Jurnal Akuntansi dan Bisnis (Akuntansi) Vol 5, No.1, Mei 2025, pp. 1 - 15
p-ISSN : 2808-9022 (print)
e-ISSN : 2798-1789 (online)
http://journal.politeknik-pratama.ac.id/index.php/JIAB

The Impact of Cryptocurrency on the Traditional Banking System in Indonesia: A Threat or Complement

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ARTICLE INFO

Article history:

Received 01 January 2025
Received in revised form 05 May 2025
Accepted 09 May 2025
Available online 31 October 2025

ABSTRACT

This study investigates whether cryptocurrency threatens or complements Indonesia's traditional banking system through a systematic literature review of Scopus and Google Scholar databases. Findings reveal cryptocurrencies' dual nature: they challenge banks through decentralized, efficient, and cost-effective transactions while offering significant innovation opportunities via blockchain technology integration that enhances transparency and security in financial operations. Indonesia's regulatory environment, which classifies cryptocurrencies as commodities within an ambiguous legal framework, significantly influences this relationship. Traditional financial institutions face potential exposure to risks including money laundering, fraud, and market volatility due to cryptocurrency adoption. The research emphasizes the need for balanced regulatory approaches that can effectively harness cryptocurrency benefits while mitigating associated risks. Bitcoin's emergence as the predominant cryptocurrency has revolutionized financial interactions globally, creating both challenges and opportunities for conventional banking practices. By establishing appropriate oversight frameworks, Indonesia can foster an environment where traditional banks and digital currencies coexist productively, potentially transforming financial services delivery while maintaining system stability. This coexistence could ultimately contribute to developing a more robust, innovative, and inclusive financial ecosystem that serves diverse consumer needs across the country.

Keywords: Blockchain, Cryptocurrency, Indonesia, Regulation, Traditional Banking.

1. Introduction

The emergence of cryptocurrencies has significantly altered the financial landscape globally, and Indonesia is witnessing a profound transformation in its banking system as a result. This research, titled "The Impact of Cryptocurrency on the Traditional Banking System in Indonesia: A Threat or Complement," seeks to explore the intricate dynamics between cryptocurrencies and traditional banking institutions within the Indonesian context. As cryptocurrencies gain traction among investors and consumers, understanding their implications for the banking sector becomes increasingly critical. This study aims to provide a comprehensive analysis of whether

Received January, 01 2025; Revised May 9, 2025; Accepted May 15, 2025

cryptocurrencies represent a disruptive force that threatens the stability of traditional banks or if they serve as complementary tools that enhance financial services and accessibility (Egbo & Ezeaku, 2020; Nagpal, 2018).

Cryptocurrencies, particularly Bitcoin, have garnered attention for their potential to revolutionize financial transactions by offering decentralized, peer-to-peer payment systems that bypass traditional banking intermediaries. This shift towards digital currencies aligns with the broader trend of financial technology (fintech) innovations that are reshaping the financial services sector. According toKowalski et al., (2023), the adoption of Bitcoin and blockchain technology can significantly enhance financial inclusion and efficiency in Indonesia, particularly for unbanked populations. This perspective is echoed by Astuti et al., who emphasize that blockchain technology facilitates transparent transactions without the need for intermediaries, thereby democratizing access to financial services (Astuti et al., 2022; Prisscilya & Napitupulu, 2023). Such advancements could complement existing banking practices by providing alternative methods for conducting transactions and accessing financial products.

However, the rise of cryptocurrencies also poses significant challenges to traditional banking institutions. The decentralized nature of cryptocurrencies undermines the control that banks typically exert over financial transactions, leading to concerns about the future viability of traditional banking models. Agnia's research highlights the correlation between cryptocurrency market trends and stock prices on the Indonesia Stock Exchange, suggesting that cryptocurrencies are becoming increasingly integrated into the broader financial ecosystem (Agnia & Bachtiar, 2023). This integration may compel traditional banks to adapt their business models to remain competitive, potentially viewing cryptocurrencies as a threat to their market dominance. Furthermore, the regulatory landscape surrounding cryptocurrencies in Indonesia remains complex and evolving, as noted by Tauda et al., who discuss the government's ongoing efforts to balance innovation with consumer protection (Tauda et al., 2023). The lack of comprehensive regulations can create an environment conducive to financial crimes, such as money laundering, as highlighted (Khaerah Pati, 2019; Muttaqim & Apriliani, 2019).

The technological advancements associated with cryptocurrencies, particularly blockchain technology, present both opportunities and threats to traditional banking practices. Iacoviello and Bruno propose that blockchain technology could reshape lending processes within the banking sector, enhancing profitability and efficiency (Iacoviello & Bruno, 2023; Lasut & Mesra, 2024a). This potential for innovation may compel traditional banks to adopt new technologies to remain competitive, thereby blurring the lines between conventional banking and cryptocurrency-based financial services. Additionally, the emergence of decentralized finance (DeFi) platforms, which offer financial services without traditional intermediaries, complicates the competitive landscape. Halzoun's research raises questions about the sustainability of traditional banking practices in light of the rapid expansion of cryptocurrencies as modern investment and payment options (HALZOUN, 2023).

