The Development Path and Potential Challenges of Stablecoins Based on Risk Return Approach

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Abstract. In the context of the booming digital economy, stablecoins have attracted attention for maintaining relatively stable prices and playing a key role in the digital financial ecology. This paper focuses on the research of stablecoins. The background is that stablecoins are rising due to their stability and payment convenience, but they are subject to regulatory attention due to their impact on the financial system and monetary policy. The research topics cover the risks and advantages of stablecoins, as well as the comparison with central bank digital currencies. In terms of research methods, the risks (such as sovereignty, regulatory risks, etc.) and advantages (high stability, promoting financial inclusion, etc.) of stablecoins were analyzed through literature review, and cases (such as the choice of stablecoins and digital currencies in the United States) were analyzed, and the comparison between stablecoins and central bank digital currencies was made. The conclusion shows that stablecoins have significant value in digital asset trading and other fields, and have the advantages of financial inclusion. However, they face risks such as sovereignty and regulation, and there are challenges in technological innovation and application. Therefore, it is necessary to tap the advantages and build an appropriate regulatory framework and technical system to balance innovation and risk, so as to achieve stable development and promote the advancement of digital finance. Policy suggestions, such as building a multi-level regulatory system, are also put forward to refine differentiated regulatory measures.

Keywords: Stablecoins, Risk Regulation, Digital Finance, Cross-border Payment, Central Bank Digital Currency.

1 Introduction

Stablecoins are a class of cryptocurrencies that are designed to maintain a relatively stable price, often achieving value anchoring by pegging to real-world assets such as the U.S. dollar, euro, and gold. With the rapid development of the digital economy, stablecoins have risen rapidly due to their remarkable stability and payment convenience, and have played an important role in the digital financial ecology, which may play an important role in the next generation of financial infrastructure [1]. Compared

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with bitcoin, Ethereum, and other crypto assets with volatile prices, stablecoins are designed to pay more attention to price stability and predictability. Therefore, they are widely used in daily transactions, store of value, cross-border payments, and mortgage and settlement in decentralized finance (DeFi) systems. It effectively acts as an important bridge between traditional fiat currencies and volatile crypto assets. Because it is an important bridge between the traditional financial system and the blockchain economy, providing a more robust value carrier for the development of the digital economy, most people believe that stablecoins have great potential in cross-border payment, digital asset transactions, and other fields. However, with the continuous expansion of its application scope and increasing market influence, stablecoins have begun to have a potentially far-reaching impact on the global financial system and national monetary sovereignty and policies. According to their different stability mechanisms, stablecoins are mainly divided into four categories: fiat currency collateralized, crypto asset collateralized, algorithmic stablecoins, and commodity collateralized. Among them, fiat stablecoins account for the largest proportion in the current market. They are issued by centralized institutions and reserve fiat currencies in a 1:1 ratio. Taking Tether (USDT) as an example, as one of the earliest stablecoins to enter the market, its market value has exceeded $150 billion in 2025. It is enough to reflect the legal stable currency in the core position in the digital asset trading and financial services, so in this paper, through three aspects, analyze the stable currency's existing advantages and potential Risks [2]. The first part will describe the background of the rise of stablecoins and the core role of stablecoins in digital finance, and focus on the significance of this study for understanding the potential macroeconomic impact of stablecoins and the necessity of regulatory response. The second part will systematically summarize the core advantages of stablecoins based on the review and analysis of existing literature. Through the existing research shows that the core of a stable currency advantage concentrated on price stability strong financial pratt &whitney value payment efficiency, lower significantly increased, and the transaction cost of these features, in the cross-border payment digital asset transactions and promote cross-border electricity showed broad prospects and global trade development, This part will also be stable currency faces potential challenges in the references and risk to lay the foundation for subsequent analysis. Is the third part is the core of this article, this part will be a stable currency and central bank digital currency comparison and analysis, to explore both itself, as well as to the monetary policy transmission stability of the financial aspects of the similarities and differences, more important is the depth profiling, the significance of the recent U.S. to through the genius act and far-reaching influence, and interpret the law at the core of the terms and conditions, Regulatory purpose as well as to the potential role of global currency stable structure, stable currency would be able to become a global currency [3].

