Indonesian Banking Review
Volume 3, Number 2, 2024

ZERA

Financial Inclusion and Monetary Stability through CBDC and Fintech

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Abstract

Article history:
Received: August 5, 2024
Revised: September 7, 2024
Accepted: October 11, 2024
Published: December 30, 2024

Keywords:
Central Bank Digital Currency,
Financial Inclusion,
Financial Stability,
Fintech,
Monetary Policy.

Identifier:
Zera Open
Page: 143-159
https://zeraopen.com/journal/ibr

Central banks play a crucial role in maintaining monetary stability and the soundness of the financial system through monetary policy instruments, supervision, and the management of liquidity and payment systems. The development of financial technology (fintech) and the emergence of Central Bank Digital Currency (CBDC) present both new opportunities and challenges in the realms of financial stability and financial inclusion. CBDC promises greater transaction efficiency, transparency, and expanded access to financial services, yet it also carries potential risks to monetary stability, the role of commercial banks, and data security. This literature study examines the implications of CBDC and fintech for monetary policy transmission, the transformation of the financial system, and regulatory strategies. Using a literature review methodology, the study finds that CBDC has the potential to enhance financial inclusion and improve the effectiveness of monetary policy, although it requires strong digital infrastructure and an adaptive regulatory framework. Therefore, the implementation of CBDC must be carried out carefully to maximize its benefits without compromising the stability of the financial system.

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1. Introduction

The role of the central bank in maintaining monetary stability has long been one of the main pillars supporting the global economy. Through various monetary policy instruments, such as setting interest rates, controlling inflation, and managing the exchange rate, the central bank has a very important responsibility to ensure sustainable and stable economic growth. These policies are designed to keep the economy on a healthy track, while also suppressing potential instability that may arise from market fluctuations or external shocks. However, with the development of the digital era and information technology, a new phenomenon has emerged that significantly changes the landscape of the global financial system: the presence of financial technology (fintech) and Central Bank Digital Currency (CBDC). Both of these innovations not only expand people's access to financial services but also challenge traditional paradigms related to the framework of monetary policy and financial system stability.

Fintech has opened up great opportunities to encourage financial inclusion by providing faster, more efficient, and more affordable financial services for people who were previously underserved by the formal financial system (Cao et al., 2023). The transformation brought about by fintech creates a new paradigm in consumer expectations for financial services, where digitalization has become the expected standard for modern society. On the other hand, the rapid development of fintech also brings risks that cannot be ignored, such as increased vulnerability to cyber attacks, the need for more adaptive and flexible regulation, and the potential for a gap in access to financial services due to disparities in digital infrastructure in various regions (Allen et al., 2022).

Meanwhile, CBDC has emerged as a form of official monetary innovation issued by the central bank, present as a response to the increasing popularity of non-bank digital assets, including stablecoins and cryptocurrencies. CBDC has great potential to support overall financial system stability, increase transaction efficiency, and strengthen the transmission of monetary policy. Some studies show that CBDC can also expand financial inclusion by giving people access to easier, faster, safer, and more affordable payments (Auer et al., 2022). However, the benefits of CBDC are not without a number of important challenges that need to be considered. One of the main risks is banking disintermediation, where people may prefer to store funds directly in the form of CBDC rather than putting them in deposits at commercial banks. This condition has the potential to reduce banks' funding sources, as well as weaken the banking intermediation function, which is the backbone of the financial system (Viñuela et al., 2020).

In addition, issues related to data security, transaction privacy, and its impact on monetary stability are serious challenges that require strict regulation and coordination across the financial sector. Recent literature emphasizes that the implementation of CBDC by central banks must focus on building an inclusive, safe, and sustainable ecosystem. This includes strengthening digital infrastructure, ensuring cyber security, and harmonious integration with the fintech sector to encourage broader innovation in financial services (Sumual et al., 2023). Thus, CBDC is not only seen as a new monetary instrument but also as a catalyst for the transformation of the global financial system. Therefore, its implementation must be carried out carefully so that the resulting benefits can be maximized without sacrificing the stability and health of the financial system as a whole.

2. Literature Review

2.1. The Role of CBDC and Fintech in Financial Inclusion

This Financial inclusion has become one of the main focuses and priorities in modern economic development strategies, especially in developing countries that still face challenges in accessing formal financial services. Fintech has taken an important role in encouraging this inclusion by presenting various innovative digital financial services, such as mobile banking, e-wallets, and peer-to-peer lending platforms, which are able to reach people who were previously unserved by the conventional banking system. These services not only make financial access easier but also offer significant efficiency, speed, and convenience of transactions for users, thereby expanding public participation in the modern financial system. Recent research shows that Central Bank Digital Currency (CBDC) can function as a complement and supporter of the role of fintech by providing a digital payment instrument that is safer, more reliable, and has a full guarantee from the central bank (Ozili, 2023).