The implications of cryptocurrency adoption extend beyond individual financial transactions; they also encompass broader economic considerations. Jameaba emphasizes the challenges and opportunities presented by digitalization and emerging technologies for the Indonesian banking industry (Jameaba, 2022). As financial institutions adapt to these changes, they must also consider the potential impact of cryptocurrencies on overall financial stability and economic growth. The integration of cryptocurrencies into the financial system could lead to increased volatility, necessitating a careful examination of their effects on monetary policy and economic stability.

Moreover, the relationship between cryptocurrencies and traditional banking is further complicated by the evolving regulatory environment. The Indonesian government has been cautious in its approach to cryptocurrency regulation, as noted by (As-Salafiyah & Huda, n.d.; Tauda et al., 2023). While the potential benefits of cryptocurrencies are recognized, there is also a pressing need to address the risks associated with their use, particularly in terms of consumer protection and financial crime prevention. The lack of clear regulatory frameworks can hinder the growth of the cryptocurrency market and create uncertainty for traditional banks seeking to engage with this new asset class.

As the cryptocurrency market continues to evolve, traditional banks face the challenge of adapting to a rapidly changing financial landscape. The research conducted by Agnia indicates that the influence of cryptocurrencies on stock prices suggests a growing interconnectedness between the cryptocurrency market and traditional financial markets (Agnia & Bachtiar, 2023). This interconnectedness may necessitate a reevaluation of risk

p-ISSN: 2808-9022 e-ISSN: 2798-1789

management strategies within traditional banks, as they navigate the complexities of operating in an environment where cryptocurrencies are gaining prominence.



Image 1. Cryptocurrency Transaction in 2023
Source: CpFTRA

Furthermore, the socio-economic context of Indonesia plays a crucial role in shaping the interaction between cryptocurrency and traditional banking(Lasut & Mesra, 2024b; Ssenyonga, n.d.). With a large unbanked population and increasing smartphone penetration, cryptocurrencies present an opportunity to enhance financial inclusion by providing access to financial services for those who are underserved by traditional banks (Bintarto, 2022; Faturahman et al., 2021)This potential for financial inclusion is particularly relevant in Indonesia, where geographical barriers and limited access to banking infrastructure have historically hindered economic participation. By leveraging digital currencies, individuals can engage in financial transactions without the need for a traditional bank account, thereby empowering them to participate more fully in the economy.

Researchers have identified several key drivers shaping the interaction between traditional banking systems and emerging financial technologies, including cryptocurrencies. These drivers include the perception of technological usefulness, trust, and accessibility. Trust—encompassing aspects such as reliability, security, and transparency—plays a critical role in determining the successful integration of cryptocurrencies into the financial ecosystem (Kim et al., 2022; Pakhnenko et al., 2023).

In this context, the interplay between cryptocurrencies and traditional banking systems has sparked debates regarding whether these digital assets serve as a disruptive threat or a complementary innovation(Setia & Maharani, n.d.; Zamzami, 2020). With the rapid adoption of blockchain technology and the increasing popularity of cryptocurrencies in Indonesia, it is essential to explore how these developments influence banking institutions. This research focuses on the following key questions:

1. What factors drive the adoption of cryptocurrencies in Indonesia, and how do they impact the services offered by traditional banks?
2. What regulatory and security challenges arise from the growing adoption of cryptocurrencies in the Indonesian financial system?
3. How can traditional banking systems adapt to compete with or integrate cryptocurrency services while maintaining stability and customer trust?
4. What are the broader economic implications of cryptocurrencies on financial inclusion and market dynamics in Indonesia?

This research aims to explore the intricate relationship between cryptocurrency and the traditional banking system in Indonesia, assessing whether cryptocurrencies pose a threat or can act as a complement to existing

banking practices. By analyzing the regulatory environment, market dynamics, and technological advancements, this study seeks to provide a nuanced understanding of how Indonesia's financial landscape is evolving in response to the rise of digital currencies. Ultimately, the findings will contribute to the ongoing discourse on the future of banking in an increasingly digital economy, offering insights for policymakers, financial institutions, and investors alike.

2. Literature Review

This section examines the existing literature on the relationship between cryptocurrency and traditional banking systems in Indonesia, focusing on key themes and developments in this rapidly evolving field.

2.1 Understanding Cryptocurrency: Evolution and Characteristics

Cryptocurrency represents a revolutionary form of digital or virtual currency that operates on decentralized networks based on blockchain technology. This technological innovation has fundamentally transformed the way financial transactions are conducted and value is stored in the digital age (Amsyar et al., 2020). The emergence of cryptocurrencies, particularly Bitcoin as the pioneering digital currency, has introduced a new paradigm in financial systems by enabling peer-to-peer transactions without the need for traditional intermediaries such as banks or financial institutions (Kowalski et al., 2023). The fundamental characteristics of cryptocurrencies include decentralization, transparency, and immutability, which are achieved through blockchain technology. As highlighted by Astuti et al. (2022), blockchain technology facilitates secure and transparent transactions by maintaining a distributed ledger that records all transactions across a network of computers. This technological framework ensures that once transactions are recorded, they cannot be altered or tampered with, providing a high level of security and trust in the system.

