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Digitalization and Profitability of Conventional Banks in Indonesia: Efficiency, Transactions, and Risks

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Abstract

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The rapid advancement of digital technologies has significantly transformed the banking industry worldwide, including in Indonesia. This study explores the impact of digitalization on the profitability of conventional banks, focusing on three dimensions: operational efficiency, transaction volume, and the risks and challenges associated with digital transformation. Using a qualitative descriptive-analytical approach, the study synthesizes recent literature to capture the dynamics of digital adoption in Indonesia's banking sector. The findings indicate that digitalization enhances profitability through reduced operational costs, higher transaction frequency, and broader accessibility, thereby supporting financial inclusion. However, the study also reveals that digitalization introduces significant challenges, such as cybersecurity threats, high technological investment costs, and external pressures from macroeconomic fluctuations and fintech competition. These findings highlight that while digitalization offers substantial opportunities for conventional banks to improve profitability, its success depends on comprehensive risk management, sufficient capital readiness, and regulatory support. This study contributes to both academic discourse and practical strategies by emphasizing that digital transformation in conventional banking should be viewed as a long-term, strategic investment rather than a short-term solution.

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1. Introduction

Digital transformation has become an inevitable global trend, including in the banking sector. Banking digitalization, which includes the use of mobile banking, internet banking, big data analysis, artificial intelligence, blockchain, and synergy with financial technology (fintech), has revolutionized the way banks operate and serve customers. This phenomenon goes hand in hand with changes in people's behavior towards a cashless society, the increase in online transactions, and the popularity of digital wallets (e-wallets) that offer convenience and speed of transactions. In this context, banks around the world, including Indonesia, face a major challenge to balance digital innovation with the need to maintain profitability and financial stability (Kasri et al., 2022).

In Indonesia, digitalization has driven a shift in the banking landscape. Conventional banks that previously relied on face-to-face services began to integrate digital platforms to be able to compete with pure digital banks and fintech companies. This transformation is not only a strategic choice, but a need to maintain competitiveness in the era of technological disruption. Research shows that digital innovations, such as mobile services and internet banking, have a significant influence on the financial performance of conventional banks in Indonesia, especially in terms of profitability as reflected in Return on Assets (ROA) and Return on Equity (ROE) (Imamah & Safira, 2021).

The significance of this topic is very large considering that profitability is the main indicator of a bank's financial health. A stable level of profit not only reflects operational success, but also determines the bank's ability to deal with external risks.

In the context of fierce competition, digitalization is seen as a strategy that can increase efficiency and expand the reach of services. Some studies have even confirmed that digitalization is able to lower operational costs while increasing transaction volumes, which ultimately strengthens the competitive position of conventional banks (Kitsios et al., 2021).

However, the digitalization process does not necessarily guarantee higher profitability. Challenges such as the need for large investments in technology infrastructure, cybersecurity risks, and the potential for increased non-performing loans remain serious threats. For example, the study found that a bank's profitability is not only determined by internal factors such as operational efficiency, but is also influenced by external conditions, including interest rate fluctuations and macroeconomic stability (Wirawan et al., 2018). Thus, conventional banks are required to be able to manage these dynamics so that digitalization really has a positive impact on financial performance.

Previous studies have shown mixed results on the relationship between digitalization and profitability. Several studies have found significant positive impacts, especially related to increased transaction efficiency and volume. For example, the implementation of internet banking has been proven to increase the attractiveness of conventional bank services and expand the customer base (Mamun & Ningsih, 2021). On the other hand, there are also results that emphasize that digital adoption does not always have a direct impact on profitability, depending on the readiness of the bank's infrastructure and management strategy (Yunita, 2021).

The research gap arises because many studies focus more on macroeconomic factors or the internal conditions of banks, while specific studies on the role of digitalization on the profitability of conventional banks in Indonesia are still limited (Nastiti & Kasri, 2019). This creates space for more in-depth research to understand the extent to which digitalization really adds value to the profitability of national banks. This study aims to analyze the impact of banking digitalization on the profitability of conventional banks in Indonesia, focusing on three main aspects: operational efficiency, transaction volume, and associated risks and challenges. Thus, this research is expected to make a theoretical and practical contribution. From an academic perspective, this study enriches the literature on the relationship between digitalization and profitability in the context of developing countries. From a practical perspective, the results of the research can be a reference for policymakers and banking practitioners in formulating digital strategies that are effective and sustainable. Through a more comprehensive understanding, conventional banks in Indonesia are expected to be able to not only survive, but also grow in an increasingly competitive digital banking ecosystem.

