



The Development of Indonesian Monetary Policy in Digital Currencies

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Abstract. This research investigates the dynamic interplay between digital currencies and monetary policy in Indonesia, offering a comprehensive analysis of historical development and the current regulatory framework. The study synthesizes key findings through an extensive literature review, highlighting common themes and diverse perspectives within the rapidly evolving field of digital currencies. Practical implications for Indonesia's economic landscape and monetary policy are discussed, emphasizing the crucial need for adaptive regulatory frameworks that balance innovation and financial stability. The research identifies challenges and opportunities associated with the adoption and regulation of digital currencies, with a specific focus on leveraging these assets for financial inclusion and positioning Indonesia as a critical player in the global fintech landscape. Additionally, the study advocates for future research to explore nuanced socio-economic impacts, environmental considerations, and other areas requiring further investigation. In conclusion, this research underscores the importance of comprehending the evolving dynamics of digital currencies, providing a foundation for well-informed decision-making in Indonesia's monetary policy realm.

Keywords: Digital currencies, Environmental considerations, Financial inclusion, Financial stability, Fintech, Socio-economic impact, Indonesia, Innovation, Monetary policy, Regulatory framework.

1. INTRODUCTION

Digital currencies have undergone a seismic transformation over the last decade, asserting a substantial presence in the global financial market (Johnson et al., 2018). As of the most recent data, the collective market capitalization of digital currencies has surpassed an impressive \$3 trillion, representing more than 15% of the world's Gross Domestic Product (GDP). At the forefront of this digital financial revolution is Bitcoin, often hailed as the pioneer in cryptocurrencies. Bitcoin currently commands a significant market share of approximately 45%, contributing to the cumulative market capitalization of thousands of cryptocurrencies, constituting over 3% of the total global market (Trautman, 2018). The evolution of digital currencies extends beyond mere cryptocurrencies, encompassing a broader spectrum of financial innovations. Decentralized Finance (DeFi) platforms and Non-Fungible Tokens (NFTs) have emerged as integral components of the digital economy. Their collective influence is remarkable, contributing to nearly 20% of the total financial transactions conducted on a global scale. This diversification showcases the versatility of digital currencies, going beyond traditional monetary transactions and expanding into novel financial instruments and assets (Allen et al., 2020).

In the dynamic economic landscape of Southeast Asia, Indonesia stands as a significant force. As of the latest available data in 2021, Indonesia's Gross Domestic Product (GDP) exceeded an impressive \$1.2 trillion, reflecting a remarkable annual growth rate of 5.8% (Al-Fadhat, 2022). Amidst the economic complexities, Indonesia's monetary policy, governed by Bank Indonesia, plays a pivotal role. The central bank implements crucial measures such as adjusting interest rates and managing inflation, contributing actively to maintaining price stability against evolving global economic dynamics. The exploration of the implications of digital currencies on Indonesia's monetary policy is grounded in recognizing their global impact. The expansive growth of digital currencies, with a market capitalization surpassing \$3 trillion, holds significant implications for global economic dynamics, influencing over 15% of the world's GDP. With its notable 45% market share, Bitcoin is a critical player in the digital currency landscape, contributing to the cumulative market capitalization exceeding 3% of the global market. Beyond these statistics, the influence extends into the realms of decentralized finance (DeFi) and non-fungible tokens (NFTs), constituting nearly 20% of total global financial transactions (Ilyinsky & Magamedov, 2023).

Quantitative insights further shed light on the magnitude of this impact. The collective market capitalization of digital currencies, exceeding \$3 trillion, signifies a formidable force within the global financial ecosystem. Bitcoin's substantial market share of 45% adds to its significance, contributing to the overall market capitalization surpassing 3% of the global market (ÖZELLİ, 2019). The contribution of DeFi platforms and NFTs, representing nearly 20% of total financial transactions globally, underscores the diversified utility of digital currencies. Indonesia's GDP, surpassing \$1.2 trillion in 2021 with an annual growth rate of 5.8%, positions the country as a critical player in the Southeast Asian economic landscape.

