

A New Dimension in the World Economy - Fiat Digital Currencies: A Review

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Abstract. In an international economic situation in a hyperinflationary environment, the competition for international digital currencies is becoming increasingly intense. The Federal Reserve released its first study on the US central bank's digital currency in early 2022 and China's digital RMB pilot has expanded to 23 regions in 15 provinces and cities... In today's highly digitalized world, the development of a legal digital currency will have a profound impact on national monetary systems, the development of international standards for central bank digital currencies and even the global monetary landscape and is worthy of focused attention and in-depth study. This paper summarizes the development and application of legal digital currency and its limitations at the present stage by combing and analyzing the legal digital currency research literature from CNKI, with a view to providing reference for legal digital currency to better support the innovative development of digital economy, finding a new direction for better development of digital currency and providing a prospect for the internationalization of legal digital currency.

Keywords: Digital Currency, Fiat, Finance.

1. Introduction

1.1 Research Background

A digital currency is an unrestricted, digital payment method that is accepted and used by users of a particular online community. It is typically created and managed by developers. A digital currency built on node network technology and electronic cryptographic algorithms is another way to describe a digital currency.

The core features of digital currencies are mainly reflected in three aspects: Firstly, due to the special nature of the algorithm, there is no issuing body for digital currencies, so no one person or institution can control its issuance. Second, the possibility of inflation brought on by the incautious issuance of digital currencies is fundamentally eliminated because the total number of digital currencies is fixed, and the number of algorithmic solutions is determined. Thirdly, the exchange of digital currencies is sufficiently secure because each node network must unanimously approve each transaction. Compared to paper money, digital currencies can measure economic activity on a global scale more accurately and quickly, even without the need to go through a third-party financial institution.

There are three basic types of digital currencies: firstly, like gold in World of Warcraft, they are entirely closed, circulating commodities that are only usable within a single digital environment and have no link to the real economy. Secondly, digital currencies can be bought with real money but cannot be traded for real money. People can use it like Facebook credits to buy virtual goods and services. Thirdly, digital currencies may be exchanged and redeemed at a set rate for actual money. They can be used to buy things and services both virtually and physically, like Bitcoin and Ether.

A key indicator of the growth of the digital economy is the use of digital currencies. Digital currencies now have more opportunities due to the fusion of technology and finance, both politically and economically. As in Figure 1, currently, digital currencies have reached the third stage of development. The unstable value and lack of credit support of the first stage of virtual coins has seriously affected its value scale function. The second stage of the stable coin type of digital currency is mainly based on or collateralized by centralized assets, and the value of the currency is relatively

stable. However, as the use of stable coins is limited, the influence is also very limited. The third stage central bank-issued legal digital currency has the basis and conditions to be able to reflect the function of a measure of value, as it is value-equivalent to the fiat digital currency and can be backed by the sovereign state.

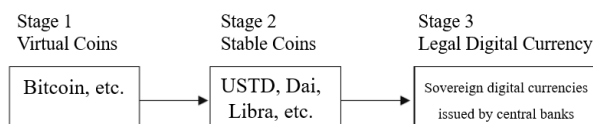


Fig. 1 Three stages in the development of digital currencies

CBDC, the Central Bank Digital Currency, is a fiat digital currency issued by the Central People's Bank. Nowadays, along with the rapid advancement of mobile internet technology and digital payment methods, many central banks have started to systematically study the issuance of central bank digital currencies. According to a BIS survey, at least 56 central banks are actively exploring CBDCs by the end of 2020. the discussion on cryptocurrencies has shifted from mere speculation to focus on the impact of cryptocurrencies on national sovereign currencies. This is accompanied by an increasingly challenging international situation, the accelerating pace of crypto regulation in countries around the world, the exploration and cooperation of various countries in the emerging field of digital currencies, and even the struggle of sovereign states for the right to speak about world currencies. As a result, the issuance of digital currencies by central banks has become particularly important.

