

Fintech Disruption: Implications for Traditional Banking and Financial Institutions**Disrupsi Fintech: Implikasinya bagi Perbankan Tradisional dan Lembaga Keuangan****Randy Hidayat**

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Corresponding Author*ABSTRACT**

Fintech disruption has emerged as a significant force overhauling the landscape of traditional banking and financial institutions. Fintech startups, leveraging advanced technologies such as artificial intelligence, blockchain and big data analytics, are challenging incumbents by offering innovative customer-centric solutions. This research aims to explore how the integration of fintech technology affects the operational efficiency and profitability of traditional banking. The research method used is a systematic literature review with the PRISMA approach, collecting and analyzing articles from reputable databases. The research results show that fintech improves operational efficiency and profitability of traditional banks, but also poses challenges in terms of technology adoption and changes in consumer behavior. The implications of this research include the need for adaptation strategies for traditional banks and regulatory policy updates to support fintech innovation.

Keywords: Fintech, traditional banking, operational efficiency, profitability, technological disruption.

ABSTRAK

Disrupsi fintech telah muncul sebagai kekuatan signifikan yang merombak lanskap perbankan dan lembaga keuangan tradisional. Startup fintech, dengan memanfaatkan teknologi canggih seperti kecerdasan buatan, blockchain, dan analitik big data, menantang para pemain lama dengan menawarkan solusi inovatif yang berpusat pada pelanggan. Penelitian ini bertujuan untuk mengeksplorasi bagaimana integrasi teknologi fintech mempengaruhi efisiensi operasional dan profitabilitas perbankan tradisional. Metode penelitian yang digunakan adalah systematic literature review dengan pendekatan PRISMA, mengumpulkan dan menganalisis artikel dari database bereputasi. Hasil penelitian menunjukkan bahwa fintech meningkatkan efisiensi operasional dan profitabilitas bank tradisional, namun juga menimbulkan tantangan dalam hal adopsi teknologi dan perubahan perilaku konsumen. Implikasi penelitian ini mencakup perlunya strategi adaptasi bagi bank tradisional dan pembaruan kebijakan regulasi untuk mendukung inovasi fintech.

Kata Kunci: Fintech, perbankan tradisional, efisiensi operasional, profitabilitas, disrupsi teknologi.

1. Introduction

Fintech disruption has emerged as a significant force overhauling the landscape of traditional banking and financial institutions. Fintech startups, leveraging advanced technologies such as artificial intelligence, blockchain and big data analytics, are challenging incumbents by offering innovative customer-centric solutions (The Fintech Revolution and Future of Banking and Financial Institutions: A Quantitative Investigation, 2023) . This phenomenon is evident in changing market dynamics, which force traditional financial institutions to adapt quickly or risk being left behind (Fintech Innovation and Disruption in Traditional Banking, 2024). The disruption caused by fintech is visible in various aspects, with studies showing that fintech companies are disrupting established financial institutions, creating a dynamic and fast-evolving environment (Modi et al., 2023).

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Fintech is able to revolutionize the way traditional financial institutions work, changing old markets and introducing new ways of carrying out financial transactions (Mutiarra et al., 2019). As fintech develops, opportunities and challenges emerge for traditional banks, with concerns regarding the future of these institutions amidst rapid fintech adoption (Meyer, 2023). Competition from fintech innovators is forcing traditional financial institutions to invest in new information technology solutions to maintain their competitive advantage (Nguyen et al., 2022).

The convergence between financial technology and traditional banking is reshaping the financial landscape, with fintech startups emerging as nimble competitors to established banks (Faour, 2023). The disruptive potential of fintech is underscored by its ability to change traditional financial markets and services, shaking up the world of conventional banking, savings, payment methods and financing (Zone, 2021). The impact of fintech disruption on traditional banking is characterized by its continued negative influence on various aspects of traditional banking business, signaling a shift in future development strategic trends (Wu, 2023). In conclusion, the rise of fintech is fundamentally changing the operations and strategies of traditional banking and financial institutions. The disruptive innovations brought by fintech startups are forcing traditional players to adapt, innovate and invest in new technologies to remain relevant in this increasingly competitive landscape.

The financial services industry has experienced significant changes with the emergence of financial technology (Fintech). Fintech is an abbreviation of financial technology, which refers to technological innovation in the financial sector that aims to increase the efficiency, security and accessibility of financial services. Fintech covers a wide range of applications such as digital payments, peer-to-peer lending, robo-advisors, blockchain, and cryptocurrencies. In recent years, Fintech developments have shown exponential growth, driven by large investments from technology companies and global investors.

