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The Impact of Fintech on the Operational Efficiency of Banks in Indonesia

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Abstract

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The development of financial technology (fintech) has had a significant impact on the transformation of the banking sector, particularly in terms of operational efficiency. This study aims to analyze the influence of fintech, especially mobile banking and digital transactions, on the operational efficiency of banks in Indonesia. The research method employed is a qualitative approach using a literature review, focusing on scholarly publications from last five years. The findings reveal that fintech adoption reduces operating costs, accelerates transactions, and enhances customer satisfaction and loyalty. The operational cost-to-operating income ratio (*Biaya Operasional terhadap Pendapatan Operasional/BOPO*) has improved alongside the digitalization of banking services. Nevertheless, several challenges remain, including cybersecurity risks, gaps in digital literacy, and the need for adaptive regulations. The role of regulators such as the Financial Services Authority (*Otoritas Jasa Keuangan/OJK*) and Bank Indonesia (BI) is crucial in creating a secure and sustainable ecosystem. This study concludes that fintech acts as a key catalyst in improving banking efficiency in Indonesia, although long-term success largely depends on risk management and strategic technological investments.

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1. Introduction

Financial technology (fintech) has become a global phenomenon that is driving fundamental transformation in the financial industry. Fintech is defined as the application of technology in financial services to produce new business models, applications, processes, or products that are more efficient and inclusive. This development includes a variety of services, ranging from digital payments, online loans, application-based investments, to mobile banking. Fintech not only complements the traditional banking system, but also creates disruptive innovations that challenge the old way of providing financial services (Ma'ruf, 2021). The development of fintech cannot be separated from the global digitalization trend in the banking sector. Digital transformation has transformed the bank's business model from a physical branch-based one to an application-based service and online system.

In various countries, digital banking has been proven to increase efficiency through reducing operational costs, accelerating transactions, and automating processes that were previously manual. This phenomenon shows that technology adoption is not just an option, but a strategic need to maintain competitiveness in the digital era (Wijayanti et al., 2021). Operational efficiency is an important indicator in assessing bank performance, especially in the midst of fierce competition and profitability demands. One of the commonly used measures is the ratio of operating costs to operating income (BOPO). This ratio reflects the bank's ability to effectively manage resources to generate profits. Fintech innovations, especially through mobile banking and digital transactions, have been proven to be able to reduce operational costs by reducing reliance on physical branches and manual labor.

In addition, digital services increase customer convenience and satisfaction, which ultimately has a positive impact on bank loyalty and profitability (Kristianti & Tulenan, 2021). Indonesia is one of the fastest-growing fintech markets in Southeast Asia. Regulatory support from the Financial Services Authority (OJK) and Bank Indonesia (BI) through regulatory sandboxes, consumer protection policies, and innovation support initiatives has created a conducive environment for fintech development. However, there are sigificant challenges, including cybersecurity risks, digital literacy gaps, and the need for sustainable and adaptive regulation. This challenge needs to be overcome so that the fintech ecosystem in Indonesia can grow sustainably while supporting banking efficiency.

Previous international studies have shown a positive relationship between fintech and bank efficiency. For example, a study in China found that the adoption of fintech significantly improves bank efficiency through digitalization and automation (Yang & Wang, 2022). However, research that specifically highlights the Indonesian context is still relatively limited. This research gap is important, considering that Indonesia has unique characteristics in terms of demographics, level of financial inclusion, and regulatory framework. Therefore, further research on the impact of mobile banking and digital transactions on bank efficiency in Indonesia, especially its effect on the BOPO ratio, is very relevant.

The purpose of this study is to explain the influence of fintech, especially mobile banking and digital transactions, on the operational efficiency of banks in

Indonesia. In addition, this study aims to identify the role of technology investment in improving efficiency and provide strategic recommendations for banks and regulators. With this focus, this research is expected to make practical contributions to policymakers and academic contributions in enriching the literature on fintech and banking in Indonesia.