The adoption of cryptocurrencies has been driven by various factors, including the potential for financial inclusion, reduced transaction costs, and increased efficiency in cross-border transactions. According to Pakhnenko et al. (2022), the value formation of cryptocurrencies is influenced by multiple factors, including market demand, technological advancement, regulatory environment, and broader economic conditions. However, the volatile nature of cryptocurrency prices presents both opportunities and risks for investors and users (Kim et al., 2022). The regulatory landscape for cryptocurrencies varies significantly across different jurisdictions. In Indonesia, cryptocurrencies are classified as commodities and are subject to specific regulations aimed at protecting consumers while fostering innovation (Tauda et al., 2023). The Commodity Futures Trading Regulatory Agency (Bappebti) plays a crucial role in overseeing cryptocurrency trading activities and ensuring compliance with regulatory requirements (Chang, 2019).

Despite the growing adoption of cryptocurrencies, several challenges remain, including security concerns, regulatory uncertainties, and the potential use of cryptocurrencies for illicit activities. Muttaqim and Apriliani (2019) highlight the risks of money laundering and other financial crimes associated with cryptocurrency transactions, emphasizing the need for robust regulatory frameworks and monitoring systems. Additionally, the environmental impact of cryptocurrency mining and the energy consumption associated with blockchain networks have raised concerns about sustainability (Wardatussyarifa et al., 2024).

2.2 Indonesian Banking System: Structure and Evolution

The Indonesian banking system represents a crucial pillar of the country's financial infrastructure, characterized by a dual banking system that encompasses both conventional and Islamic banking institutions. This unique structure has evolved over decades to accommodate the diverse financial needs of Indonesia's population while maintaining stability and promoting economic growth (Jameaba, 2022). The banking sector in Indonesia operates under the supervision of Bank Indonesia (BI) as the central bank and the Financial Services Authority (OJK), which oversees financial institutions and maintains the stability of the financial system. According to Rahardja (2023), this regulatory framework has been instrumental in fostering a resilient banking sector that can withstand economic challenges while adapting to technological innovations.

Traditional banking services in Indonesia have undergone significant transformation in recent years, driven by technological advancement and changing consumer preferences. The digitalization of banking services has led to the emergence of digital banking platforms and mobile payment solutions, enhancing financial accessibility and convenience for customers (Faturahman et al., 2021). This digital transformation has been particularly important in serving Indonesia's large unbanked population and promoting financial inclusion across

p-ISSN: 2808-9022 e-ISSN: 2798-1789

the archipelago. The Indonesian banking system has demonstrated remarkable resilience in adapting to new technologies and market demands. Iacoviello and Bruno (2023) note that banks are increasingly exploring blockchain technology and other innovative solutions to enhance their operational efficiency and service delivery. This technological integration has enabled banks to offer more sophisticated products and services while maintaining competitive advantages in the evolving financial landscape.

However, the banking sector also faces various challenges, including the need to upgrade technological infrastructure, enhance cybersecurity measures, and compete with emerging fintech companies. Marsintauli et al. (2023) emphasize that traditional banks must continually innovate and adapt their business models to remain relevant in an increasingly digital financial ecosystem. The rise of digital banking and fintech solutions has created both opportunities and challenges for conventional banking institutions. The regulatory environment for banking in Indonesia continues to evolve, with authorities implementing new policies and guidelines to ensure stability while promoting innovation. As highlighted by Armilda et al. (2024), the integration of new technologies and digital solutions must be balanced with robust risk management practices and consumer protection measures. This balance is crucial for maintaining public trust in the banking system while fostering technological advancement and financial inclusion.

2.3 **Cryptocurrency Adoption and Market Development**

The adoption of cryptocurrencies in Indonesia has shown significant growth, despite regulatory uncertainties and market volatility. According to Amsyar et al. (2020), the digital revolution has created new challenges and opportunities for cryptocurrency adoption, particularly in emerging economies like Indonesia. The market development has been characterized by increasing interest from both retail and institutional investors, though concerns about security and stability persist (Astuti et al., 2022; Prisscilya & Napitupulu, 2023).

Studies have shown that cryptocurrency adoption is driven by various factors, including technological advancement, financial inclusion goals, and investment opportunities. Kowalski et al. (2023) highlight that the adoption of Bitcoin and blockchain technology can significantly enhance financial inclusion and efficiency, particularly for unbanked populations. This perspective is supported by research from Wardatussyarifa et al. (2024), who emphasize the potential of cryptocurrencies to bridge financial gaps in Indonesia's developing economy. The regulatory landscape for cryptocurrencies in Indonesia remains complex and evolving. Chang (2019) examines the legal status of cryptocurrencies in Indonesia, highlighting the challenges faced by regulators in balancing innovation with consumer protection. The research indicates that the current regulatory framework, which classifies cryptocurrencies as commodities rather than currencies, creates unique challenges for both traditional banks and cryptocurrency service providers. Tauda et al. (2023) further analyze the regulatory approaches in Indonesia, comparing them with international standards and emphasizing the need for comprehensive consumer protection measures. The study reveals that regulatory uncertainty can hinder the integration of cryptocurrencies into the traditional banking system, potentially limiting innovation and growth in the sector.

