to-peer lending, and digital payments, which are able to shorten the transaction chain while lowering the operational costs of financial institutions.

In the context of modern banking, FinTech is no longer seen as a competitor, but as a strategic partner that helps banks adapt to increasingly digital consumer behavior. This collaboration provides an opportunity for banks to improve the quality of services while expanding market reach. According to the Financial Services Authority (2020), the growth of the FinTech industry in Indonesia is driven by the increasing need for fast, secure, and flexible financial services, thus encouraging banks to integrate digital technology in their operations. This is also in line with Ngamal and Perajaka (2022) who affirm that the future of the financial industry will be determined by the ability of banking institutions to adopt financial technology effectively.

However, the impact of FinTech on the financial performance of banks is still an academic debate. Some studies show that FinTech adoption improves efficiency and profitability, while others find that these results are not statistically significant. Wang et al. (2021), for example, found that the implementation of FinTech in commercial banks improves cost efficiency, but has no real impact on profitability (ROA). Similar findings were also revealed by Muthaura et al. (2021) which confirms that the adoption of financial technology tends to improve operational efficiency without always increasing the bank's net profit.

On the other hand, Anggraeni and Putra (2021) in a study on state-owned banks found that FinTech collaboration can increase the Capital Adequacy Ratio (CAR) and decrease Non-Performing Loans (NPLs), but it does not necessarily improve profitability ratios such as Return on Equity (ROE). This means that FinTech can strengthen banks' financial resilience but not necessarily improve profit performance directly. Meanwhile, Adhitya and Sembel (2020) in their literature review highlighted that there is no methodological agreement in measuring the influence of FinTech on financial performance, both in terms of efficiency and profitability.

Hermuningsih and Rahmawati (2022) added that FinTech functions as a moderation variable that strengthens the relationship between capital, liquidity, and profitability, not as a direct causative factor. Thus, the effect of FinTech on banking financial performance is contextual, depending on the digitalization strategy, infrastructure readiness, and level of technological maturity in each institution. Based on this description, it can be seen that there is a research gap that shows that the

research results are not consistent between one context and another. Therefore, this study aims to examine the influence of FinTech on banking financial performance from the perspective of profitability and operational efficiency. This focus is important considering that the 2018–2022 period is the largest digital acceleration phase in the financial sector, where technological transformation is the main foundation for digital-based economic growth. By examining various recent studies, this research is expected to provide a more comprehensive understanding of how FinTech shapes banks' financial performance in a sustainable manner and supports digital transformation strategies in the banking industry.

2. Literature Review

2.1. Financial Technology (FinTech)

Financial Technology or FinTech is a form of innovation in the financial industry that utilizes digital technology to improve the speed, efficiency, and accessibility of financial services. According to Baskerville et al. (2020), FinTech enables financial institutions to automate processes, predictive analytics, and personalize services through the integration of big data analytics, artificial intelligence, and cloud computing. This technology is able to shorten the chain of financial transactions and increase customer satisfaction with lower operational costs. Furthermore, Adhitya and Sembel (2020) identified three main categories of FinTech that play a major role in the banking industry, namely digital payments, digital lending, and digital investment, which collectively create an integrated digital financial ecosystem.

Meanwhile, the Financial Services Authority report (2020) shows that FinTech growth in Indonesia has reached more than 200% in the last five years, with the highest adoption in the digital payments and financing sector. FinTech functions not only as a competitor, but also as a strategic partner for banks in expanding financial inclusion, improving efficiency, and strengthening the stability of the national financial system. Therefore, the success of FinTech integration is an important indicator for the resilience and competitiveness of the banking industry in the era of global financial digitalization.

2.2. Banking Financial Performance

The financial performance of banks represents the ability of financial institutions to manage resources to achieve optimal efficiency and profitability. Kristianti and Tulenan (2021) argue that financial performance assessments are carried out by analyzing profitability ratios such as Return on Assets (ROA) and Return on Equity (ROE), as well as efficiency through the ratio of Operating Costs to Operating Income (BOPO). Efficiency is the main indicator because it reflects the effectiveness of the use of bank resources in creating profits. In the context of financial innovation, Anggraeni and Putra (2021) found that FinTech collaboration can strengthen bank capital and reduce credit risk, but does not necessarily increase profitability. This shows that technology adoption requires the readiness of a mature business strategy and digital infrastructure.