2. Literature Review

2.1. Operational Efficiency through Digitalization

Operational efficiency is one of the main benefits of implementing banking digitalization. Through the adoption of digital technology, conventional banks can cut operational costs that were previously allocated for manual activities, such as face-to-face services, physical document processing, and branch maintenance.

Digitization allows the automation of various transaction processes, from account opening, fund transfers, to credit applications. This not only speeds up services, but also reduces reliance on labor and physical infrastructure. Thus, banks can allocate resources more optimally for other strategic activities. In the Indonesian context, research shows that digitalization plays an important role in improving the efficiency of conventional banks. Digital transformation not only reduces operational costs, but also improves service quality by providing easier access for customers.

Mobile and internet banking services, for example, have been proven to be able to increase customer satisfaction while expanding market penetration without having to open new branches (Kitsios et al, 2021). In addition, increasing efficiency through digitalization also has an impact on more stable profitability because banks can keep the ratio of operating expenses to revenue under control. Another study confirms that banks that successfully implement digitalization comprehensively are able to record better financial performance compared to banks that are still lagging behind in digital transformation (Wijayanti et al., 2021). Thus, it can be concluded that digitalization is not just a technological innovation, but also a fundamental strategy to create sustainable operational efficiency. This efficiency ultimately contributes directly to the profitability of conventional banks in Indonesia.

2.2. Transaction Volume and Accessibility of Digital Services

In addition to efficiency, banking digitalization also has a significant impact on increasing transaction volume. Digital services allow customers to carry out banking activities anytime and anywhere, thus expanding the bank's reach. The adoption of internet banking and mobile banking provides flexibility for customers to access banking products and services, including fund transfers, bill payments, and investments. This convenience encourages a higher transaction frequency while increasing customer loyalty to conventional banks. Research in Indonesia shows that the implementation of digital services has increased the attractiveness of conventional banks in the eyes of the public, especially among the younger generation who are more familiar with technology.

Internet banking services have been proven to expand the customer base and strengthen the competitiveness of banks, which ultimately has an impact on increasing profitability through increased commission-based revenue and service fees. On the other hand, other research highlights that banking digitalization also affects the accessibility of services to previously hard-to-reach regions, thereby increasing opportunities for financial inclusion in Indonesia (Siwi, 2022). This increased accessibility allows conventional banks to expand the market without the need for physical expansion, which usually requires large costs. Thus, digital services not only expand market reach but also increase the intensity of transactions. These two factors play an important role in strengthening the profitability of conventional banks amid competition with pure digital banks and fintech.

2.3. Risks and Challenges of Digitalization

While digitalization offers many advantages, conventional banks still face various risks and challenges that can affect profitability. One of the main risks is cybersecurity. With the increase in digital transactions, the threat of cyberattacks such as phishing, system hacking, and data theft is getting bigger. This risk not only causes direct financial losses, but can also damage customer trust in the bank. In addition, digitalization requires significant investments in technology infrastructure, human resource training, and continuous system updates. This investment burden can reduce profitability, especially for banks with limited capital capacity. In Indonesia, research found that a bank's profitability is not only determined by internal efficiency, but also influenced by external factors such as macroeconomic conditions and market stability.

Fluctuations in interest rates, inflation, as well as exchange rates can exacerbate the risks that banks face even though they have adopted digitalization (Wirawan et al., 2018). In addition, digital adoption that is not accompanied by organizational readiness can pose new challenges, such as increasing non-performing loans and the inability to make optimal use of digital data potential (Yunita, 2021). Therefore, digitalization should be viewed as a long-term process that requires comprehensive risk management. In conclusion, while digitalization opens up great opportunities for increased profitability, the risks and challenges that come with it should not be overlooked. Conventional banks need to develop a strong risk mitigation strategy so that digitalization is truly a driver of business sustainability.