2. Literature Review

2.1. Fintech as a Global Phenomenon

The fintech phenomenon has changed the paradigm of financial services around the world. Fintech provides technology-based financial services that are faster, more accessible, and more efficient compared to traditional models. These developments cover various aspects, ranging from digital payment systems, online lending platforms, to blockchain technology and robo-advisors. These innovations not only improve transaction efficiency, but also expand financial inclusion by reaching community groups that were previously not served by banks. In addition, fintech has driven healthier competition in the financial industry as traditional banks are encouraged to innovate and integrate digital-based services in their operations (Wang et al., 2021).

International studies also show that fintech adoption is closely related to banking efficiency. For example, research in China revealed that big data-based fintech allows commercial banks to improve efficiency through better risk analysis and personalization of services to customers (Chen et al., 2021). This shows that fintech not only lowers operational costs, but also improves the quality of strategic decision-making. As such, fintech has become a key factor driving global change in the banking industry, making it a highly relevant topic to research, including in the context of developing countries such as Indonesia.

2.2. Digital Banking and Efficiency

Digital banking is one of the main manifestations of fintech that has a direct influence on the operational efficiency of banks. Through digital banking, transactions that previously required high fees and a long time can be done instantly at a lower cost. The use of mobile banking applications, internet banking, and other digital channels has made banks able to reduce their dependence on physical branches and manual labor. The impact can be seen in the improvement of efficiency ratios, where the bank's operating costs can be reduced without reducing the quality of services.

In addition to cost savings, digital banking also increases customer satisfaction and loyalty. Fast, accessible, and flexible services improve the user experience, which in turn supports the growth of the bank's market share. Research in Indonesia shows that the adoption of digital banking contributes significantly to improving the efficiency of commercial banking, especially when combined with a comprehensive digital transformation (Kristianti & Tulenan, 2021). This emphasizes that digital banking is not just an operational tool, but a long-term business strategy that can strengthen the competitiveness of banking in the digital era.

2.3. Fintech in Indonesia: Regulation and Challenges

Indonesia is one of the fastest-growing fintech markets in Southeast Asia. Regulatory support from the Financial Services Authority (OJK) and Bank Indonesia

(BI) through regulatory sandbox policies, strengthening consumer protection, and encouraging innovation has created an ecosystem conducive to fintech development. However, along with this rapid growth, a number of challenges also arise that need to be overcome, such as cybersecurity risks, low digital literacy in some communities, and access gaps between urban and rural areas (Widyastuti et al., 2022).

In addition, the development of fintech in Indonesia also demands stronger synergy between banks and fintech startups. Recent studies show that collaboration between banks and fintech can increase efficiency while strengthening competitiveness, as long as it is supported by clear and adaptive regulations (Frederica et al., 2021). Thus, although Indonesia has great potential in developing the fintech ecosystem, its long-term success is largely determined by the role of regulation and the readiness of the banking industry in managing digital risks.

3. Methods

This research uses a qualitative approach with the method of literature study or literature review. This approach was chosen because it is suitable for analyzing the phenomenon of fintech, digital banking, and banking operational efficiency that continues to develop, especially in the Indonesian context. The literature review allows researchers to identify, review, and synthesize findings from various previous studies, so as to provide a comprehensive understanding of the role of fintech in improving bank operational efficiency. The research stage begins with the identification of relevant literature sources. The search was conducted through academic databases such as Google Scholar, Researchgate and Esevier using the keywords "fintech and banking efficiency," "digital banking Indonesia," "mobile banking efficiency," and "BOPO ratio fintech." The search time span is focused on the last five years of publications to ensure that the articles used are up-to-date and contextual with the latest developments in the digital finance industry.

After that, the article selection process is carried out by considering relevance and quality. The selected articles include both empirical and conceptual research highlighting the relationship between fintech and banking operational efficiency. In addition, literature that discusses regulatory challenges, digital security, and the impact of mobile banking adoption on bank efficiency ratios are also included in the study. International research is used as a comparison to see how the fintech phenomenon affects the efficiency of banks in different countries, while the local literature focuses on the Indonesian context which has unique characteristics.