Research by Wang et al. (2021) also supports this view, emphasizing that FinTech has a positive effect on cost efficiency, but not significantly on increasing bank net profit. Thus, the financial performance of banks is not only influenced by

the application of technology, but also by the quality of management, governance, and the level of adaptation to changes in the increasingly dynamic digital environment.

3. Methods

This research uses a descriptive qualitative method with a library research approach. The purpose of this method is to systematically describe the relationship between the application of Financial Technology (FinTech) and banking financial performance based on empirical findings as well as the latest literature over the last five-year period. This approach was chosen because it is appropriate to explore the conceptual and empirical phenomena of how FinTech affects the profitability and efficiency of banking in the context of global digital transformation.

The data used in this study is sourced from various scientific publications such as academic journals, conference proceedings, financial statements of financial institutions, and policy documents from authority institutions such as the Financial Services Authority and Bank Indonesia. The selection of sources is carried out purposively by considering the relevance of the topic, the reliability of the publication, and the research period within the last five years. The selected sources include national and international research to obtain a comprehensive picture of the role of FinTech in the banking sector.

The research stage begins with the collection of relevant literature using keywords such as FinTech adoption, banking performance, profitability, and efficiency. Each literature is analyzed to identify key findings, methods used, as well

as the context of the study. After that, a process of categorization of findings was carried out based on important themes, such as the influence of FinTech on profitability, the influence on operational efficiency, and the integration of technology in banking business models. The results of the analysis were compared to find patterns of consistency and incompatibility between publications so that a research gap could be formulated.

Data analysis is carried out with a thematic approach, where each secondary data is grouped according to the similarity of the context and variables studied. This approach aims to gain an in-depth understanding of the impact of FinTech on bank financial indicators such as Return on Assets (ROA), Return on Equity (ROE), and BOPO efficiency ratio. With a descriptive qualitative method, this study does not focus on statistical hypothesis testing, but on an in-depth interpretation of the dynamics of the relationship between technological innovation and banking financial performance. The results of the analysis are then used as a basis for compiling a conceptual synthesis that can enrich the literature on banking digitalization and provide strategic recommendations for sustainable financial system development.

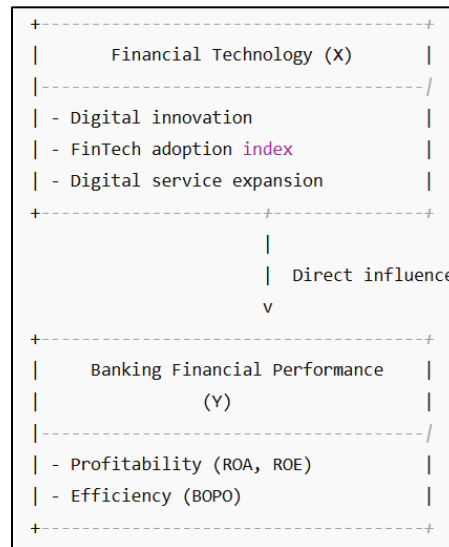


Figure.1 Conceptual Framework

This figure 1 (conceptual framework) illustrates a direct causal relationship between Financial Technology (FinTech) as the independent variable (X) and Banking Financial Performance as the dependent variable (Y). FinTech encompasses digital innovation, technological adoption, and the expansion of digital-based financial services. These factors are expected to enhance the operational and financial efficiency of banking institutions. Banking Financial Performance is evaluated through profitability indicators such as Return on Assets (ROA) and Return on Equity (ROE), as well as efficiency indicators like the Operational Cost to Operating Income ratio (BOPO). The framework assumes that greater FinTech adoption will improve both efficiency and profitability, although empirical studies suggest the magnitude of these effects may vary depending on the institution's technological readiness, management quality, and digital integration strategy.