1.2 Research Significance

During the covid-19 pandemic, economies around the world were hit. 2022 saw a gradual downward spiral in the global economy amidst high inflation. In addition, the outbreak of conflict in Russia and Ukraine caused turmoil in the global political landscape. Developed capitalist countries such as the United States and Canada implement massive interest rate hikes. In this environment, the promotion and development of CBDCs is becoming increasingly important. All countries should consider what goals to pursue for the development of digital currencies? How can the realities of fiat digital currencies be addressed? How can we learn from Bitcoin and stable coins to develop national digital currencies? What is the most beneficial direction for the development of fiat digital currencies? On this basis, we have conducted a specific analysis of the current development of fiat digital currency and blockchain technology to find a digital currency strategy that is more conducive to the development of an international currency. Therefore, determining the potential international future directions for digital currency as well as comparing and analyzing the current development and issues of fiat digital currency are the goals of this paper.

1.3 Paper Organization

Firstly, the existing research literature on legal digital currency was searched and categorized. It can be broadly divided into two categories: studies on the development and application of legal digital currencies, and studies on the limitations of legal digital currencies at this stage. In addition, I also summarize the international development of legal digital currencies. Secondly, this literature is summarized and interpreted to form a new collection on legal digital currencies. In addition, I provide an outlook on the future development of digital currencies in the context of the current stage of development of legal digital currencies.

2. Literature review

Currently, there is an increasing amount of research on fiat digital currencies and related blockchain technologies. From the CNKI database, the paper searched for literature published in recent years on the keywords "fiat digital currency" and "blockchain technology". Figures 2 and 3

show the number of papers published on the keywords "fiat digital currency" and "blockchain technology" since 2016, respectively. As shown in Figures 2 and 3, there is a wealth of research on fiat digital currency and blockchain technology. The number of research on fiat digital currency has been increasing in recent years, mainly due to the increasing attention paid by countries to the issuance and development of digital currency in recent years. In blockchain technology research, the number of papers peaked at 124 in 2018 and declined in 2019 and 2021. The fact that it still maintains a large number underlines the significance of exploring the development of blockchain technology and fiat digital currencies.

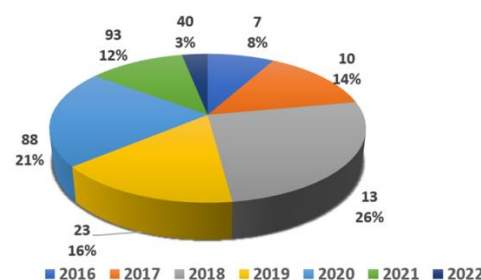


Fig. 2 Number of papers published with the keyword "Fiat Digital Currency" from 2016 to June 2022

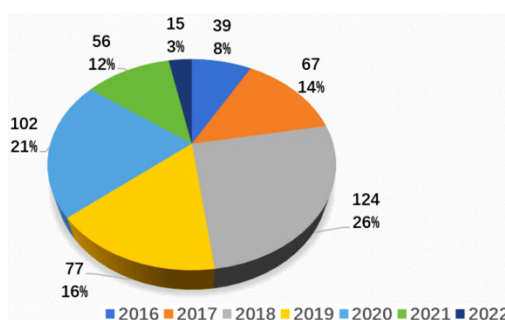


Fig. 3 Number of papers published with the keyword " Blockchain Technology " from 2016 to June 2022

Based on the literature, this paper classifies and summarizes the existing research on fiat digital currency, including some outlines and papers related to fiat digital currency with high correlation. The literature details are shown in Table 1, which shows the publication date and title of the papers. Therefore, this article will analyze the references related to fiat digital currencies in detail.