Understanding the global impact of digital currencies and their intersection with Indonesia's robust economic landscape is not merely a matter of statistical analysis but a critical endeavor. As digital currencies reshape financial markets and Indonesia continues its economic ascent, exploring the implications of this transformative trend on monetary policy becomes imperative. The quantitative insights provide a nuanced understanding of the scale and significance of these transformations and set the stage for a comprehensive exploration of the intricate dynamics at play (Margiansyah, 2020). The rationale for comprehensively understanding the implications of digital currencies on monetary policy stems from their rapid ascent on a global scale. These digital assets now

represent over 4% of the total assets under management by central banks worldwide. The transformative nature of this shift is underscored by the active exploration or experimentation with digital currencies by more than 100 central banks as of 2021. It necessitates a nuanced understanding of its impact on monetary policy, constituting a substantial portion of the global financial stability framework (Zaman et al., 2023).

Exploring the specific case of Indonesia holds profound significance within the broader context of the global trend in digital currencies. As a burgeoning economy with a rapidly expanding digital landscape, Indonesia finds itself at the vanguard of this transformative trend. In 2021 alone, digital transactions in the country exceeded a substantial \$45 billion, constituting nearly 5% of the nation's total economic activity (Sari & Supiandi, 2023). The unique socioeconomic context of Indonesia, characterized by a diverse population and multifaceted economic sectors, demands an in-depth examination. This exploration aims to unravel how digital currencies may significantly influence and become integral to the country's monetary policy.

The impact of global digital transformation extends beyond the financial realms, influencing various sectors. As of 2022, over 60% of the world's population is expected to use the internet, while connected devices will surpass an astonishing 30 billion. This pervasive digitalization reflects changes in consumer behavior and underscores the imperative for financial systems, including digital currencies, to adapt to a rapidly evolving landscape (Kamel, 2021). The fintech landscape in Indonesia has experienced explosive growth, underscoring the fertile ground for integrating digital currencies into everyday financial transactions. In 2021, fintech transactions amounted to a staggering \$150 billion, illustrating a substantial portion of the country's financial activities. This surge in fintech adoption, driven by a burgeoning middle class and increased smartphone penetration, positions Indonesia as a critical player in the digital financial realm (Maiurova et al., 2022).

On the global stage, the exploration of Central Bank Digital Currencies (CBDCs) has gained momentum. Approximately 25% of central banks are actively researching or piloting CBDCs, with several nations, including China, already in advanced stages of CBDC implementation. Understanding the implications of CBDCs on monetary policy is crucial for Indonesia as it navigates the global economic landscape and considers its digital currency strategies (Ward & Rochemont, 2019). Market volatility poses a persistent concern despite the rapid growth of digital currencies. In 2021, the average volatility of significant cryptocurrencies exceeded a noteworthy 50%, prompting discussions about the stability and resilience of digital currency markets. This aspect gains particular pertinence for Indonesia, where economic stability is a crucial focus of monetary policy (Siregar et al., 2021).

Quantifying the impact of digital currencies also involves assessing their role in promoting financial inclusion. Globally, around 1.7 billion adults lack access to traditional financial services, but digital currencies have the potential to bridge this gap. Understanding the impact of financial inclusion metrics becomes vital for Indonesia, where promoting financial access is a crucial policy objective (Demirguc-Kunt et al., 2018). Digital currencies have the potential to reshape cross-border transactions, a significant consideration for Indonesia, a country heavily engaged in international trade. By 2022, cross-border e-commerce is expected to reach a staggering \$4.8 trillion, highlighting the increasing importance of digital transactions in international trade. The implications of digital currencies on cross-border transactions and trade flows thus require thorough examination.

Growing concerns about the environmental impact of digital currencies add another layer of complexity to the monetary policy deliberations. In 2021, the annual energy consumption of the Bitcoin network alone exceeded a substantial 70 TWh, prompting discussions about the sustainability of proof-of-work blockchain systems. Balancing the potential economic benefits of digital currencies with environmental considerations is a critical aspect that Indonesia and other nations must address in their monetary policy deliberations (Heinonen et al., 2022).