Data analysis was carried out using thematic analysis techniques. The researchers grouped findings from various literature into key themes, such as the role of fintech in improving bank efficiency, the contribution of mobile banking and digital transactions to the BOPO ratio, as well as the role of regulation in building a sustainable digital financial ecosystem. Through this grouping, researchers can identify patterns, gaps, and practical implications that are relevant to the Indonesian banking industry. To maintain the validity of the research results, literature triangulation was carried out. This step involves comparing findings from various articles to ensure consistency of information.

The researcher only uses articles from reputable journals that go through a peer-review process to ensure the credibility of the data. In addition, the researcher also seeks to integrate perspectives from cross-border research with research in Indonesia, so that a more holistic picture is obtained. This qualitative approach through the literature review provides flexibility in exploring complex issues related to fintech and banking. Although this method does not involve primary data such as interviews or surveys, the results of a literature analysis can provide a strong and relevant theoretical basis. Furthermore, this study can also serve as a reference for future empirical research that may use a quantitative approach to directly measure the influence of fintech on bank efficiency ratios. Thus, the research method used is expected to be able to answer research questions about how fintech, especially mobile banking and digital transactions, affects the operational efficiency of banks in Indonesia. In addition, this method also allows researchers to provide evidence-based recommendations for banks and regulators in facing challenges and taking advantage of the opportunities offered by fintech developments in the digital era.

4. Results

The results of this study were obtained through a synthesis of various relevant literature regarding the relationship between fintech, digital banking, and banking operational efficiency. Analysis of the literature shows that fintech, especially in the form of mobile banking and digital transactions, makes a significant contribution to improving the efficiency of banks in Indonesia. This is shown through reducing operational costs, increasing productivity, and improving the quality of service to customers. First, the adoption of mobile banking in Indonesia has been proven to speed up the financial transaction process and reduce dependence on physical branches. Mobile banking services allow customers to transfer, pay, and purchase financial products quickly and efficiently. According to research by Ma'ruf (2021), the application of financial technology in the Indonesian banking sector has increased operational efficiency by reducing service time and administrative costs. Thus, banks are able to reduce the BOPO ratio and increase profit margins without having to expand physical infrastructure.

Second, digital banking also has a positive impact on customer loyalty. The efficiency created through digital services has an effect on increasing customer satisfaction, as they get faster, transparent, and more accessible services. Mbama et al. (2018) found that digital banking not only reduces costs, but also contributes to increased revenue through the growth of the customer base. These findings reinforce the argument that operational efficiency does not solely depend on cost reduction, but also on the ability of banks to leverage technology to expand markets.

Third, the results of the study show that the integration of fintech into the Indonesian banking system is supported by progressive regulations. OJK and BI play an important role in creating a safe and conducive environment for fintech growth through regulatory sandboxes, consumer protection, and innovation initiatives. Widyastuti et al. (2022) emphasized that regulations in Indonesia have helped maintain the discipline of the banking market while encouraging collaboration between banks and fintech startups. Clear and adaptive regulation allows banks to adopt new technologies without sacrificing financial system stability.

In addition, international research also provides evidence to support the results in Indonesia. A study by Yang and Wang (2022) in China shows that the adoption of fintech is able to improve bank efficiency through digitalization and automation of internal processes. This is relevant to the Indonesian context, where banking digitalization is also a key factor in increasing efficiency. Similarly, a study by Wang, Xiuping, and Zhang (2021) in China confirms that big data-based fintech can help banks improve efficiency through more accurate risk analysis. These two studies show a global pattern that is in line with developments in Indonesia.

Fourth, the results of the review also reveal the challenges faced by Indonesian banks in integrating fintech. One of the main challenges is cybersecurity. While the adoption of mobile banking and digital banking brings efficiencies, threats such as hacking, digital fraud, and data leakage are serious risks that must be managed. Frederica et al. (2021) emphasized that collaboration between banks and fintech must be accompanied by the implementation of strict regulations to reduce digital risks. Thus, operational efficiency can only be achieved in a sustainable manner if system security is also considered.

