

The Impact of Digital Currency on the International Payment System

Zheng Xinyi

Zhejiang University, Hangzhou, 310000, China

Keywords: Digital Currency, International Payment System, Central Bank Digital Currency, Cryptocurrency, Stablecoin, Payment Efficiency, Payment Security, Financial Inclusion, Monetary Policy, Blockchain Technology

Abstract: With the acceleration of global digitalization, digital currencies, as an emerging payment tool, are exerting profound impacts on the international payment system. This paper aims to explore the multifaceted effects of digital currencies on the international payment system, including enhancing payment efficiency, improving payment security, promoting financial inclusion, and the potential impacts on monetary policy. First, the paper provides a detailed explanation of the definition and classification of digital currencies, distinguishing between central bank digital currencies (CBDCs), cryptocurrencies, and stablecoins. Next, it analyzes the current state and limitations of the traditional international payment system, such as high costs, inefficiency, and lack of transparency. Building on this foundation, the paper delves into how digital currencies positively influence the international payment system through real-time clearing, reduced transaction costs, the application of blockchain technology, and the enhancement of financial inclusion. At the same time, the paper highlights the challenges faced by digital currencies in terms of technology, legal and regulatory frameworks, and economic and financial stability. Finally, the paper proposes policy recommendations, including strengthening international cooperation, improving regulatory frameworks, and promoting technological innovation, to guide the future development of digital currencies. This research provides a comprehensive perspective on understanding the impact of digital currencies on the international payment system and offers a theoretical basis for the formulation of relevant policies.

1. Introduction

Against the backdrop of an increasingly digitized global economy, digital currencies, as an emerging payment tool, are gradually transforming the traditional international payment system. The emergence of digital currencies not only provides new solutions for cross-border payments but also has profound implications for various aspects of the financial system. This paper aims to explore the multifaceted effects of digital currencies on the international payment system, including enhancing payment efficiency, improving payment security, promoting financial inclusion, and the potential impacts on monetary policy. First, the paper provides a detailed explanation of the definition and classification of digital currencies, distinguishing between central bank digital

currencies (CBDCs), cryptocurrencies, and stablecoins. Next, it analyzes the current state and limitations of the traditional international payment system, such as high costs, inefficiency, and lack of transparency. Building on this foundation, the paper delves into how digital currencies positively influence the international payment system through real-time clearing, reduced transaction costs, the application of blockchain technology, and the enhancement of financial inclusion. At the same time, the paper highlights the challenges faced by digital currencies in terms of technology, legal and regulatory frameworks, and economic and financial stability. Finally, the paper proposes policy recommendations, including strengthening international cooperation, improving regulatory frameworks, and promoting technological innovation, to guide the future development of digital currencies. This research provides a comprehensive perspective on understanding the impact of digital currencies on the international payment system and offers a theoretical basis for the formulation of relevant policies.

2. Definition and Classification of Digital Currency

Digital currency, as an emerging payment tool, is fundamentally understood through its definition and classification, which are essential for assessing its impact on the international payment system. Digital currency refers to money that exists in digital form, with its issuance, circulation, and transactions conducted electronically^[1]. Unlike traditional currency, digital currency does not rely on physical carriers but instead utilizes encryption technology and distributed ledger technology (such as blockchain) to achieve its functions. Based on the issuing entity and technical characteristics, digital currency can be primarily categorized into three types: Central Bank Digital Currency (CBDC), cryptocurrency, and stablecoin.

Central Bank Digital Currency (CBDC) is a digital currency issued and managed by a country's central bank, representing the digital form of its legal tender. The issuance of CBDC aims to enhance the efficiency of payment systems, reduce transaction costs, and improve the transmission of monetary policy. Unlike traditional electronic payment tools, CBDC is directly issued by the central bank, offering higher security and stability. For example, China's digital yuan (e-CNY) and Sweden's e-krona are typical representatives of CBDC. The promotion of CBDC not only helps optimize domestic payment systems but may also have a profound impact on the international payment system, particularly in cross-border payments.

Cryptocurrency, on the other hand, is a digital currency issued by non-official institutions or individuals using blockchain technology, with Bitcoin and Ethereum being prominent examples. The most distinctive feature of cryptocurrency is its decentralization, as its issuance and transactions do not rely on any central authority but are instead facilitated through distributed ledger technology, ensuring transparency and immutability^[2]. The anonymity and global circulation of cryptocurrency give it certain advantages in cross-border payments, but they also pose regulatory challenges and financial risks. Due to its high price volatility, cryptocurrency is more commonly regarded as an investment tool rather than a means of payment in practical applications.