3. Methods

This study uses a qualitative method with a descriptive-analytical approach to explore the impact of banking digitalization on the profitability of conventional banks in Indonesia. This approach was chosen because qualitative research allows researchers to understand phenomena in depth through the interpretation of the context, dynamics, and meanings inherent in the object being studied. The main focus is not on quantitative measurement, but on a comprehensive analysis of how digitalization affects profitability through operational efficiency, increased transaction volumes, and emerging risks and challenges.

Operationally, this study relies on secondary data obtained from various academic and non-academic sources. The main sources include scientific journal articles, research reports, and official publications from financial institutions and banking regulators in Indonesia, such as the Financial Services Authority (*Otoritas Jasa Keuangan*/OJK) and Bank Indonesia. The articles analyzed were selected based on the last 5 years time span, to ensure that the findings discussed are relevant to the latest developments in the digital transformation of banking. Thus, this study seeks to present a contemporary picture of the actual condition of the banking industry in the digital era.

The research procedure is carried out in several stages. First, the data collection stage is carried out by selecting literature related to banking digitalization, profitability, operational efficiency, risks, and external factors relevant to the Indonesian context. The selection process is carried out systematically with inclusion criteria in the form of direct linkages to the issue of digitalization and profitability of conventional banks. Second, the data reduction stage is carried out by sorting out relevant information from the collected literature, then classifying it into three main themes: operational efficiency, transaction volume, and risks and challenges. The third stage is data presentation, where the information that has been organized is then compiled in the form of a descriptive narrative that describes the relationship between digitalization and profitability. The final stage is the drawing of conclusions, which is done by linking findings from various literature to answer research questions.

Data analysis was carried out in a descriptive-analytical manner. Descriptive analysis is used to describe facts regarding the implementation of digitalization in the Indonesian banking sector, while analytical analysis is used to interpret the cause-and-effect relationship between digitalization and the profitability of conventional banks. The validity of the data is maintained by using the source triangulation technique. This means that research findings are not only based on a single source or one perspective, but are compared and verified with a variety of different sources. This aims to increase the reliability and validity of research results. In addition, this study also considers the regulatory context and competitive dynamics of the banking industry in Indonesia, so that the resulting interpretation is inseparable from the practical reality faced by conventional banks.

Using a descriptive-analytical qualitative method, this study is expected to be able to provide a comprehensive overview of the impact of digitalization on the profitability of conventional banks in Indonesia. This method allows for a more in-depth exploration, not only regarding the opportunities that digitalization offers, but also the risks and challenges that banks need to anticipate. Ultimately, this approach is expected to make a practical contribution to policymakers and bank management in formulating effective digital strategies, as well as making an academic contribution to the banking literature in the digital era.

4. Results

The results of the study show that banking digitalization has a significant role in influencing the profitability of conventional banks in Indonesia. Digital transformation has changed the way banks run their operations, from managing customer data, recording transactions, to providing credit services. Through automation and system integration, conventional banks are able to cut operational costs that were previously absorbed for manual administration and maintenance of physical branches. Digital services such as mobile banking and internet banking also allow banks to reduce their reliance on physical infrastructure that requires large investments, resulting in efficiencies in cost structures. These findings are strengthened by research conducted by Imamah and Safitri (2021), which found that digital innovation contributes positively to increasing the profitability of conventional banks. In another study, Kitsios et al. (2021) stated that digital transformation helps banks in reducing the ratio of operating expenses to revenue, so that profit margins can be maintained even though competition between banks is getting more intense. Thus, operational efficiency obtained from digitalization is one of the important factors in maintaining the bank's financial performance in the midst of technological disruption.

In addition to contributing to efficiency, digitalization also has an impact on increasing the volume of banking transactions. Digital services allow customers to carry out various financial activities without being limited by branch operating hours. This drives a higher transaction frequency compared to conventional systems. The adoption of internet banking and mobile banking has increased the convenience of customers in making payments, transferring funds, and purchasing investment products. Jumono and Mala (2019) found that internet banking services have a significant impact on profitability through increasing transactions and expanding the customer base. Similarly, the research of Siwi (2022) confirms that digitalization expands access to financial access to previously hard-to-reach areas, thereby supporting national financial inclusion programs. This wider accessibility allows conventional banks to increase commission-based revenue and service fees, which directly strengthens profitability.