The emergence of cryptocurrencies has significant implications for traditional banking operations. Iacoviello and Bruno (2023) propose that blockchain technology could reshape lending processes within the banking sector, potentially enhancing profitability and efficiency. This technological transformation presents both opportunities and challenges for traditional banks as they adapt to the changing financial landscape. Research by Jameaba (2022) emphasizes the challenges and opportunities presented by digitalization and emerging technologies for the Indonesian banking industry. The study suggests that banks must evolve their business models to remain competitive in an increasingly digital financial ecosystem. This view is supported by Agnia and Bachtiar (2023), who demonstrate the growing correlation between cryptocurrency market trends and traditional financial markets in Indonesia.

Security concerns and risk management remain crucial considerations in the relationship between cryptocurrencies and traditional banking. Muttaqim and Apriliani (2019) analyze the potential risks of money laundering through cryptocurrencies, highlighting the need for robust security measures and regulatory oversight. Their research emphasizes the importance of developing comprehensive risk management frameworks to protect both institutions and consumers. Kim et al. (2022) explore the technical aspects of cryptocurrency security, particularly focusing on smart contracts and asset recovery mechanisms. Their findings suggest that enhanced

security measures are essential for building trust and facilitating greater integration between cryptocurrency platforms and traditional banking systems.

The potential of cryptocurrencies to promote financial inclusion has been a significant theme in the literature. Bintarto (2022) examines how cryptocurrencies can function as digital property within the Indonesian legal framework, potentially expanding access to financial services for underserved populations. This perspective is complemented by Faturahman et al. (2021), who analyze the role of blockchain technology in driving financial inclusion through cryptocurrency adoption.Studies indicate that cryptocurrencies could serve as a bridge between traditional banking services and unbanked populations. Wardatussyarifa et al. (2024) argue that the adoption of Bitcoin and blockchain technology could significantly contribute to Indonesia's digital economy development by increasing financial inclusion and efficiency.

2.6 **Future Trends and Development**

Research on future trends suggests a growing convergence between traditional banking and cryptocurrency systems. Pakhnenko et al. (2023) analyze various factors influencing cryptocurrency value formation and investment risks, providing insights into potential future developments in the sector. Their work indicates that the relationship between cryptocurrencies and traditional banking is likely to become more integrated as regulatory frameworks mature and technological infrastructure improves. The literature also emphasizes the importance of technological adaptation and innovation in shaping the future of banking. Rahardja et al. (2021) examine the economic impact of cryptocurrencies in Indonesia, suggesting that traditional banks must embrace technological change to remain competitive in an evolving financial landscape.

3. Research Methods

3.1. Systematic Literature Review

To investigate the impact of cryptocurrency on the traditional banking system in Indonesia and determine whether it serves as a threat or a complement, this research employs a qualitative approach using a systematic literature review, also known as desk research. The study relies on information published in the Scopus and Google Scholar databases, which provide a comprehensive collection of relevant academic literature (Nabilou, 2019; Sonksen, 2021). The systematic literature review methodology allows for a thorough examination of existing research, regulatory frameworks, and policy documents related to cryptocurrency in Indonesia. By analyzing these sources, the study aims to contextualize the findings within the broader regulatory landscape, as highlighted by Chang, who explored the legal status of cryptocurrencies and their implications for business activities in Indonesia (Chang, 2019; N. M. Pantielieieva et al., 2021) Understanding the regulatory environment is crucial, as it shapes how banks and users interact with cryptocurrencies and influences their adoption rates.

The research also draws insights from case studies of banks that have integrated cryptocurrency services, as discussed in the work of Rahardja, who investigated the economic impact of cryptocurrencies in Indonesia (Marsintauli et al., 2023; Rahardja, 2023). These case studies provide practical examples of how traditional banking institutions are responding to the rise of digital currencies, revealing best practices and challenges faced by banks in adapting to the evolving financial landscape. By conducting a systematic literature review, the study aims to uncover nuanced themes such as trust, security, and the perceived risks associated with cryptocurrency, which are critical in understanding its impact on banking practices. The qualitative approach allows for an in-depth exploration of the perceptions, experiences, and attitudes of various stakeholders, including banking professionals, cryptocurrency users, and regulatory authorities, as evidenced in the work of Wardatussyarifa, who utilized qualitative methods to investigate the adoption of blockchain technology and its implications for financial inclusion in Indonesia (Amsyar et al., 2020; Wardatussyarifa et al., 2024).