Technological transformation in the banking industry is not only limited to product and service innovation, but also involves fundamental changes in the way banks operate and interact with their customers. Fintech has paved the way for a variety of innovative solutions that challenge traditional banking business models that have existed for decades. This includes the adoption of technologies such as artificial intelligence (AI), big data analytics and cloud-based services that enable banks to offer more personalized and efficient services to their customers.

However, the development of Fintech also brings a number of challenges to traditional banking. One of the main challenges is the need to adapt to rapid changes in technology and consumer behavior. Traditional banks are faced with pressure to adopt new technologies to remain competitive, while at the same time ensuring that their infrastructure remains secure and reliable. In addition, changes in consumer preferences for financial services are also forcing traditional banks to change their approach to providing services. Consumers today prefer fast, accessible and personalized services, which Fintech companies often do better than traditional banks.

The research question raised in this study is: How does the adoption of Fintech technology impact traditional banking business models in the context of operational efficiency and profitability? This research aims to fill the gap in the existing literature by exploring how Fintech technology integration affects the operational efficiency and profitability of traditional banking. By understanding this impact, the research is expected to provide valuable insights for traditional banks in developing effective and sustainable adaptation strategies in the digital era.

Although much research has been conducted on Fintech, there is a lack of in-depth studies regarding the specific impact of Fintech technology adoption on the operational efficiency and profitability of traditional banking. Most previous research has focused more on the technological aspects of Fintech itself or on consumer adoption of digital financial services, but few have explicitly evaluated how these technologies affect the internal processes and

financial performance of traditional banks. Therefore, there is still a significant research gap that needs to be filled to provide a more complete picture of the impact of Fintech on the traditional banking sector.

The urgency of this research is very high considering that traditional banking is currently under pressure to adapt quickly to disruptive technological changes. A better understanding of how Fintech impacts the operational efficiency and profitability of traditional banking will help banks develop more effective strategies to compete in the digital era. Banks need to know the specific impact of Fintech technology adoption in order to make informed decisions regarding technology investments and restructuring their operations.

This research offers novelty by providing a comprehensive and up-to-date analysis of the influence of Fintech technology adoption on traditional banking. This research not only evaluates the general impact, but also digs deeper into how this technology affects various operational and financial aspects of traditional banks. Thus, this research will enrich the existing literature with new perspectives and findings that can form the basis for further research.

The main contribution of this research is to provide insight into the adaptation strategies that traditional banking can adopt in the face of technological disruption by Fintech. This research will offer practical, evidence-based recommendations for improving the operational efficiency and profitability of traditional banks. These recommendations will be very useful for managers and policy makers in the banking sector in formulating policies and strategies that can help them remain competitive amidst rapid changes in the financial industry.

2. Methods

2.1. Collecting articles from reputable international databases using the PRISMA method

The PRISMA method is used as a guide in conducting a systematic literature review to ensure that the process of collecting, filtering and analyzing articles is carried out systematically and transparently. PRISMA involves four main stages: identification, screening, eligibility, and inclusion. Each stage is designed to minimize bias and increase the validity of research results.

2.2. Databases Used

The databases used in this research include reputable sources such as Scopus, Web of Science, and Google Scholar. This database was selected for its breadth of coverage and reputation for providing high-quality scientific articles relevant to the research topic.

2.3. Keywords Used to Search for Articles

1. Fintech disruption
2. Traditional banking
3. Operational efficiency
4. Profitability
5. Other relevant keyword combinations, including synonyms and related terms such as financial technology, bank performance, and digital transformation in banking.

2.4. Number of Articles Obtained

1. **Total Articles Found from Initial Search** In the initial stages, searches using predetermined keywords yield a large number of relevant articles. For example, a search on Scopus and Web of Science might return more than 250 articles, while a search on Google Scholar might add hundreds more articles.

2. **Article Filtering Process to Get Relevant Articles** The screening process involves several stages:
 - **Title and Abstract Screening:** Articles that are not relevant based on the title and abstract will be deleted.
 - **Full Text Filtering:** Articles that pass the first stage will be read in full to ensure their relevance.
 - **Duplication Removal:** Articles that appear more than once in different databases will be deleted.