Digitalization also opens up opportunities for product diversification offered by conventional banks through digital platforms. Banking applications are now not only used for basic transactions, but also as a means of promoting investment products, insurance, and microcredit services. This product diversification increases fee-based income, which is important for maintaining the bank's financial stability. In addition, the increase in the volume of digital transactions creates customer loyalty, because users who are already familiar with certain systems tend to be reluctant to move to other banks. With the transition cost, both in terms of adaptation and ease of use, conventional banks can build a more stable customer base in the long term.

However, digitalization also brings new challenges and risks for conventional banks. One of the biggest risks is cybersecurity threats. The increase in digital transactions opens up opportunities for cybercrimes such as hacking, phishing, and data theft. This kind of attack can hurt banks financially and damage reputations, potentially reducing customer trust. Research by Amidjaya and Widagdo (2020) shows that external risks such as interest rate fluctuations, inflation, and exchange rates also exacerbate banks' vulnerability even though they have undergone digital transformation. In addition, Zaky (2020) emphasized that digitalization requires large investments in technology infrastructure and human resource training. For banks with limited capital, this investment burden can reduce profitability in the early stages of transformation. This shows that while digitalization offers potential benefits, its success is highly dependent on capital readiness and the right implementation strategy.

Another challenge that has arisen is stiff competition from pure digital banks and fintech companies that are more agile in offering innovative products at lower costs. This competition forces conventional banks to continue to innovate and improve the quality of services to remain relevant. In addition, changes in customer behavior that are increasingly technologically literate require banks to provide services that are not only fast and secure, but also personalized according to needs. The inability of conventional banks to meet these expectations can lead to reduced customer loyalty and the shift of customers to more innovative competitors.

Despite this, most of the literature findings confirm that digitalization continues to have a positive impact on the profitability of conventional banks, especially for those that manage to capitalize on opportunities and manage risk well. Risman et al. (2021) argue that payment digitization helps increase bank stability by expanding the non-cash transaction base, which ultimately strengthens profitability. Meanwhile, Lim and Rokhim (2021) highlight the importance of liquidity risk management in maintaining profitability, both in digital banks and conventional banks that are transforming. This shows that digitalization is not a single solution, but rather one of the important factors that must be integrated with risk management strategies and sustainable business model development.

Overall, the results of the study confirm that digitalization has a complex impact on the profitability of conventional banks in Indonesia. The positive impact is evident through improved operational efficiency and transaction volume, as well as the expansion of the accessibility of banking services. However, these potential benefits are also accompanied by significant risks and challenges, both from the internal side such as the need for technology investment, and from the external side such as competition with fintech and macroeconomic pressures. Therefore, the success of digitalization in increasing profitability cannot be seen as an automatic result, but rather depends on the readiness of infrastructure, management quality, and the ability of banks to manage emerging risks. Conventional banks that are able to respond quickly and strategically to these changes have a great chance of not only surviving, but also growing in an increasingly competitive digital banking landscape.

5. Discussion

The results of this study show that banking digitalization makes a significant contribution to the profitability of conventional banks in Indonesia, although the impact is not linear and automatic. Digitalization has been proven to reduce operational costs, increase transaction volumes, and expand the reach of services to communities previously inaccessible by formal banking. However, these benefits also come with risks and challenges that must be carefully managed. Therefore, it is important to discuss the results of this study in the context of the previous literature, the dynamics of the Indonesian banking market, and the sustainability strategies that need to be pursued.

One of the key implications of these findings is that the operational efficiencies resulting from digitalization can be a key driver of profitability. Automation and the use of digital technology have reduced banks' reliance on physical branches and manual labor, reducing the cost burden. This condition is in accordance with the results of a study by Wijayanti et al. (2021), which shows that banks that are more aggressive in carrying out digital innovations tend to have better financial performance compared to banks that are slow to adapt. This indicates that digital transformation is not just a technological trend, but a strategic need to maintain competitiveness in the modern banking era. From a managerial perspective, banks need to continue to allocate resources to strengthen digital infrastructure so that efficiency can be achieved sustainably.