Table 1. Classification of references

Num.	Date	Title	Num.	Date	Title
1	2022	The Development Status and Application Prospect of Digital Currency in China	6	2022	The Construction of a Legal Order for the International Regulation of Digital Currencies
2	2022	The Impact of Fiat Digital Currency on the Reshaping of Residents' Consumption Behavior and Its Path	7	2022	Digital Currency, Financial Security and Global Financial Governance
3	2022	A Panoramic Complement to Digital Currency Research: An Analytical Framework for the Fiscal Application of Digital Currency	8	2022	Analysis of the Impact of Central Bank Digital Currency (CBDC) on Payment Systems
4	2022	Exploration of Fiat Digital Currency in the Perspective of Rural Finance	9	2022	Research on the Impact of Digital Currency on the Internationalization of RMB under the "Belt and Road" Initiative
5	2022	An Empirical Study on the Impact of Digital Currency on Financial Stability	10	2022	New Global Competition and Cooperation of CBDC

2.1 Research on the Development and Application of Fiat Digital Currency

Chen Hui has found that fiat digital currencies have reduced the cost of using them due to the implementation of online transactions. Moreover, fiat digital currencies can be used in different ethnic regions, making it possible to circulate digital currencies without geographical restrictions [1]. Therefore, fiat digital currencies are gradually being used in various fields in China and will occupy a large market share and be a major force in the future financial market. Every social change in the form of money is accompanied by a transformation and upgrading of residents' consumption behavior. Liu Luman discovered that digital currency has changed the internal distribution structure of consumption and savings, establishing a positive interaction mechanism between monetary policy and residents' consumption-savings choices, and reshaping residents' consumption behavior. She also clearly realized that due to the direct control of the central bank, the legal digital currency can enable government departments to have complete and timely access to the consumption data of the population, thus guiding the development of supply and consumption synergy [2]. Ma Yang and Yang Dong's analysis concludes that finance not only underpins the credit system of digital currencies but also provides the social application scenarios for digital currencies. For example, schemes such as the digital dollar rely on the US government to issue bonds to expand fiscal spending, so the application scenario for fiat digital currencies will extend to government debt management projects [3]. Based on fiscal support for fiat digital currencies and the encouragement of development, fiat digital currencies will gain a wider range of social application scenarios. Shen Tianqi viewed the fiat digital currency as a positive boost to rural financial services. It will help reduce the pressure on rural commercial banks and expand the scope of rural financial services, allowing more farmers to participate in rural finance. In addition, fiat digital currency can effectively reduce the crime rate of rural finance and thus maintain the financial order of the rural financial market. Furthermore, the development of fiat digital currency also promotes the development of local rural financial technology. The application of fiat digital currency breaking through geographical restrictions promotes the further development of social finance [4].

The development of fiat digital currencies is driving new changes in modern society. Thus, we need to work hard to promote the pace of the use in society.

2.2 Research on the Limitation of Fiat Digital Currency

By means of hypothesis testing, Wang Yue demonstrated that the expansion of fiat digital currency transactions may cause a certain degree of impact on financial stability in the short term. With the extension of time, the large negative effects of the expansion of fiat digital currency transactions gradually weaken [5]. The government needs to regulate the national monetary system more strictly. The central bank should not only guard against the disorderly expansion of digital currency transactions, which could affect financial stability, but also, consolidate the public's confidence in the national monetary system by coordinating the quantitative relationship between digital currency and paper money. Li Shuai and Qu Maohui believed that not only the laws in digital currency technology would lead to a lack of security for fiat digital currencies, but also the unified standard of information security for CBDCs still needs to be improved. The flaws in digital currency technology will not only make it difficult for the government to regulate fiat digital currencies but also make it difficult to recover losses in the event of a technical breach of digital currencies [6]. The development of digital currency technology is still in its infancy and the risks and potential loss of interest are still significant and unknown. Dong Zuo Zhuang thought that the failure of innovation in regulatory mechanisms to keep pace with technological innovation in digital currencies is a major hidden problem in the current fiat digital currency system. Technological innovations such as blockchain can be developed and replaced quickly, yet innovations in regulatory mechanisms need to be tested and amended repeatedly [7]. Therefore, due to the urgency of the need for financial stability, the risk assessment mechanism and regulatory mechanism for fiat digital currencies need to be improved immediately.