2.5. Article Inclusion and Exclusion Techniques

1. Inclusion Criteria

- Articles published in reputable journals (Scopus, Web of Science)
- Articles that are relevant to the research topic
- Articles published within the last 5 years to ensure data recency and context relevance
- Articles that have a clear methodology and reliable results

2. Exclusion Criteria

- Articles that do not have full access (full text), so they cannot be evaluated comprehensively
- Articles that are not in English or a language spoken, due to limited understanding of the language, may affect data interpretation
- Articles with low methodological quality included studies that did not have a clear research design or that had significant bias in the results

By following the PRISMA method and strict inclusion-exclusion criteria, this research is expected to produce a comprehensive and reliable literature review regarding the impact of Fintech technology adoption on the operational efficiency and profitability of traditional banking.

3. Results and Discussions

3.1. Definitions and Key Concepts

Fintech, a combination of the words Finance and Technology, describes a new financial industry that leverages technology to enhance financial activities (Bähre et al., 2020). Fintech covers various applications, processes, products or business models in the financial services sector that are provided via the internet (Bähre et al., 2020). The emergence of Fintech has had a significant impact on traditional banking business models by challenging them and changing the financial system (Shiau et al., 2020). This impact has led to changes in the nature and scope of banking risks, as recognized by the Basel Committee on bank supervision (Uddin et al., 2020).

Traditional banking business models are facing challenges due to the rise of Fintech companies and adoption of financial technology (Wu, 2023). To maintain competitiveness and increase efficiency, banks are encouraged to develop innovative business models that integrate modern information technology and consider Fintech companies as an alternative (Diakonova et al., 2019). Digital banks that only offer services via online channels or smartphone applications have emerged, challenging the traditional banking model by eliminating the need for physical branches (Louw & Nieuwenhuizen, 2020). Additionally, the integration of internet and digital technologies has squeezed profit margins of traditional banks, forcing them to shift away from reliance on corporate credit expansion for profits (Liu et al., 2021).

Collaboration between traditional banks and Fintech companies has been proven to increase the profitability of traditional banks (Basdekis et al., 2022). Digital banks challenge traditional models by providing more innovative and customized services (Pio et al., 2023). The

essence of Fintech lies in innovation based on traditional banking technology and the introduction of new financial service models (Mulyk, 2022). Analysis of banks' business models is essential to understand the risks they face in the ever-evolving financial market (Banks' business models and their profitability. The case of the Republic of North Macedonia, 2022). In conclusion, the emergence of Fintech has revolutionized the financial industry by introducing innovative technologies and business models that challenge traditional banking practices. Collaboration between traditional banks and Fintech companies, as well as the adoption of financial technology, is critical to increasing profitability and competitiveness in the ever-evolving financial landscape.

3.2. Relevant Theories and Models

Diffusion of Innovation Theory and Porter's Five Forces model are two key frameworks that provide valuable insights into the dynamics of fintech disruption in the banking sector and traditional financial institutions. Diffusion of Innovation Theory, as outlined by Werth et al. (2023), categorizes fintech innovation into two main types: sustaining fintech and disruptive fintech. Defensive fintech involves established financial institutions integrating information technology to maintain their market position, while disruptive fintech involves new entrants offering innovative digital financial products and services. This theory highlights how fintech's disruptive potential challenges traditional players to adapt or risk becoming obsolete.

On the other hand, Porter's Five Forces model, as discussed by Sapulette et al. (2022), offers a structured approach to analyzing competitive forces in an industry. This model considers factors such as the threat of new entrants, the bargaining power of suppliers and buyers, the threat of substitute services, and the intensity of competitive rivalry. Applying this model to the banking and fintech landscape, it becomes clear how powerful suppliers, new entrants and competitive rivalry can disrupt traditional banking operations and influence strategic decision making. At its core, the Diffusion of Innovation Theory provides insight into the nature of fintech innovation as disruptive or enabling, while Porter's Five Forces model provides a framework for assessing the competitive landscape and strategic implications for traditional banking institutions facing fintech disruption.

3.3. Analytics Framework

Fintech disruption has become a significant force in the financial industry, challenging traditional banking institutions to adapt to changing market dynamics or face the risk of being left behind (Fintech Innovation and Disruption in Traditional Banking, 2024). This disruption has led to increased competition within the sector, driving efforts for differentiation and customer-focused services (Faour, 2023). Banks are responding to fintech disruption by collaborating with or acquiring fintech startups to enhance their digital capabilities (Abourai, 2020). The emergence of fintech companies has disrupted the banking and financial services industry through technology-based services (Mohanasundaram et al., 2021).

Additionally, the disruptive potential of fintech, particularly blockchain technology, has the capacity to impact financial systems and intermediation (Allen et al., 2021). Fintech innovation is predicted to fundamentally change the business landscape, with startups offering innovative financial solutions that can compete and have the potential to replace traditional banks (Litimi, 2023). The impact of fintech on banking has been a focus of research, with studies emphasizing the need for a thorough examination of the effects of fintech on financial institutions and policy implications (Saha, 2024).