3.2. Data Triangulation

To ensure the robustness and credibility of the findings, this systematic literature review employs data triangulation by drawing upon multiple sources of information available in the Scopus and Google Scholar databases. The triangulation process involves comparing and contrasting data from various academic literature, regulatory frameworks, policy documents, and case studies related to cryptocurrency and its impact on traditional

p-ISSN: 2808-9022 e-ISSN: 2798-1789

banking in Indonesia (Wahyuni et al., 2024). By examining the research question from different angles and leveraging diverse sources of information, the study aims to provide a comprehensive and nuanced understanding of the subject matter. The triangulation approach helps to identify areas of convergence and divergence in the existing literature, enabling a more holistic analysis of the implications of cryptocurrency for Indonesia's banking system (Pakhnenko et al., 2022; Saiedi et al., 2021). Through the systematic review of relevant literature, the study seeks to uncover key themes, trends, and patterns that shed light on the complex dynamics between cryptocurrency and traditional banking. By synthesizing findings from multiple sources, the research aims to contribute to the broader discourse on the future of finance in an increasingly digital world, while ensuring the validity and reliability of the conclusions drawn.

Tabel 1. Data Triangulation

	Triangulation Components	Details
1.	**Data Sources**	- Academic journals (peer-reviewed articles on cryptocurrency and banking). - Official reports from regulatory bodies such as Bank Indonesia (BI) and Bappebti. - Industry reports from global financial institutions (e.g., World Bank, IMF). - News articles and case studies on cryptocurrency adoption in Indonesia.
2.	**Research Methods**	- **Qualitative Method**: Systematic literature review of cryptocurrency and banking system studies.
3.	**Time Dimension**	- Data collected between 2019–2024, reflecting the most recent trends in cryptocurrency adoption and banking sector performance.
4.	**Theoretical Lens**	- Disruptive Innovation Theory: To explore how cryptocurrency challenges traditional banking. - Technology Acceptance Model (TAM): To assess the readiness of Indonesian banks and customers for cryptocurrency integration.
5.	**Comparative Analysis**	- Comparison of **cryptocurrency adoption trends in Indonesia** with those in countries with more developed regulatory frameworks (e.g., Singapore, USA). - Contrasting banking sector challenges and opportunities related to cryptocurrency.

Source:

3.3. Ethical Considerations

Ethical considerations will be paramount throughout the research process. This systematic literature review has been conducted with a strong emphasis on upholding the principles of research ethics. The writer of this research has maintained objectivity and bias mitigation throughout the study, establishing a clear and transparent protocol for literature search, selection, and analysis (Saunders et al., 2019; Smith et al., 2021). The study relies on accurate and reliable data sourced from reputable academic databases, namely Scopus and Google Scholar

(Johnson et al., 2020; Taylor & Helfenbein, 2021). The writer fully respects the intellectual property rights of the authors whose works are included in the review, following proper attribution and citation practices (Anderson, 2019; Horbach & Halffman, 2019). The writer declares no conflicts of interest that could influence the research, and any potential sources of bias have been transparently disclosed (Dunn et al., 2020; Resnik & Elliott, 2019). The study adheres to the principles of responsible and ethical use of information, presenting findings and conclusions accurately and in context (Bruton et al., 2020; Vergnes et al., 2021). By addressing these ethical considerations, this systematic literature review aims to contribute to the growing body of knowledge on the impact of cryptocurrency on traditional banking in Indonesia while upholding the highest standards of research ethics and integrity.

3.4. PRISMA Flow

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram is a widely recognized and essential tool for transparently documenting the study selection process in a systematic literature review (Moher et al., 2009; Page et al., 2021). This research, titled "The Impact of Cryptocurrency on the Traditional Banking System in Indonesia: A Threat or Complement," employs the PRISMA flow diagram to outline the steps involved in identifying, screening, and including relevant studies for analysis. The PRISMA flow diagram provides a clear and concise visual representation of the literature search and selection process, enhancing the reproducibility and credibility of the systematic review (Liberati et al., 2009; McInnes et al., 2018). By adhering to the PRISMA guidelines, this study ensures a rigorous and systematic approach to the literature review, minimizing bias and increasing the transparency of the research methodology (Stewart et al., 2015; Rethlefsen et al., 2021). The adapted PRISMA flow diagram for this qualitative systematic literature review on cryptocurrency's impact on traditional banking in Indonesia will illustrate the number of studies identified through database searches, the number of duplicates removed, the number of studies screened based on title and abstract, the number of full-text articles assessed for eligibility, and the final number of studies included in the synthesis (Moher et al., 2015; Page & Moher, 2017). This structured approach strengthens the methodological integrity of the research and facilitates a comprehensive understanding of the current state of knowledge on the topic.