With this official guarantee, CBDC is able to increase public trust in the use of digital money, while also narrowing the gap in financial access in various layers of society. In addition, CBDC has the potential to reduce people's dependence on cash payment systems, which have so far been an obstacle in a number of remote areas.

Furthermore, CBDC allows for stronger integration between the formal financial system and digital technology, thereby facilitating the penetration of financial services to areas that have so far been difficult to reach. A study by Auer et al. (2022) confirms that the existence of CBDC can strengthen the transmission of monetary policy by increasing people's access to digital payment systems. Thus, the effectiveness of policy instruments such as interest rates can be maximized more optimally, supporting economic stability, while also expanding financial inclusion in all layers of society.

2.2. Monetary and Banking Stability Risks

Although Central Bank Digital Currency (CBDC) has great potential to encourage financial inclusion and make it easier for people to access digital services, its implementation also presents serious challenges related to the stability of the financial system. One of the most prominent risks is banking disintermediation, which is a condition where people tend to prefer storing their funds directly in the form of CBDC rather than placing deposits in commercial banks. This phenomenon can have a significant impact on the bank's intermediation function, which has so far been an important mechanism in channeling credit to individuals and business sectors. As a result, the bank's ability to provide loans and support economic activity can experience serious pressure, leading to the risk of imbalance in the financial system (Viñuela et al., 2020).

Furthermore, recent literature emphasizes that the presence of CBDC also has implications for the traditional role of central banks in maintaining monetary stability. Allen et al. (2022) highlights that the integration between fintech, cryptocurrencies, and CBDC has the potential to encourage structural transformation in the financial system. This transformation, if not carefully regulated and managed, could lead to monetary instability and increase volatility in financial markets. Therefore, an adaptive, innovative, and responsive regulatory strategy is needed for technological changes, as well as close coordination with all financial sectors. This approach is important so that the implementation of CBDC can proceed in line with the existing banking system, minimizing the risk of disruption, and ensuring that this digital innovation supports financial inclusion without sacrificing the health and stability of the financial system as a whole. Thus, managing CBDC requires a careful balance between technological innovation and prudent monetary supervision.

3. Methods

This research uses the literature study method as the main approach to explore and analyze the role of Central Bank Digital Currency (CBDC) and financial technology (fintech) in the context of monetary stability, financial system stability, and financial inclusion. The literature study approach was chosen because the issue related to CBDC is still relatively new and continues to develop along with the rapid innovation in financial technology. In addition, direct collection of empirical data is still limited, while academic literature discussing this topic has experienced significant development and continues to grow. Thus, a literature study is the right method to obtain a comprehensive understanding of this developing phenomenon.

The literature sources used in this research include various types of academic publications, ranging from international scientific journals that have gone through a peer-review process, working papers from leading research institutions, to academic publications available through online repositories, including Google Scholar or Research Gate. The main focus in the selection of literature is publications in the last five years, with the aim of ensuring the relevance and up-to-dateness of information on the latest developments in the fintech and CBDC ecosystems. Keywords used in the literature search include "CBDC," "fintech," "monetary policy," "financial stability," and "financial inclusion," which allows this research to capture various perspectives and important findings in related fields.

The literature analysis process is carried out systematically, starting with the identification of the main themes that appear consistently in various publications. These themes include the potential of CBDC in expanding financial inclusion, the impact of CBDC on the transmission of monetary policy, the risks associated with financial system stability, and the synergy that can be created between CBDC and fintech in building a safe, inclusive, and sustainable financial ecosystem. Furthermore, the selected literature is critically analyzed to compare findings, highlight existing research gaps, and formulate theoretical and practical implications of CBDC implementation in various economic and digital contexts. With this approach, the research seeks to present a comprehensive and in-depth synthesis, so that it can be a reference for policymakers, regulators, and academics in understanding both the potential and risks of CBDC implementation. The results of the research are expected to provide clear insights on how CBDC and fintech can contribute to the development of an inclusive digital economy, while also maintaining monetary stability and the financial system in a sustainable manner.

4. Results

The results of this literature study indicate that the role of central banks in the digital era has evolved far beyond its conventional responsibilities which have so far focused on maintaining monetary stability through classic instruments such as interest rate regulation and exchange rate intervention. In this modern era, this role also extends to the management of new financial instruments, including the development and implementation of Central Bank Digital Currency (CBDC). A number of studies highlight that CBDC has the potential to become a key catalyst in strengthening the effectiveness of monetary policy transmission. This is due to the characteristics of CBDC which allow the central bank to implement monetary policy more directly and effectively. For example, the use of CBDC allows the implementation of negative interest rates which in practice are difficult to apply to physical cash. Findings from Auer et al. (2022) emphasize that through the use of CBDC, central banks have wider control over the circulation of money in the economy, so that monetary policy can be implemented with more precision and responsiveness to changes in economic conditions.