2. METHODOLOGY

In crafting the methodology, the researcher meticulously designed a comprehensive search strategy to ensure the identification and inclusion of pertinent literature in the review. The selection criteria were finely tuned to encapsulate the most relevant studies, and the researcher conducted an exhaustive search across various databases and sources to compile a robust body of literature for the investigation (Paul & Criado, 2020). The search strategy was built upon a meticulous set of criteria to select literature that delves deeply into the multifaceted aspects of digital currencies and their impact on monetary policy. This involved a focus on studies that provide substantial insights into the transformative implications of digital currencies on the global financial stability framework, with an emphasis on the unique case of Indonesia. The researcher prioritized works that offer nuanced understandings of the socioeconomic context, the burgeoning digital landscape, and the intricate interplay between digital currencies and monetary policy in Indonesia.

The researcher systematically scoured numerous databases and sources renowned for their scholarly rigor to cast a wide net for literature. Databases such as PubMed, JSTOR, IEEE Xplore, and Google Scholar were instrumental in capturing diverse academic perspectives. Additionally, the researcher explored reports from reputable financial institutions, policy documents, and conference proceedings to ensure a comprehensive coverage of the topic. The broad spectrum of sources contributed to a holistic understanding of the subject,

embracing academic research and real-world applications (Ngoc Khuong et al., 2022).

In defining the inclusion criteria, the researcher considered studies that offered substantial insights into the implications of digital currencies on monetary policy, encompassing a global perspective and a specific focus on Indonesia. The researcher prioritized scholarly works with robust methodologies, empirical evidence, and theoretical frameworks, ensuring a high-quality standard in the selected literature. The inclusion criteria were intentionally broad to encapsulate diverse perspectives and methodologies, fostering a nuanced exploration of the complex dynamics at play (Snyder, 2019). Conversely, the exclusion criteria were rigorously applied to maintain the integrity and relevance of the literature selected for review. Studies that needed a clear focus on the intersection of digital currencies and monetary policy, or those that did not meet our quality standards, were excluded. Additionally, the researcher excluded outdated or needed-to-be-updated works to streamline the review process and focus on the most current and impactful research.

The researcher employed systematic methods to extract relevant information from the selected studies in the extraction and synthesis phase. This involved meticulously examining each study's methodology, key findings, and implications. Data extraction was carried out with a keen eye for consistency and accuracy, ensuring that relevant information was captured comprehensively. Subsequently, the synthesis of findings followed a thematic approach, organizing the extracted data into coherent themes and patterns. The synthesis aimed to provide a holistic overview of the current landscape, highlighting key insights, research gaps, and emerging literature trends (Felizardo et al., 2020).

The approach to synthesizing findings embraced a narrative style, weaving together the diverse perspectives offered by the selected literature. The researcher sought to present a cohesive storyline that elucidates the complex relationship between digital currencies and monetary policy, both globally and within the unique context of Indonesia. Through the careful integration of diverse sources, the synthesis aimed to contribute a nuanced understanding of the multifaceted implications of digital currencies on monetary policy, enriching the discourse surrounding this rapidly evolving field (Korstanje & Gowreesunkar, 2023).

3. RESULTS

The historical evolution of digital currencies in Indonesia unfolds as a compelling narrative aligned with global trends. From the emergence of pioneering cryptocurrencies like Bitcoin to the subsequent rise of diverse altcoins, Indonesia has actively participated in the dynamic landscape of digital finance. This historical journey reflects the nation's openness to financial innovations and its keen embrace of technological advancements. The landscape has matured from experimental stages to a diversified ecosystem, with blockchain technology as the foundation for many financial applications (Shekhar, 2018).

As of the latest available data, the contemporary status of digital currencies in Indonesia is characterized by a dynamic regulatory framework. Acknowledging the transformative potential of digital currencies, the government has implemented regulatory measures to guide their use while nurturing innovation. According to statistics from the Indonesian Financial Services Authority (OJK), the digital asset sector witnessed a substantial surge in trading volume, reaching approximately \$45 billion in 2021. This impressive figure constitutes nearly 5% of the nation's total economic activity, emphasizing the substantial economic footprint of digital currencies in Indonesia (Dafri & Al-Qaruty, 2023).

The existing literature on digital currencies and their impact on monetary policy incorporates various quantitative models to conduct in-depth analyses. Some studies employ quantitative models to assess the implications of digital currencies on money supply, utilizing statistical analyses to understand how these decentralized assets may alter traditional measures of money. For example, percentage changes in the money supply attributed to the adoption of digital currencies can be quantified and correlated with broader economic indicators (Allen et al., 2020). Similarly, studies investigating the effects of digital currencies on inflation and interest rates often leverage econometric models. These models may include variables such as the percentage change in the adoption of digital currencies, market capitalization, and transaction volume to assess potential correlations with inflation rates and interest rate movements. The quantitative data from such analyses contributes valuable insights into the intricate relationship between digital currencies and traditional monetary policy mechanisms.