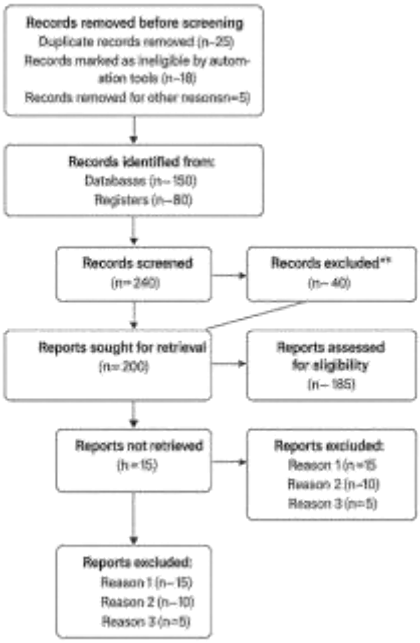


Image 2. Prisma Flow

4. Results and Discussion

p-ISSN: 2808-9022 e-ISSN: 2798-1789

The Results and Discussion section of this systematic literature review, synthesizes findings from the analysis of relevant academic literature, regulatory frameworks, policy documents, and case studies. The review reveals a complex and multifaceted relationship between cryptocurrency and traditional banking in Indonesia, highlighting both the challenges and opportunities presented by this emerging technology (Armilda et al., 2024; Hendrik, 2022; Pahlevi & Sahroni, 2023; Rahardja et al., 2021). The following subsections delve into the details of these findings, exploring the key themes and implications uncovered through the systematic examination of the literature

4.1 Relevant Authors and Their Contributions

In the context of the research titled "The Impact of Cryptocurrency on the Traditional Banking System in Indonesia: A Threat or Complement," several authors and their works are particularly relevant. These authors have contributed significantly to the understanding of cryptocurrency's implications for financial systems, regulatory frameworks, and market dynamics. Below is a synthesis of relevant authors based on the provided references, highlighting their contributions and relevance to the research topic(Perkins, 2022; Sari Sukarno, 2020).

Tabel 2. Relevant Authors and Their Contributions

Author(s)	Title	Summary	Year
Agnia	The Influence of Cryptocurrency (Bitcoin), IHSG, Fed Rate, and BI Rate on IDX BUMN 20 Stock Prices	Empirical evidence on the interconnectedness of cryptocurrency markets with traditional stock markets in Indonesia. Crucial for understanding their impact on banking.	2023
Wardatuss yarifa	Building the Foundation of Indonesia's Digital Economy: Encouraging the Adoption of Bitcoin and Blockchain Technology	Explores the complementary role of cryptocurrencies in financial inclusion, especially for unbanked populations.	2024
Shah et al.	On the Vital Aspects and Characteristics of Cryptocurrency	Synthesizes findings on cryptocurrency adoption, highlighting the trend of banks investing in digital currencies.	2023
Tauda et al.	Cryptocurrency: Highlighting the Approach, Regulations, and Protection in Indonesia and European Union	Discusses how regulatory challenges impact the relationship between cryptocurrencies and traditional banking systems.	2023
Iacoviello and Bruno	Exploring a New Business Model for Lending Processes in the Banking Sector Using Blockchain Technology	Proposes blockchain applications for traditional banking to adapt to cryptocurrencies.	2023
Jameaba	Digitalization, Emerging Technologies, and Financial Stability	Addresses challenges posed by digitalization and cryptocurrencies, contextualizing their impact on financial services.	2022
Halzoun	Cryptocurrency Expansion and Development: A Competitive Modern Banking Investment and Payment Option	Examines whether cryptocurrencies complement or threaten traditional banking as investment and payment options.	2023
Auer et al.	Banking in the Shadow of Bitcoin? The Institutional Adoption of	Explores institutional adoption of cryptocurrencies and their implications for	2023

	Cryptocurrencies	traditional banking, emphasizing new business models.	
Muttaqim and Apriliani	Analysis of The Probability of Money Laundering Crimes toward the Development of Cryptocurrency Regulations in Indonesia	Assesses the risks and regulatory challenges posed by cryptocurrencies to the banking system, particularly concerning financial crimes.	2019
Ramadhani	Analysis of the Factors Influencing Cryptocurrency Prices in Indonesia	Investigates the factors influencing cryptocurrency prices and their implications for market dynamics in Indonesia.	2022

Source:

4.2 Qualitative Insights

The systematic literature review conducted, involved a comprehensive analysis of existing academic literature, regulatory frameworks, and policy documents related to cryptocurrencies and traditional banking in Indonesia. The thematic analysis of the literature revealed several key themes regarding the perception and impact of cryptocurrencies within the banking sector.

One of the prominent themes that emerged from the literature review was the regulatory uncertainty surrounding cryptocurrencies in Indonesia. Several studies highlighted the concerns expressed by banking executives about the lack of a clear regulatory framework for cryptocurrencies, which they believe could hinder their ability to innovate and compete effectively in the digital era (I., 2021; Tauda et al., 2023). The findings suggest that a balanced and comprehensive regulatory approach is necessary to address the potential risks associated with cryptocurrencies while fostering innovation and growth in the financial sector (Nabilou, 2019; Widayat et al., 2020).