4. Results

The results of this study are compiled based on a synthesis of various literature over the last five years that examines the influence of Financial Technology (FinTech) on banking financial performance. The analysis was carried out by reviewing empirical results from national and international contexts, both in developing and developed countries, to identify general patterns and differences in results between studies. The main objective of this section is to explain how FinTech contributes to the profitability, efficiency, and stability of the bank's financial system.

In general, most studies conclude that FinTech has a positive influence on the operational efficiency of banks, although its effect on profitability has not been completely consistent. In the context of efficiency, FinTech is considered to be able to reduce transaction costs and speed up services. The study of Muthaura et al. (2021) shows that the implementation of digital payment systems and service automation can increase employee productivity and shorten transaction processing time in microfinance institutions and commercial banks. This is reinforced by Wang et al. (2021) which found that the use of financial technology directly lowers the cost-to-income ratio (BOPO), showing increased efficiency in banking institutions in Tanzania.

However, the influence of FinTech on profitability is still varied. Some studies have found significant improvements in Return on Assets (ROA) and Return on Equity (ROE) ratios after FinTech adoption, while others have shown insignificant results. Anggraeni and Putra (2021) in their study of conventional banks in Indonesia stated that bank collaboration with FinTech companies increases capital adequacy

ratio (CAR) and reduces credit risk (Non-Performing Loan / NPL), but not all profitability ratios have increased significantly. This study shows that the success of FinTech implementation is greatly influenced by organizational readiness, digital infrastructure, and managerial adaptability.

In addition, the results of the analysis from Hermuningsih and Rahmawati (2022) found that FinTech plays a role as a moderation variable between capital and banking performance. Banks with strong capital structures and high levels of liquidity are more likely to benefit from digitalization because they have sufficient investment capacity for technology development. On the other hand, banks with limited capital face the risk of high implementation costs, so the influence of FinTech on profitability becomes less optimal. These findings are in line with the results of research by Adhitya and Sembel (2020) which identified differences in outcomes between countries based on technological readiness and financial regulations.

From an efficiency perspective, research by the Financial Services Authority (2020) reported that the growth of digital payment services and lending platforms contributed significantly to the decline in bank operating costs in Indonesia. FinTech encourages the banking system to be more inclusive through branchless banking services and digital platforms that enable fast transactions with low risk. A similar report was also put forward by Ngamal and Perajaka (2022), which stated that FinTech integration is accelerating the transformation towards a digital banking model, where the entire banking process from account opening to lending can be

done online. This digitization not only increases customer satisfaction, but also expands the user base of financial services.

Several cross-country studies provide a broader perspective on the impact of FinTech. Al-Dmour et al. (2020) examined commercial banks in Jordan and found that the application of financial technology improves operational efficiency, but does not show a significant impact on profitability in the short term. While Adebayo and Thomas (2021) researched banks in Nigeria and reported that FinTech investments increased their return on equity (ROE) ratio by 8% after three years of implementation. This shows that FinTech's influence on profitability is only felt after a certain period of adoption, when digital infrastructure and human resource competencies have stabilized.

In addition to the direct influence on financial indicators, FinTech also affects aspects of bank stability and risk. Nguyen et al. (2022) found that FinTech adoption strengthens banking stability in developing countries through diversification of revenue sources and increased technology-based risk surveillance. However, this effect can reverse if it is not balanced with adequate governance policies. The research highlights the importance of adaptive regulation and supervision in keeping pace with financial innovation so as not to create new systemic risks.

Empirically, various research results show that FinTech plays a dual role as a tool of efficiency as well as a means of competitive differentiation. Muthaura et al. (2021) confirms that cost efficiency is the most tangible impact of digital transformation, while increasing profitability is more long-term and contextual. Anggraeni and Putra (2021) show that banks that have been working with FinTech

startups for a long time tend to have a better efficiency ratio compared to banks that are just starting to adapt. This shows that there is a digital learning curve that affects the success of technology adoption.