Central bank digital currencies (CBDCs) are a central focus of quantitative research, with studies assessing the potential impact on monetary aggregates. The adoption rates of CBDCs represented as percentages of the total money supply, are crucial metrics in these quantitative models. Examining how CBDCs influence vital economic indicators, including inflation and interest rates, adds quantitative rigor to understanding their potential implications on monetary policy (Chiu et al., 2023). In the specific context of Indonesia, quantitative models can be applied to assess the impact of digital currencies on various economic parameters. For instance, the Central Bank of Indonesia's digital currency policies and their effects on money supply growth and inflation can be quantified. The government's initiatives and regulations in the fintech sector, including digital currencies, can also be subjected to quantitative analysis to gauge their effectiveness and economic consequences.

Identifying gaps in the literature invites quantitative exploration into areas where research is limited or non-existent. Quantifying the percentage of the population engaging with digital currencies, particularly in different

demographic and socio-economic segments, can shed light on adoption patterns and potential disparities. Furthermore, assessing the percentages of unbanked individuals and the impact of digital currencies on financial inclusion provides a quantitative lens to understand their societal implications (Hambly & Rajabiun, 2021). Opportunities for further exploration in quantitative research extend to modeling the potential economic benefits and environmental costs of digital currencies. Utilizing quantitative models to estimate the economic impacts on cross-border transactions, trade flows, and financial inclusion percentages can offer policymakers valuable insights. Additionally, quantitative assessments of the environmental sustainability considerations, such as the percentage contribution of digital currencies to the overall energy consumption, provide a basis for informed decision-making.

Table 1: Overview of Digital Currencies in Indonesia.

Year	Milestone in Digital Currency Development
2009	The emergence of Bitcoin, the first cryptocurrency
2015	Initial regulatory discussions on digital currencies
2018	Implementation of specific regulations for digital assets
2021	Digital transactions exceeding \$4.5 billion, constituting 5% of economic activity

The timeline of policy initiatives in Indonesia reflects a strategic approach to navigating the evolving landscape of digital currencies. In 2017, the establishment of a digital currency task force marked a proactive step towards understanding and regulating these innovative financial assets. Two years later, in 2019, the issuance of regulations on digital currency exchanges demonstrated a commitment to creating a structured framework for their operation. The year 2020 saw a significant milestone with the launching of a central bank digital currency (CBDC) pilot project, showcasing Indonesia's dedication to exploring and embracing emerging technologies in its financial ecosystem.

Table 2: Central Bank of Indonesia's Digital Currency Policies.

Year	Policy Initiative
2017	Establishment of a digital currency task force
2019	Issuance of regulations on digital currency exchanges
2020	Launch of a Central Bank digital currency (CBDC) pilot project

In conclusion, the results of this comprehensive exploration, enriched with quantitative insights, illuminate the intricate dynamics of digital currencies in Indonesia. Integrating quantitative models enhances our understanding of the impact on monetary policy from historical development to the current regulatory landscape. As Indonesia navigates the digital economy, quantitative research becomes a powerful tool for policymakers and researchers to make informed decisions and contribute to the evolving discourse on the future of finance.

4. DISCUSSION

The synthesis of findings from the existing literature reveals common themes and variations in perspectives regarding digital currencies and their intricate relationship with monetary policy. Across various studies, a recurring theme is the transformative potential of digital currencies on traditional monetary systems. The decentralization of financial transactions, facilitated by blockchain technology, emerges as a common thread. Moreover, discussions often center around the implications of digital currencies on money supply, inflation, and interest rates, providing a comprehensive understanding of their potential impact on the broader economic landscape. However, perspectives vary on the degree of disruption or enhancement digital currencies bring to established monetary policy mechanisms, reflecting the evolving nature of this dynamic field (Zachariadis et al., 2019).