Stablecoin occupies a middle ground between cryptocurrency and fiat currency, with its value typically pegged to a fiat currency (such as the US dollar) or a basket of assets to maintain price stability. Notable examples of stablecoin include Tether (USDT) and USD Coin (USDC). The design of stablecoin aims to combine the technological advantages of cryptocurrency with the stability of fiat currency, thereby playing a more significant role in the payment sector. Stablecoin holds considerable potential in cross-border payments, especially in regions where traditional payment systems are inefficient, as it can offer faster and lower-cost payment solutions. However, regulatory issues remain a major challenge for stablecoin development, particularly in areas such as anti-money laundering and financial stability.

3. Current Status of the International Payment System

The international payment system, as a critical infrastructure for global economic and financial activities, reflects the complexity and diversity of capital flows in the context of globalization. Currently, the international payment system is primarily composed of traditional interbank payment systems, emerging fintech solutions, and the gradually rising digital currencies. These systems and technologies collectively support global trade, investment, and cross-border personal fund transfers, yet they still face numerous challenges in terms of efficiency, cost, and security.

The traditional international payment system is centered around interbank payment systems, with the Society for Worldwide Interbank Financial Telecommunication (SWIFT) being the most prominent. The SWIFT system provides cross-border payment and clearing services to global banks through standardized message formats, covering over 11,000 financial institutions in more than 200 countries and regions^[3]. Although the SWIFT system dominates cross-border payments, its inefficiency and high costs have long been criticized. A cross-border payment typically involves multiple intermediary banks, leading to prolonged transaction times and increased fees, especially in payments involving different currencies, where currency conversion costs further exacerbate the issue. Additionally, the transparency and security of the SWIFT system have been questioned, particularly in addressing cyberattacks and financial crimes, necessitating upgrades to its technical architecture and regulatory mechanisms.

In recent years, the development of fintech has brought new transformations to the international payment system. Third-party payment platforms such as Alipay, WeChat Pay, and PayPal have significantly improved payment efficiency and convenience through technological innovation and user experience optimization. These platforms not only hold a significant position in domestic payment markets but are also gradually expanding into cross-border payments, offering more flexible and cost-effective payment solutions for individuals and small businesses. Moreover, the application of blockchain technology has injected new vitality into the international payment system. For example, the Ripple network has enabled real-time cross-border payments through blockchain technology, drastically reducing transaction times and costs. However, the development of fintech also presents new regulatory challenges, particularly in areas such as data privacy, anti-money laundering, and consumer protection, requiring enhanced coordination and cooperation among regulatory authorities worldwide to ensure the healthy development of fintech.

At the same time, the rise of digital currencies is having a profound impact on the international payment system. The research and pilot programs of Central Bank Digital Currencies (CBDCs) offer new possibilities for cross-border payments. For instance, China's digital yuan (e-CNY) and Sweden's e-krona are exploring applications in cross-border payments, aiming to enhance payment efficiency and reduce transaction costs. Cryptocurrencies and stablecoins also demonstrate potential in cross-border payments, particularly in regions underserved by traditional payment systems, where they can provide faster and more cost-effective payment services. However, the anonymity and decentralization of digital currencies pose regulatory challenges, especially in anti-money laundering, counter-terrorism financing, and financial stability, necessitating the establishment of a unified international regulatory framework to address the risks associated with digital currencies.

4. The Impact of Digital Currency on the International Payment System

The rise of digital currencies is having a profound impact on the international payment system, with their technological characteristics and application scenarios bringing new possibilities to global capital flows while also posing challenges to the traditional payment system. Digital currencies are mainly divided into central bank digital currencies (CBDCs), cryptocurrencies, and stablecoins, each driving the transformation of the international payment system in different ways.

Central bank digital currencies, issued by national central banks, aim to improve payment efficiency, reduce transaction costs, and enhance financial inclusion. For example, China's digital yuan (e-CNY) and Sweden's e-krona are exploring applications in cross-border payments through pilot programs, attempting to shorten transaction times and reduce intermediary costs through technological means. The development and promotion of these CBDCs not only provide new tools for domestic payment systems but also inject new vitality into the international payment system, particularly in the field of cross-border payments, where they are expected to become a powerful complement to traditional interbank payment systems.