In addition to the impact on monetary policy, the literature also shows that CBDC can make a significant contribution to expanding financial inclusion, which is one of the important goals of economic development in the digital era. Financial technology (fintech) has emerged as a pioneer in expanding people's access to financial services, especially for groups who previously did not have access to formal bank accounts or traditional financial services. Fintech offers various digital services such as mobile banking, e-wallets, and peer-to-peer lending platforms that are able to reach people in remote areas and economically vulnerable groups. However, public trust in fintech is often still questionable, especially due to data security risks and the lack of an official guarantee from the monetary authority. In this context, CBDC which is guaranteed directly by the central bank functions as an additional layer of security and provides higher legitimacy, thereby building public trust in the use of digital financial services. Cao et al. (2023) confirmed that the synergy between CBDC and fintech can strengthen global financial inclusion by creating a more efficient, transparent, and trustworthy financial ecosystem. This combination not only expands access but also encourages the optimal use of financial services in all layers of society.

However, the benefits offered by CBDC cannot be separated from the risks that accompany it, especially to the stability of the financial system. One of the most prominent risks is banking disintermediation. This disintermediation occurs when people prefer to place their funds directly in the form of CBDC rather than saving them in commercial banks. This phenomenon has the potential to reduce deposits in banks, which are the main source of funding for the banking intermediation function, namely channeling credit to individuals, business sectors, and the government. Viñuela et al. (2020) found that this disintermediation can weaken banks' capacity to channel credit, thereby potentially causing pressure on the stability of the financial system. The technical and structural hurdle of CBDC is the 'trilemma' of the blockchain architecture that underlies many digital currencies, which can be designed to be highly decentralized, secure, or scalable, but in practice cannot be realized at the same time. In addition, scalability and security are very important for the effectiveness of CBDC. If not managed properly, the shift of funds to CBDC can trigger liquidity shocks and reduce banks' ability to support economic activity widely (Arifah et al., 2022).

Furthermore, the literature also highlights that the implementation of CBDC brings new challenges in the aspects of regulation and cyber security. Allen et al. (2022) shows that the emergence of new digital assets, including cryptocurrencies and stablecoins, has created regulatory gaps that can be used by certain parties for illegal purposes. This gap emphasizes the importance of implementing strict and adaptive regulations, as well as close coordination between the central bank, supervisory authorities, and fintech industry players. This aims to ensure that the implementation of CBDC can run safely, effectively, and does not pose a risk of disruption to the existing financial system. In addition, strengthening cyber security is crucial because the risk of digital attacks can cause large financial losses and threaten public trust in the use of central bank digital money (Yussuf et al., 2020).

Another result of this literature study shows that CBDC can play a role in strengthening monetary stability by reducing people's dependence on private payment systems that are vulnerable to market risks. Private payment systems that are not strictly regulated can present risks of liquidity, value volatility, and potential default, so the existence of CBDC as an official payment instrument can minimize these risks. A study by Ozili (2023) emphasizes that the implementation of CBDC, especially in developing countries, has the potential to increase financial inclusion while strengthening the effectiveness of monetary policy instruments. This success, however, depends heavily on the readiness of digital infrastructure, network security, and the level of public financial literacy. Without the adequate support and proper implementation of these critical factors, the potential benefits and advantages of Central Bank Digital Currency (CBDC) in promoting both financial stability and broader financial inclusion may not be fully realized or optimally achieved.

In other words, even though CBDC has the capacity to enhance the efficiency of payment systems, strengthen monetary policy transmission, and expand access to financial services for underserved populations, these positive outcomes are heavily dependent on the presence of robust infrastructure, effective regulatory frameworks, and coordinated efforts among central banks, commercial banks, fintech providers, and other relevant stakeholders. Without these essential elements working in tandem, the transformative potential of CBDC could be significantly limited, and the goals of ensuring system stability while fostering inclusive economic growth may remain partially unmet.

From a macroeconomic perspective, CBDC can also be used as a tool to increase the transparency of financial transactions and reduce informal economic practices that have so far been difficult to monitor. Baltgailis et al. (2023) emphasize the strategic role of CBDC in encouraging economic stability, especially in developing countries, through strengthening financial inclusion and preventing illegal financial activities. In other words, CBDC not only functions as a new monetary instrument but also as an economic policy tool that can support sustainable development. This shows that the implementation of CBDC has a dual dimension: both as a monetary tool for economic stability and as an instrument to encourage public participation in the formal financial system.