When viewed from the CAMELS (Capital, Asset Quality, Management, Earning, Liquidity, Sensitivity) model, FinTech contributes the most to management and earning aspects. Data-driven system integration strengthens risk management, accelerates decision-making, and reduces operational costs. The effect on earnings or net income is indirect because it depends on the bank's ability to convert efficiency into a competitive advantage. In contrast, FinTech's contribution to the capital and liquidity aspects is smaller because both elements are more influenced by monetary policy factors and the bank's internal capital structure.

Based on the results of the synthesis, it can be concluded that FinTech has become an important component in modern banking business strategies. The impact on efficiency is clearly visible, while the effect on profitability still varies between countries and between time periods. Factors such as digital readiness, regulatory policies, technology literacy levels, and organizational culture are the main determinants of the success of FinTech implementation. Therefore, the relationship between FinTech and banking financial performance needs to continue to be studied in a global and national context, so that the use of this technology can provide sustainable economic value for the financial sector.

5. Discussion

The results of the study show that the application of Financial Technology (FinTech) has a significant effect on improving the operational efficiency of banks, but the impact on profitability is not uniform. These findings support the view that FinTech serves as a catalyst for digital transformation, rather than as a direct determinant of banks' profits. Efficiency increases because FinTech enables business process automation, reduced administrative costs, and acceleration of customer service. However, increasing profits often takes time because the initial investment in digital infrastructure is large and the results are only seen after the system is stable.

Research by Anggraeni and Putra (2021) shows that bank collaboration with FinTech startups strengthens capital and reduces credit risk, but has not had a significant impact on short-term profitability. This is consistent with the results of Wang et al. (2021), which shows that FinTech substantially improves cost efficiency without an increase in direct profit. Thus, FinTech can be seen as a long-term investment that strengthens the competitiveness of banks.

From a theoretical perspective, the relationship between FinTech and financial performance can be explained through the perspective of the Resource-Based View (RBV), where digital technology becomes a strategic resource that creates a sustainable competitive advantage. FinTech integration strengthens banks' ability to manage data, optimize internal processes, and develop products based on customer needs. This view is in line with Adhitya and Sembel (2020) who emphasized that financial digitalization will provide economic value if followed by product innovation and organizational adaptability.

In addition, the results of cross-border studies show that the success of FinTech is highly dependent on infrastructure readiness and regulatory support. Nguyen et al. (2022) emphasized that FinTech can strengthen bank stability if accompanied by good governance, but can also increase risks if supervision is inadequate. Therefore, the bank's digitalization strategy must be accompanied by risk mitigation policies and increasing digital literacy at all levels of the organization.

In the end, this discussion shows that FinTech not only has an impact on the financial dimension, but also on changes in the work culture, organizational structure, and business strategy of banks. Hermuningsih and Rahmawati (2022) added that FinTech functions as a moderation variable that strengthens the relationship between liquidity and profitability, showing that technology plays a role in stabilizing financial performance amid market volatility. Thus, the influence of FinTech on the financial performance of banks needs to be understood as a dynamic relationship that depends on time, resource readiness, and the ability of institutions to adapt to changes in the digital ecosystem in a sustainable manner.

6. Conclusion

This study concludes that the application of Financial Technology (FinTech) has an important role in strengthening the financial performance of banks, especially in the aspect of operational efficiency. FinTech allows banks to automate business processes, reduce operational costs, and speed up services to customers. This efficiency is the basis for increasing the competitiveness and resilience of financial institutions in the face of digital transformation. However, the influence of FinTech

on profitability still shows mixed results. This is due to differences in the level of infrastructure readiness, human resource capacity, and digital strategies implemented by each bank.

Conceptually, FinTech can be considered a long-term strategic investment whose results are only visible after the organization has successfully adjusted its internal systems and processes. Optimal financial performance will be achieved when FinTech adoption is accompanied by good governance, continuous innovation, and effective collaboration between banks and technology companies. This research emphasizes that digitalization is not just a trend, but a fundamental need for the sustainability of the banking industry. In the future, follow-up studies are recommended to examine the role of FinTech in the context of Islamic banking, micro-institutions, and its influence on the stability of the financial system as a whole.

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