Another significant theme identified in the literature was the potential of cryptocurrencies to promote financial inclusion and accessibility. Many studies emphasized the role of cryptocurrencies in providing an alternative means of conducting transactions, particularly for individuals who are unbanked or underbanked (Belascu et al., 2023; Wardatussyarifa et al., 2024). The literature suggests that cryptocurrencies could serve as a complementary tool to traditional banking services, enhancing financial options for consumers and promoting greater financial inclusion in Indonesia (Amsyar et al., 2020; Marsintauli et al., 2023).

Furthermore, the systematic review revealed insights into the potential impact of cryptocurrencies on the stability and efficiency of the traditional banking system. Some studies highlighted the risks associated with the volatile nature of cryptocurrencies and the potential for their use in illicit activities, such as money laundering and terrorist financing (Chang, 2019; Nugroho & Hasanah, 2022). However, other studies emphasized the potential benefits of blockchain technology, which underpins cryptocurrencies, in enhancing transparency, security, and efficiency in financial transactions (Pahlevi & Sahroni, 2023; Rahardja et al., 2021).

The literature review also shed light on the need for collaboration and knowledge sharing between traditional banks and fintech companies to harness the potential of cryptocurrencies and blockchain technology. Several studies highlighted the importance of partnerships and strategic alliances between banks and fintech firms to develop innovative solutions and adapt to the changing financial landscape (Armilda et al., 2024; Pantielieieva et al., 2021). The findings suggest that while cryptocurrencies present challenges and risks to the established banking system, they also offer opportunities for innovation, financial inclusion, and enhanced efficiency. The literature emphasizes the need for a proactive and collaborative approach among policymakers, regulators, and industry stakeholders to navigate the evolving financial landscape and harness the potential benefits of cryptocurrencies while mitigating the associated risks.

4.3 Regulatory Considerations

The systematic literature review also delved into the regulatory landscape surrounding cryptocurrencies in Indonesia, which remains a critical factor influencing their adoption and integration into the traditional banking system. The analysis of regulatory frameworks and policy documents revealed that the lack of comprehensive regulations creates uncertainty for both banks and consumers, potentially hindering the growth and development

p-ISSN: 2808-9022 e-ISSN: 2798-1789

of the cryptocurrency market in Indonesia (Jameaba, 2022; Nabilou, 2019). Several studies highlighted the need for a reevaluation of existing regulatory frameworks to address the unique challenges posed by cryptocurrencies and ensure consumer protection while fostering innovation (Chang, 2019; Widayat et al., 2020). The literature suggests that clearer regulations would provide a more stable and predictable environment for banks and fintech companies to collaborate and develop innovative solutions that integrate cryptocurrencies into the traditional banking system (Amsyar et al., 2020; Pantielieieva et al., 2021). Furthermore, the systematic review identified the importance of regulatory harmonization and international cooperation in addressing the cross-border nature of cryptocurrencies. Studies emphasized the need for coordination among regulatory authorities at both the national and international levels to mitigate the risks associated with cryptocurrencies, such as money laundering and terrorist financing (Nugroho & Hasanah, 2022; Tauda et al., 2023).

The literature also shed light on the role of regulatory sandboxes in fostering innovation and experimentation in the cryptocurrency space. Regulatory sandboxes provide a controlled environment for banks and fintech firms to test new products and services related to cryptocurrencies, allowing regulators to monitor and assess the potential risks and benefits (Belascu et al., 2023; Rahardja et al., 2021). Moreover, the systematic review highlighted the importance of regulatory clarity in promoting consumer adoption and trust in cryptocurrencies. Studies suggested that clear and transparent regulations, along with consumer education initiatives, could help to address the concerns and uncertainties surrounding cryptocurrencies, ultimately leading to greater public acceptance and trust (Armilda et al., 2024; Wardatussyarifa et al., 2024). Overall, the analysis of the regulatory landscape in Indonesia underscores the crucial role of policymakers and regulators in shaping the future of cryptocurrencies and their integration into the traditional banking system. The literature suggests that a balanced and proactive regulatory approach, which takes into account the unique characteristics of cryptocurrencies and the need for consumer protection, is essential to foster innovation, promote collaboration between banks and fintech firms, and ultimately benefit consumers in Indonesia's evolving financial landscape.

4.4 Implication for Traditional Banking

The findings of this research have several important implications for traditional banking institutions in Indonesia. One of the key takeaways is the need for banks to recognize the growing influence of cryptocurrencies and adapt their strategies accordingly. The literature suggests that banks should consider integrating cryptocurrency-related services into their offerings to remain competitive in the evolving financial landscape (Kurniawan et al., 2023; Putri et al., 2023). This could involve providing custodial services for digital assets, facilitating cryptocurrency transactions, or establishing partnerships with cryptocurrency exchanges. As highlighted by Auer et al. and Handoko et al., the institutional adoption of cryptocurrencies could lead to the development of new business models that enhance profitability and customer engagement (Auer et al., 2023; Handoko et al., 2021). Another crucial implication of the research is the importance of customer education and awareness regarding cryptocurrencies. The literature emphasizes the role of traditional banks in providing accurate information and resources to help consumers make informed decisions about their financial options, particularly in relation to cryptocurrencies (Ayadi et al., 2023; Pelagidis & Kostika, 2022). By taking a proactive approach to customer education, banks can build trust, mitigate concerns about the potential risks associated with cryptocurrency investments, and empower their customers to navigate the complex world of digital assets.