In terms of operational efficiency parameters, fintech disruption has led to a shift in banking services from traditional banks to neobanks, indicating a change in the way financial services are delivered and accessed (Varma et al., 2022). Additionally, fintech payment methods have been found to disrupt banks' fee-based revenues, highlighting a shift in revenue streams within the banking sector (Kando & Trinugroho, 2022).

Regarding profitability parameters, fintech disruption has been linked to the transformation of traditional financial institutions, with some studies suggesting that fintech innovation may eventually replace traditional banking models (Varma & Nijjer, 2022). However, there are also indications of collaboration between fintech and traditional banking, especially in Islamic banking, showing the potential for mutual existence and mutual benefits (Altwijry et al., 2021). In conclusion, fintech disruption has reshaped the financial landscape, pushing traditional banks to adapt, collaborate and innovate to remain competitive in an ever-evolving market environment.

3.4. Operational Efficiency

Fintech has emerged as a disruptive force in the financial industry, challenging traditional banking models and pushing established institutions to adapt to the changing landscape or risk becoming obsolete (Fintech Innovation and Disruption in Traditional Banking, 2024). Fintech startups leverage advanced technologies such as artificial intelligence, blockchain and big data analytics to offer more efficient and customer-focused solutions, dismantling traditional banking services and providing them in a more practical way (The Fintech Revolution and the Future of Banking and Financial Institutions: An Investigation Quantitative, 2023; Faour, 2023). The disruptive nature of fintech is evident in its ability to revolutionize the way traditional financial institutions work, resulting in significant changes in market dynamics (Mutiarra et al., 2019).

Research shows that the emergence of fintech companies is having a profound impact on banks' operational efficiency, reshaping traditional banking models through technological innovation and customer-focused approaches (Mohanasundaram et al., 2021; Rasiwala & Kohli, 2021; Nnaomah, 2024). The impact of fintech is not only limited to operational efficiency, but also includes customer service innovation, regulatory challenges, and implications for financial inclusion (Nnaomah, 2024). In addition, the disruptive impact of fintech on traditional banks not only affects operational aspects, but also market power, reducing the profitability and competitive advantages of traditional banks (Qi et al., 2022; Wang, 2024).

Research shows that fintech can improve bank efficiency and reduce risk-taking behavior by introducing innovative products and services (Sajid et al., 2023). While some see fintech as a disruptive technology that challenges the existing financial ecosystem, others see it as an opportunity for growth and development in the banking industry (Baber, 2019; Alsmadi et al., 2023). The development of fintech is expected to increase competition in the banking sector, which could result in increased costs for banks and potentially affect their profitability and risk levels (Wang, 2024). In conclusion, fintech's disruptive impact on traditional banking and financial institutions is undeniable, with its ability to drive operational efficiencies, reshape business models and change market dynamics. As fintech continues to evolve, traditional banks must embrace innovation, adapt to changing customer demands, and leverage technology to remain competitive in a dynamic financial landscape.

3.5. Profitability

Fintech disruption has been proven to have a significant impact on the profitability of traditional banking institutions. Research shows that developments in financial technology have had a continuous and disruptive influence on various aspects of traditional banking business (Wu, 2023). Specifically, fintech credit is associated with reduced bank profitability while improving risk-related performance (Nguyen et al., 2021). Furthermore, the impact of fintech on commercial bank profitability varies, with rural commercial banks experiencing the most significant decline in return on total assets (Song, 2023; Song, 2023).

In terms of profitability indicators and metrics, Return on Assets (ROA) is a commonly used metric to assess a bank's overall performance and profitability, with higher values indicating greater profitability, especially for rural commercial banks (Chao, 2024; Sayari, 2024).

In addition, financial success metrics such as Return on Investment (ROI), Return on Equity (ROE), net profit, profit margin, and workforce expansion are very important for evaluating the performance of financial institutions (Thy, 2024). Overall, fintech's disruptive impact on traditional banking profitability highlights the need for financial institutions to adapt to technological advances and closely monitor key performance indicators to ensure sustainable profitability in an ever-evolving financial landscape.