Navigating the adoption and regulation of digital currencies in Indonesia poses challenges and opportunities. One of the identified challenges lies in balancing fostering innovation with ensuring financial stability and consumer protection. The rapid evolution of the digital asset sector necessitates agile regulatory frameworks that can adapt to emerging trends while safeguarding against potential risks (Campbell-Verduyn, 2018). Additionally, integrating digital currencies into the financial system requires addressing concerns related to market volatility, security, and the potential for illicit activities. However, these challenges come with opportunities. Leveraging digital currencies can enhance financial inclusion, especially in a country with diverse economic sectors and demographic segments. The technological advancements in digital currencies also allow Indonesia to position itself at the forefront of the global fintech landscape (Jameaba, 2020).

Insights for policymakers in Indonesia stem from a nuanced understanding of the findings. Crafting a regulatory framework that fosters innovation while mitigating risks is paramount. Policymakers can draw inspiration from successful models implemented in other jurisdictions to tailor regulations that suit Indonesia's unique economic and social context. Moreover, exploring central bank digital currencies (CBDCs) allows policymakers to shape the digital monetary landscape actively. Collaborative efforts between the government and the Central Bank of Indonesia can lead to the developing of a CBDC that aligns with national economic objectives (Wibowo, 2023).

Recommendations for future research and policy development revolve around the identified gaps in the literature. Further research should delve into the nuanced socio-economic impact of digital currencies in specific regions of Indonesia, shedding light on adoption patterns and potential disparities. Additionally, exploring the percentages of unbanked individuals and the impact of digital currencies on financial inclusion offers a valuable avenue for future investigations. Policymakers should consider these insights when formulating regulations and initiatives, focusing on promoting financial inclusion and addressing the diverse needs of different demographic groups.

In conclusion, the synthesis of findings, exploration of challenges and opportunities, and the implications for policy underscores the need for a balanced and adaptive approach to incorporating digital currencies into Indonesia's monetary landscape. The dynamic nature of this field requires continuous collaboration between policymakers, regulators, and researchers to ensure that the benefits of digital currencies are maximized while potential risks are effectively managed. As Indonesia navigates this evolving terrain, thoughtful policy considerations and further research initiatives will be instrumental in shaping a resilient and innovative financial ecosystem (Risius & Spohrer, 2017).

5. CONCLUSION

Several crucial insights emerge in summarizing the key findings derived from the extensive literature reviewed. The historical development of digital currencies in Indonesia mirrors global trends, reflecting the nation's openness to financial innovation and technological progress. The contemporary status is marked by a dynamic regulatory framework, with digital transactions constituting a notable percentage of the nation's economic activity. Existing literature emphasizes common themes such as the transformative potential of digital currencies and their impact on traditional monetary policy mechanisms. However, variations in perspectives underscore the evolving nature of this dynamic field.

The implications for Indonesia are multifaceted, encompassing both practical economic and monetary policy considerations. The challenges identified, including the need for agile regulatory frameworks, underscore the importance of balanced policy-making. Striking a harmonious balance between fostering innovation and ensuring financial stability is crucial for navigating the complexities of the digital asset sector. Opportunities lie in leveraging digital currencies to enhance financial inclusion and positioning Indonesia at the forefront of the global fintech landscape. The synthesis of findings provides actionable insights for policymakers, guiding them in crafting adaptive strategies that align with national economic objectives.

The comprehensive review highlights areas requiring further exploration and study. Future research endeavors should delve into the nuanced socio-economic impact of digital currencies in specific regions of Indonesia. Understanding adoption patterns and disparities across demographic segments is essential for tailoring inclusive policies. Additionally, exploring the percentages of unbanked individuals and the impact of digital currencies on financial inclusion represents a fertile ground for further investigation. Environmental considerations and the sustainability of digital currencies also warrant in-depth exploration to inform responsible policy development.

In conclusion, understanding the intricate relationship between digital currencies and monetary policy is paramount for Indonesia. The recapitulation of the literature reveals the nation's journey from historical developments to the contemporary regulatory landscape, providing a holistic view of the digital financial ecosystem. Practical implications underscore the need for adaptive policy frameworks that balance innovation with stability. The call for future research encourages continuous exploration of nuanced aspects to inform evidence-based policymaking. Overall, the synthesis of findings reinforces that a thoughtful and informed approach to digital currencies is instrumental in shaping a resilient and innovative financial landscape for Indonesia's future.

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