Cryptocurrencies and stablecoins, on the other hand, offer another option for the international payment system through their decentralized technological architecture. Cryptocurrencies such as Bitcoin and Ethereum have attracted a large number of users with their decentralization, anonymity, and global accessibility, especially in regions underserved by traditional financial systems, where they provide faster and lower-cost cross-border payment services for individuals and businesses. Stablecoins like USDT and USDC, pegged to fiat currencies, mitigate price volatility risks, further enhancing their practicality in the payment field. However, the anonymity and decentralization of cryptocurrencies and stablecoins also bring regulatory challenges, particularly in areas such as anti-money laundering, counter-terrorism financing, and financial stability, requiring enhanced coordination and cooperation among regulatory authorities worldwide to address the risks associated with these emerging payment tools.

The widespread adoption of digital currencies impacts the international payment system not only at the technological level but also in reshaping the financial ecosystem. Traditional interbank payment systems like SWIFT dominate cross-border payments, but their inefficiency and high costs have long been criticized. Digital currencies enable peer-to-peer real-time payments through blockchain technology, significantly shortening transaction times and reducing costs, providing a more efficient solution for cross-border payments. Additionally, the smart contract functionality of digital currencies can automate payments and settlements, further improving the efficiency of the payment system. However, the widespread application of digital currencies also poses challenges to traditional financial institutions, forcing them to accelerate technological upgrades and business transformations to adapt to the new payment environment.

Despite the numerous opportunities digital currencies bring to the international payment system, their development still faces many challenges. First is the technological risk, as the security and scalability of blockchain technology need further improvement to meet the demands of large-scale payment scenarios. Second is the regulatory risk, as the anonymity and cross-border nature of digital currencies make it difficult for traditional regulatory frameworks to effectively cover them, requiring international cooperation among regulatory authorities to establish unified regulatory standards. Finally, there is the financial stability risk, as the volatility and decentralization of digital currencies may impact the traditional financial system, especially in extreme market conditions, where their risk transmission effects could trigger systemic risks.

5. Challenges Faced by Digital Currency

The rise of digital currencies has brought unprecedented opportunities to the international payment system, but it also faces numerous challenges. Firstly, technological risks are an unavoidable issue in the development of digital currencies. Although blockchain technology provides a foundation of decentralization, security, and transparency for digital currencies, it still has many limitations in practical applications. For example, the scalability issues of blockchain can lead to performance bottlenecks when handling large-scale transactions, resulting in slower transaction speeds and higher costs. Additionally, the security of blockchain technology is not

absolute, as frequent hacker attacks in recent years have exposed the vulnerabilities of digital currencies at the technical level. These issues not only affect user experience but also pose obstacles to the widespread adoption of digital currencies.

Secondly, regulatory risks represent another major challenge in the development of digital currencies. The anonymity and cross-border nature of digital currencies make it difficult for traditional regulatory frameworks to effectively cover them, creating new challenges for anti-money laundering, counter-terrorism financing, and financial stability. For instance, the anonymity of cryptocurrencies facilitates illegal transactions and fund transfers, increasing the difficulty for regulatory authorities to track and combat financial crimes. At the same time, the cross-border flow of digital currencies renders the regulatory measures of individual countries ineffective, necessitating international cooperation to establish unified regulatory standards and coordination mechanisms. However, due to differences in attitudes and policies toward digital currency regulation across countries, achieving this goal remains fraught with difficulties.

6. Conclusion

Through a comprehensive analysis of the impact of digital currencies on the international payment system, this paper reveals the positive roles of digital currencies in enhancing payment efficiency, improving payment security, promoting financial inclusion, and influencing monetary policy. At the same time, the paper highlights the challenges faced by digital currencies in terms of technology, legal and regulatory frameworks, and economic and financial stability. In the future, with the continuous development of digital currency technology and the strengthening of international cooperation, digital currencies are expected to play an even more significant role in the international payment system. However, to fully realize the potential of digital currencies, governments and international organizations need to enhance collaboration, improve regulatory frameworks, and promote technological innovation. This research provides a comprehensive perspective on understanding the impact of digital currencies on the international payment system and offers a theoretical basis for the formulation of relevant policies. Future research could further explore the specific applications of digital currencies in different countries and regions and their impact on the global economy.

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