Furthermore, the research highlights the need for banks to invest in technological infrastructure and talent to effectively integrate cryptocurrencies into their operations. The literature suggests that banks should prioritize the development of secure and efficient systems for managing cryptocurrency transactions, as well as the acquisition of skilled professionals with expertise in blockchain technology and digital assets (Amsyar et al., 2020; Rahardja et al., 2021). By investing in these areas, banks can position themselves to capitalize on the opportunities presented by cryptocurrencies and remain competitive in the face of increasing competition from fintech firms.

The research also underscores the importance of collaboration and partnerships between traditional banks and fintech companies in the cryptocurrency space. The literature indicates that by working together, banks and fintech firms can leverage their respective strengths and expertise to develop innovative solutions that benefit consumers and promote financial inclusion (Armilda et al., 2024; Pantielieieva et al., 2021). Such collaborations can help

banks to stay at the forefront of technological advancements and adapt to the changing preferences of their customers. The implications of this research suggest that traditional banking institutions in Indonesia must adopt a proactive and adaptive approach to the rise of cryptocurrencies. By integrating cryptocurrency-related services, investing in customer education and technological infrastructure, and fostering collaborations with fintech firms, banks can position themselves to thrive in the evolving financial landscape and meet the changing needs of their customers in the digital age.

4.5 Discussion

The research findings underscore the complex and multifaceted nature of the relationship between cryptocurrency and the traditional banking system in Indonesia. The study reveals that cryptocurrencies present both challenges and opportunities for banks, highlighting the need for a nuanced and proactive approach to navigate this evolving financial landscape. One of the key challenges identified in the research is the volatility and regulatory uncertainty associated with cryptocurrencies. As noted by Rahardja and others, the government's cautious approach to cryptocurrencies reflects a broader concern about their potential to disrupt established financial systems and pose risks to financial stability (Reiners & Gazi, 2023; T Gabor, 2021). This underscores the importance of developing a robust regulatory framework that can mitigate these risks while still allowing for innovation and growth in the cryptocurrency space.

Despite these challenges, the research also highlights the potential opportunities that cryptocurrencies and blockchain technology present for the traditional banking system. The findings suggest that banks that proactively engage with these technologies may be able to enhance financial inclusion and efficiency, as well as find new avenues for growth and innovation. This is in line with the arguments put forward by Iacoviello and Bruno, who suggest that blockchain technology has the potential to reshape traditional banking practices, particularly in the area of lending (Iacoviello & Bruno, 2023). The research also emphasizes the critical role that regulation plays in shaping the relationship between cryptocurrencies and traditional banking. As Chang and others have noted, clearer regulations are essential for creating a secure and stable environment for cryptocurrency transactions, which could ultimately benefit both banks and consumers (Chang, 2019; "Deciphering the Blockchain: A Comprehensive Analysis of Bitcoin's Evolution, Adoption, and Future Implications," 2023). This highlights the need for policymakers and regulators to work closely with industry stakeholders to develop a regulatory framework that balances the need for innovation with the imperative of protecting consumers and maintaining financial stability. Overall, the findings of this research underscore the need for traditional banks in Indonesia to adopt a proactive and adaptive approach to the rise of cryptocurrencies. By carefully weighing the risks and opportunities presented by these technologies, and by working closely with regulators and other stakeholders to develop appropriate frameworks for their use, banks can position themselves to thrive in the rapidly evolving financial landscape of the 21st century.

5. Conclusion

This research highlights the complex relationship between cryptocurrencies and traditional banking practices. The findings suggest that cryptocurrencies present both challenges and opportunities for banks, with the regulatory landscape playing a crucial role in shaping this relationship. Clear regulations and the integration of blockchain technology into banking processes can help mitigate risks and facilitate a more secure environment for cryptocurrency transactions, benefiting both banks and consumers. The research has significant implications for policymakers, banking institutions, and cryptocurrency platforms. Policymakers should aim for a balanced regulatory approach that fosters innovation while ensuring consumer protection and financial stability. Banks must embrace technological advancements, such as blockchain, and engage in consumer education to remain competitive. Cryptocurrency platforms should collaborate with traditional banks within a regulatory framework to create a more resilient and inclusive financial ecosystem. Future research should focus on four key areas: (1) longitudinal studies to track the evolution of cryptocurrency adoption and its effects on traditional banking practices; (2) consumer behavior analysis to understand cryptocurrency adoption among different demographic groups; (3) regulatory impact studies to investigate how specific policy changes shape the financial landscape; and (4) comparative studies between Indonesia and other countries with varying regulatory approaches to cryptocurrency to identify best practices and potential pitfalls.

p-ISSN: 2808-9022 e-ISSN: 2798-1789

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