Fifth, the literature also shows that there is a gap in digital literacy in Indonesia. Not all customers have the ability or access to take advantage of digital services. This is especially noticeable in rural areas or communities with low levels of education. Wijayanti et al. (2021) revealed that although digital banking improves the efficiency of commercial banks, there are still challenges in terms of public adoption. Therefore, banks need to invest resources in digital literacy programs to ensure that the transformation towards fintech-based services is accessible to all segments of society.

Sixth, technology investment has proven to be a decisive factor in improving efficiency. A study by Li et al. (2022) highlights the role of fintech in improving bank operational efficiency while reducing decision-making risk. In the Indonesian context, banks that are more aggressive in investing in technology infrastructure tend to have more efficient operational performance compared to banks that still rely on traditional methods. This shows that fintech adoption is not just a tactical choice, but a long-term strategy that can determine the competitiveness of banks in an increasingly competitive market.

Seventh, collaboration between banks and fintech is becoming an increasingly prominent trend in improving efficiency. This collaboration allows banks to leverage the speed and innovation of fintech startups, while fintech gains legitimacy and stability from existing banking infrastructure. A study by Le et al., (2021) in Vietnam shows that mobile banking applications developed through collaboration with fintechs are able to significantly improve bank performance. These findings are also relevant to the condition of Indonesia, where similar collaborations are increasingly being carried out. The results of this study confirm that fintech, especially mobile banking and digital banking, makes a major contribution to improving the operational efficiency of banks in Indonesia. This positive impact can be seen in reducing operational costs, increasing customer satisfaction, and expanding access to financial services. However, there are also challenges that must be overcome, such as cybersecurity risks, digital literacy gaps, and the need for adaptive regulation.

Therefore, sustainable efficiency can only be achieved through synergy between banks, fintech, regulators, and society.

5. Discussion

The results of this study show that fintech, especially mobile banking and digital banking, has a significant contribution to improving the operational efficiency of banks in Indonesia. However, these results need to be discussed further in theoretical and practical frameworks in order to provide a deeper understanding of their implications. First, the finding that mobile banking is able to reduce the BOPO ratio by reducing dependence on physical branches is in line with the theory of cost efficiency in financial management. Efficiency can be achieved when the inputs needed to produce output can be suppressed to a minimum. With digital services, banks no longer need to build multiple branches or recruit additional workers to handle high transaction volumes. This indicates a global pattern where digital banking functions as a lever for efficiency, although implementation challenges vary from country to country.

Second, efficiency is not only limited to the aspect of cost reduction, but also includes increasing revenue through the growth of the customer base and customer satisfaction. Mbama et al. (2018) study shows that digital banking can be a long-term strategy to expand market share. This discussion shows that operational efficiency supported by fintech should not be understood only in terms of savings, but also as a means to create added value. This perspective is important for banks in Indonesia to adopt, so that they not only focus on internal efficiency, but also on improving customer experience as part of their business strategy.

Third, although fintech provides many benefits, there are major challenges that must be faced, especially related to cybersecurity and regulation. Risks such as data leaks, hacking, and digital fraud are real threats to the sustainability of the digital financial system. The results of this study are in line with the findings of Frederica et al. (2021) who emphasized that bank and fintech collaboration must be accompanied by strong regulations. Without adaptive regulations and adequate security systems, the efficiencies gained can become fragile and pose systemic risks. Thus, the role of regulators is key in ensuring that fintech developments support long-term financial stability. In general, this discussion emphasized that operational efficiency through fintech is multidimensional. Banks in Indonesia not only need to invest in technological infrastructure, but also in aspects of regulation, digital literacy, and security. In addition, synergy between banks, regulators, and fintech needs to be strengthened so that the efficiency achieved can be sustainable and inclusive. In other words, the efficiency obtained is not only pseudo-efficiency, but efficiency supported by a system that is stable, safe, and able to reach all levels of society.