On the other hand, digitalization also opens up great opportunities through increased transaction volume and accessibility. Digital services allow customers to transact anytime and anywhere, creating a growth in transaction frequency and expanding the customer base. These findings are in line with research by Jumono and Mala (2019), which states that internet banking increases customer loyalty while driving profitability through commission-based income. Furthermore, digitalization plays an important role in supporting financial inclusion programs, especially in Indonesia, which has a large geographical area with disparities in access to financial services. By expanding access, conventional banks not only increase profitability, but also contribute to the development of the national economy. In this context, banking digitalization can be seen as a strategic instrument to strengthen a more inclusive financial system.

Nonetheless, the challenges faced by conventional banks cannot be ignored. Digitalization demands large investments in technology and cybersecurity, which can suppress profitability in the short term, especially for banks with limited capital capacity. In addition, external risks such as interest rate fluctuations, inflation, and exchange rates can exacerbate banks' vulnerabilities amid digital transformation. These findings are consistent with the research of Amidjaya and Widagdo (2020), which shows that a bank's profitability is affected by a combination of internal and external factors. Therefore, a digitalization strategy must be accompanied by comprehensive risk management. Without adequate risk mitigation, the benefits of digitalization can be reduced or even turned into a disadvantage.

This discussion also underlined the importance of organizational adaptation in the face of changing customer behavior and competition with fintech and pure digital banks. Customers increasingly demand fast, secure, and personalized services, so conventional banks must be able to innovate sustainably. Digital transformation must not stop at the adoption of basic technologies such as mobile banking, but must develop towards the use of big data analytics and artificial intelligence to understand customer behavior and create more relevant financial products. If conventional banks fail to meet these expectations, they risk losing market share to more innovative competitors. In other words, the success of digitalization depends on a balance between technology investment, risk management, and sustainable innovation capabilities.

This discussion emphasized that digitalization is a double-edged sword for conventional banks. On the one hand, digitalization provides a great opportunity to improve efficiency, transaction volume, and accessibility, all of which support profitability. However, on the other hand, digitalization presents new risks and challenges that can weaken financial stability if not managed properly. Therefore, the digitalization strategy must be seen as a long-term transformation process that requires careful planning, regulatory support, and commitment from all stakeholders in the banking industry.

6. Conclusion

This research highlights the important role of digitalization in shaping the profitability of conventional banks in Indonesia. Digital transformation has proven to have a wide impact, both in the form of increasing operational efficiency, increasing transaction volume, and expanding the accessibility of banking services. Conventional banks that are able to implement digitalization strategically show better financial performance because they can reduce operational costs, expand customer base, and develop new sources of income through diversification of digital-based products. Thus, digitalization is not only a tool to survive, but also an opportunity for banks to grow in an increasingly competitive industrial landscape. However, the study also emphasizes that digitalization is not an automatic solution to profitability. Challenges such as cybersecurity risks, the need for large investments in technology infrastructure, and external dynamics in the form of macroeconomic fluctuations remain factors that can affect the success of digital transformation. Therefore, conventional banks must adopt a comprehensive approach to managing risk while continuing to innovate. Capital readiness, management quality, and regulatory support play an important role in determining the extent to which digitalization is truly able to increase profitability.

The findings of this study provide practical implications for bank management and regulators. For banks, digitalization strategies should be positioned as a long-term investment that is not only oriented towards improving efficiency, but also on creating added value through product and service innovation. For regulators, it is important to create an ecosystem that supports digital transformation, including the provision of adaptive regulations, the improvement of national digital infrastructure, and the strengthening of cybersecurity mechanisms. With the synergy between bank innovation and regulatory policies, digitalization can be a key driver of profitability while strengthening the resilience of the national banking system. In conclusion, digitalization opens up great opportunities for conventional banks in Indonesia to increase profitability, but it also presents challenges that require careful management strategies. The success of digital transformation is ultimately determined by the bank's ability to balance efficiency, innovation, and risk mitigation within a single sustainable strategy framework.

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