In addition, fiat digital currency is a challenge to the development of payment clearing systems. Researchers such as Zhang Jun identified that high transaction costs and low transaction efficiency rates for fiat digital currencies. Moreover, digital currency settlement methods require very high transaction liquidity, which leads to a high exposure to liquidity risk in payment clearing systems. For cross-border payment settlement, the exposure of the payment clearing system will also increase once the legitimacy of fiat digital currency is denied in the region [8]. Therefore, central banks also need to improve the transaction and settlement technology of fiat digital currency and strengthen regional cooperation to strengthen its legitimacy. Fiat digital currencies have a long way to go. Even though the challenges and risks facing fiat digital currencies are significant at this stage, countries still need to maintain a confident and forward-looking attitude towards the future of fiat digital currencies.

2.3 Research on the Internationalization of Fiat Digital Currency

In the context of China's continuous increase in foreign trade in recent years, Han Xiaoyuan and Xu Zhijie analyzed that the application of China's digital currency technology to the "Belt and Road" bilateral trading and settlement through the CIPS system can help the digital RMB to gradually realize the vision of a "center" currency and will promote the internationalization of the digital RMB [9]. The combination of digital currency technology and multilateral trade policy is important for China's opening to the outside world and the internationalization of the digital RMB. Zhong Hong, Li Yanrong and Hao Yi researched that the international community is working to promote CBDC cooperation in cross-border payment settlement [10]. For example, China, Hong Kong, Thailand and the United Arab Emirates have jointly launched the multilateral Central Bank Digital Currency Bridge research project (m-CBDC Bridge); the European Central Bank and the Bank of Japan have partnered to launch the Stella project. The projects illustrate that the trend in the world's monetary system is that countries are working together to issue CBDCs and build shared platforms to find a universal CBDC system that works for the international community.

3. Conclusion

3.1 Main Findings

This paper has been inspired by reading the literature on blockchain technology and legal digital currencies in recent years. In the process of research, this paper finds that the current research on the development of fiat digital currencies and the internationalization of fiat digital currencies is becoming more and more important, while the outbreak of epidemics, geopolitical turmoil and hyperinflation in the economic situation make the internationalization of fiat and digital currencies more cautious.

Against this background, we organize and classify the existing research findings. Through a comparative analysis of the applications and limitations of fiat digital currencies, we also point to possible future directions for the wider and more international development of fiat digital currencies in various countries. Specifically, on the one hand, fiat digital currencies will be widely used in all areas of Chinese society and are driving new changes in modern society. The scenario of fiat digital currency applications is also supported by finance. Moreover, fiat digital currencies are driving not only consumer behavior but also the development of rural financial services by breaking through geographical limitations. On the other hand, the technical shortcomings and limitations of digital currencies at this stage mean that the development of fiat digital currencies faces significant risks and challenges. The rapid increase in the number of digital currencies could have an impact on the stability of the national financial system. The speed of updating the statutory digital currency regulatory system will not be able to keep up with the speed of updating digital currency technology, and the stability of the country's finance will be reduced. Moreover, the development of fiat digital currencies in payment clearing systems is difficult due to their high transaction costs, low transaction efficiency and the need for a certain level of liquidity and legitimacy for cross-border payments. Furthermore, the international community is working to promote CBDC cooperation in cross-border payment settlement and the integration of digital currency technology with multilateral trade policies will also facilitate the internationalization of digital currencies.

3.2 Future Studies

In the future, fiat digital currencies will address their technical shortcomings and gradually replace paper currencies as the mainstream of the national monetary transaction system. It will also continue to improve transaction efficiency, reduce transaction costs and expand transaction liquidity to accommodate the development of cross-border payment and settlement systems. In addition, the future of the internationalization of fiat digital currencies is to become an important payment platform and settlement window for multilateral trade in conjunction with the development of multilateral trade policies.

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