Overall, the results of this literature study show an inherent duality in the role of CBDC. On the one hand, CBDC is an important innovation that can strengthen financial inclusion, increase the efficiency of the payment system, and strengthen the transmission of monetary policy. On the other hand, CBDC poses significant risks to the stability of the banking system, data security, and the existing regulatory framework. Therefore, the CBDC implementation strategy must be designed carefully, prudently, and with attention to the balance between the benefits to be achieved and the risks that may arise. The implementation of CBDC needs to be carried out with a holistic approach that includes strengthening digital infrastructure, developing adaptive regulations, improving cyber security, and public financial literacy. A harmonious synergy between the central bank, commercial banks, fintech, and other stakeholders is the key to ensuring that CBDC can function optimally, support financial inclusion, and at the same time maintain monetary stability and the financial system as a whole.

5. Discussion

This literature discussion confirms that the existence of Central Bank Digital Currency (CBDC) and financial technology (fintech) is a very significant and unignorable phenomenon in the context of modern monetary policy. These innovations bring great potential to expand financial inclusion, especially in developing countries that still have a relatively high level of unbanked population. The existence of people who do not yet have access to formal banking services is one of the main challenges for achieving overall financial inclusion. With the presence of CBDC and fintech, access to financial services can be expanded more evenly, reaching people who were previously difficult to serve. However, a key question that arises in the literature is to what extent CBDC can be integrated and run side-by-side with the conventional banking system without causing excessive disintermediation. The risk of this disintermediation is a serious concern because it has the potential to reduce deposits in commercial banks, thereby putting pressure on banks' capacity to channel credit and support economic growth.

One of the solutions widely discussed in the literature is the application of a tiered remuneration model. In this model, CBDC balances that exceed a certain amount are subject to negative interest. This approach aims to prevent people from withdrawing all their funds from commercial banks and placing them entirely in the form of CBDC. With this strategy, CBDC can still function as an efficient and safe payment tool, while the intermediation function of commercial banks is maintained. Munajat (2022) emphasizes that the application of this tiered remuneration model can be a practical solution to balance the efficiency of the digital payment system and the stability of the financial system as a whole. The literature discussion also highlights the importance of creating a harmonious synergy between CBDC and fintech. Instead of being seen as a competitor that will replace the role of banks or traditional payment systems, fintech should be seen as a strategic partner for the central bank. This collaboration allows fintech to become a CBDC distribution channel, thereby expanding the reach of digital financial services to the wider community. This kind of collaborative approach not only strengthens financial inclusion but also encourages service innovation, increases transaction efficiency, and maintains the stability of the financial system (Danladi et al., 2023). However, the success of this collaboration depends heavily on regulation that is adaptive and responsive to technological dynamics, while also balancing the needs of innovation with consumer protection and monetary stability.

In addition to technical and regulatory aspects, the literature discussion also alludes to the geopolitical dimension of CBDC. Some developed countries, such as China, have already developed e-CNY as a form of CBDC that is designed not only for domestic use but also has the potential to be used in cross-border transactions. Such an initiative has significant implications for the global financial system, including the potential to challenge the dominance of the US dollar as an international currency. Allen et al. (2022) emphasizes that the development of this cross-border CBDC is not only technical but also strategic, as it can affect the global economic and political order. Thus, this literature discussion confirms that CBDC is not just a technical instrument or a new payment mechanism but also a political and economic strategy that has broad implications. The implementation of CBDC must consider the balance between the benefits offered, such as increased financial inclusion and the efficiency of the payment system, with the risks that arise, including bank disintermediation, regulatory challenges, and data security. Synergy with fintech, the application of a tiered remuneration model, and attention to geopolitical implications are important aspects so that CBDC can function optimally and sustainably, both at the domestic level and in the context of the broader global financial order.

6. Conclusion

This literature review indicates that Central Bank Digital Currency (CBDC) possesses substantial potential to enhance financial inclusion, improve the efficiency of payment systems, and strengthen the transmission and overall effectiveness of monetary policy. When implemented in coordination with financial technology (fintech) innovations, CBDC can help establish a financial ecosystem that is more inclusive, transparent, and reliable, offering broader access to digital financial services for individuals, businesses, and communities that are underserved or excluded from traditional banking networks. At the same time, these opportunities are accompanied by significant risks, such as potential disruption to the banking sector's intermediation function, challenges to monetary stability, and concerns regarding data privacy, cybersecurity, and operational resilience.

Given these advantages and potential drawbacks, the introduction and implementation of CBDC require careful planning, strategic foresight, and a comprehensive approach. It is crucial to adopt adaptive and responsive regulatory frameworks capable of addressing evolving technological developments while simultaneously reinforcing the digital infrastructure necessary to support large-scale adoption. Effective collaboration among central banks, commercial banks, fintech providers, and regulatory authorities is essential to ensure that CBDC can serve as a catalyst for financial innovation without compromising the stability of the financial system. When carefully designed, executed, and monitored, CBDC has the capacity to function as a critical instrument for promoting inclusive, efficient, and sustainable economic growth, thereby supporting the broader objectives of digital transformation and modernization within the financial sector.

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