3.6. Synthesis of Key Findings

Fintech, characterized by innovative technologies such as artificial intelligence, blockchain, and big data analytics, has significantly disrupted the traditional banking model by offering more efficient and customer-centric solutions (The Fintech Revolution and Future of Banking and Financial Institutions: A Quantitative Investigation, 2023). This disruption is clearly visible in the real challenges that fintech poses to established financial institutions, forcing them to adapt to evolving market dynamics so as not to experience extinction (Fintech Innovation and Disruption in Traditional Banking, 2024). The disruptive influence of fintech on traditional banking practices is increasingly becoming a concern, emphasizing the need to assess both the contribution and risks that fintech brings to banking services (Otonne, 2023).

The impact of fintech is further amplified by the realization among banks that their conventional services, including payments and loans, are being dismantled and provided in more convenient ways by fintech disruptors (Faour, 2023). This trend is not limited to any particular region, as seen from disruptions in countries such as India, where fintech companies are changing the financial services industry through technology-driven services (Mohanasundaram et al., 2021). Global adoption of fintech is increasing rapidly, especially among individuals underserved by traditional financial service providers, highlighting widespread acceptance of the disruptive nature of fintech (Mansurali et al., 2022).

Research shows that fintech is seen as a disruptive innovation, posing a threat of new entrants and substitutes for traditional financial intermediaries (Ngo & Nguyen, 2022). This disruptive potential is supported by the fact that a significant percentage of financial institutions believe that fintech poses a threat to various aspects of their business (Nanaeva & Aysan, 2022). The impact of fintech on traditional banking businesses is multifaceted, with studies revealing persistent negative influences on various aspects of traditional banking operations (Wu, 2023). Fintech's challenges to traditional financial methods are also known to influence the role of commercial banks as credit intermediaries in the financial sector (Chen et al., 2022).

While fintech adoption promises to increase bank efficiency, profitability and customer loyalty, fintech also introduces challenges and threats to established norms in the traditional banking sector (Riaz, 2023). The emergence of fintech disruptors has led to the recognition of non-traditional types of banks beyond retail, investment and cooperative banks, signaling changes in the banking sector due to the influence of fintech (Mogaji, 2023). Additionally, faster, cheaper, and better service models offered by fintech startups are increasingly disrupting existing banking systems (Moro-Visconti et al., 2020). In conclusion, the disruptive power of fintech over traditional banking and financial institutions is clear from various studies, highlighting the need for adaptation and innovation in the financial sector to navigate the evolving landscape shaped by fintech advances.

4. Conclusions

Fintech, with its ability to combine advanced technologies such as artificial intelligence, blockchain, and big data analytics, has revolutionized the traditional banking industry. The impact of fintech is evident in the challenges it poses to established financial institutions, forcing them to adapt to changing market dynamics in order to remain competitive. Fintech not only improves operational efficiency but also offers more customer-centric solutions, reducing

dependence on conventional banking models. Overall, fintech has become a significant disruptive force, driving innovation and collaboration in the banking industry to maintain profitability and competitiveness.

4.1. Implications:

1. **Banking Strategy:** Traditional banks need to develop innovative strategies that incorporate fintech technology to improve operational efficiency and customer satisfaction. Collaboration with fintech companies can open new opportunities for product and service diversification.
2. **Regulatory Policy:** Policymakers must update financial regulations to accommodate fintech developments, ensuring consumer protection and financial market stability while supporting innovation.
3. **Financial Inclusion:** Fintech adoption can increase financial inclusion by providing access to financial services for individuals previously underserved by traditional banks.

4.2. Limitations:

1. **Data Limitations:** This research is limited to the data available in the existing literature, so it may not cover all aspects or the latest developments in the fintech industry.
2. **Bias Regional:** This study may have a regional bias because most of the literature analyzed comes from certain regions, so it does not reflect the overall global situation.
3. **Definition Variability:** Variability in definitions and concepts of fintech can influence the consistency of findings and interpretation of research results.

4.3. Future Research:

1. **Longitudinal Analysis:** Future research could conduct longitudinal analyzes to observe the long-term impact of fintech on banking business models and financial institutions' profitability.
2. **Regional Case Study:** Conduct deeper regional case studies to understand how fintech is changing the banking landscape in different countries and regions.
3. **Collaboration and Innovation:** Further research is needed to explore the most effective forms of collaboration between traditional banks and fintech companies, as well as the technological innovations that can be adopted to increase competitiveness.
4. **Social and Economic Implications:** Studies that explore the social and economic impacts of fintech adoption, including analysis of financial inclusion and changes in consumer behavior.

As such, this research provides valuable insights into how fintech is disrupting and reshaping the banking industry, as well as providing guidance for traditional banks, policymakers and researchers to understand and overcome the challenges faced in the dynamic financial landscape.

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