6. Conclusion

This study confirms that fintech, especially mobile banking and digital banking, has brought significant changes to the efficiency of banking operations in Indonesia. Through the adoption of digital technology, banks are able to reduce operational costs, speed up the transaction process, and increase customer satisfaction and loyalty. The resulting efficiencies come not only from cost savings, but also from revenue growth opportunities through expanding customer base and improving service quality. In addition to the advantages offered, the study also identified a number of important challenges. Cybersecurity risks, digital literacy gaps, and the need for adaptive regulation are key issues that must be managed properly. Without serious attention to these factors, the efficiencies achieved can be temporary and unsustainable. Therefore, collaboration between banks, regulators, and fintech service providers is indispensable to build a safe, inclusive, and innovative ecosystem.

The results of this study also confirm the importance of investing in technology as a long-term strategy. Banks in Indonesia that dare to invest in digital infrastructure and technology-based service development tend to have more efficient performance. However, such investment must be balanced with strong security policies and digital literacy programs to ensure that the benefits of fintech can be felt equally by all levels of society. This study provides an overview that fintech is the main catalyst in driving the operational efficiency of banks in Indonesia. However, long-term success is largely determined by how banks and regulators manage risk and take advantage of the opportunities offered by technology. With the right approach, fintech can become an important pillar in realizing a more efficient, stable, and sustainable banking system in the digital era.

References

Chen, X., You, X., & Chang, V. (2021). FinTech and commercial banks' performance in China: A leap forward or survival of the fittest?. *Technological Forecasting and Social Change*, *166*, 120645.

Frederica, D., Augustine, Y., Murwaningsari, E., & Mayangsari, S. (2021). The effect of fintech and bank collaboration on banking performance in indonesia moderated by the implementation of regulations. *International Journal of Business, Economics and Law*, *24*(1), 1.

Kristianti, I., & Tulenan, M. V. (2021). Dampak financial technology terhadap kinerja keuangan perbankan. *KINERJA: Jurnal Ekonomi dan Manajemen*, *18*(1), 57-65.

Le, T. T., Mai, H. N., Phan, D. T., Nguyen, M. N., & Le, H. D. (2021). Fintech Innovations: The Impact of Mobile Banking Apps on Bank Performance in Vietnam. *International Journal of Research and Review*, *8*(4), 391-401.

Li, G., Elahi, E., & Zhao, L. (2022). Fintech, bank risk-taking, and risk-warning for commercial banks in the era of digital technology. *Frontiers in psychology*, *13*, 934053.

Ma'ruf, M. (2021). Pengaruh fintech terhadap kinerja keuangan perbankan syariah. *Yudishtira Journal: Indonesian Journal of Finance and Strategy Inside*, *1*(1), 42-61.

Mbama, C. I., Ezepue, P., Alboul, L., & Beer, M. (2018). Digital banking, customer experience and financial performance: UK bank managers' perceptions. *Journal of Research in interactive Marketing*, *12*(4), 432-451.

Wang, Y., Xiuping, S., & Zhang, Q. (2021). Can fintech improve the efficiency of commercial banks? An analysis based on big data. *Research in international business and finance*, *55*, 101338.

Wijayanti, R. P., Al Azizah, U. S., Daulay, Y., & Nugroho, A. W. (2021). The effect of digital banking innovation on the perfromance of conventional commercial banks in Indonesia. *International Journal Economic and Business Applied*, *2*(2), 1-14.

Widyastuti, U., Febrian, E., Sutisna, S., & Fitrijanti, T. (2022). Market discipline in the behavioral finance perspective: a case of Sharia mutual funds in Indonesia. *Journal of Islamic Accounting and Business Research*, *13*(1), 114-140.

Yang, L., & Wang, S. (2022). Do fintech applications promote regional innovation efficiency? Empirical evidence from China. *Socio-Economic Planning Sciences*, *83*, 101258.