2 Risk Analysis

Some scholars believe that stablecoins may bring a certain amount of harm to the financial transaction market. After comparing the market performance of United States

Dollar Coin (USDC) and USDT during the collapse of Silicon Valley Bank, it is found that even stablecoins with higher transparency may still experience panic outflow under high pressure [4]. Because stablecoins are privately issued cryptocurrencies, leading to the degree of transparency is insufficient, also there is a certain risk. Secondly, stablecoins are issued by private enterprises and rely on centralized custodian institutions. However, the centralized custodian model may bring operational risks such as appropriation, default and audit difficulty. If the trustee defaults or a credit event, it will directly threaten the stability of the stable currency anchor mechanism [5]. Therefore, it is also difficult to regulate stablecoins. At the same time, since stablecoin users directly complete payment, lending and asset management on the chain, and no longer carry out credit activities through commercial banks, they cannot be effectively affected by tools such as policy interest rate and reserve ratio. This shows that if stablecoins are widely circulated, it may weaken the effectiveness of the The government's monetary policy and monetary sovereignty.

Among them, sovereign risks include, first of all, the decentralization of currency issuance rights. If stabcoins are widely used, they may form a payment scenario in which "private money" replaces part of legal tender (such as cross-border transactions and daily consumption), weakening the central bank's monopoly on currency issuance. Second, monetary policy transmission when larger stable currency circulation, the user may be a stable currency in economic fluctuations, lead to fiat money demand is not stable, affect the central bank through interest rates and deposit reserve tools to adjust the economic effect. The third point is to bypass the foreign exchange control, stable currency (such as USDT) can achieve rapid cross-border transfer, if the user uses in great quantities, can avoid the country's foreign quota restrictions, affecting the flow of capital controls, especially for capital project controls relatively heavy impact is bigger. Finally, exchange rate fluctuation pressure: changes in the supply and demand of stabilizers may indirectly affect the exchange rate of fiat currencies through cross-border transactions. For example, a large amount of capital outflow through stabilizers may aggravate the depreciation pressure of local currencies.

There are also regulatory risks. The first point is that the difficulty of supervision increases. If the Issuers of stablecoins are not subject to the constraints of the legal currency regulatory system (such as decentralized stablecoins). They may form regulatory arbitrage, and the capital flow is difficult to track, increasing the difficulty of anti-money laundering and anti-terrorist financing. If The second point is systemic risk conduction, stable currency payment crisis (e.g., anchor the insufficient assets), could trigger a market panic, users selling stable currency in exchange for legal tender, lead to legal tender in the short-term liquidity squeeze, even spread to traditional financial markets.

3 Advantage Analysis

3.1 Payment Efficiency

The main advantage of the stable currency encryption monetary asset price fluctuations, stable legal currency anchor, and makes the stable currency in cross-border trade in DeFi served for the value of the stable and reliable media [4]. Second is to impel the transformation of financial pratt & Whitney and cross-border payments, the potential of a stable currency will likely fill the traditional financial as the coverage area of the pay gap [5]. Therefore, it believe that stablecoins have great potential in cross-border payment or digital asset trading, and can play a huge role in cross-border e-commerce to promote the development of trade among countries, which will also lead to faster currency circulation between countries and further promote the development of the global economy [6]. The second is promoted. Scholars pointed out that a stable currency will also have passed the round-the-clock availability, features, without borders Segmentalized and non-financial service integration is a new type of online transaction possible so together currency provides a stable value, makes its role to further strengthen medium of exchange, at the same time also to improve the efficiency of deals.

3.2 Financial Inclusion

Stablecoins are based on blockchain technology. How to improve the stability, security and scalability of stablecoins through technological innovation? For example, decentralized stablecoins can study how to optimize smart contracts and oracle mechanisms to reduce risks caused by technical vulnerabilities. It can also study the application potential of emerging technologies such as zero-knowledge proof and multi-party computing in the field of stable-currency.

The first is the study of application scenarios, the application mode and potential of stablecoins in cross-border payment, supply chain finance, digital asset trading and other fields. For example, research on how stablecoins can solve the problem of low efficiency and high cost in cross-border payment (this problem may become an advantage after solving, because stablecoins enable currency circulation between countries and promote economic development) and how to play a better role in cross-border e-commerce to promote trade development.

At the same time, it forces the development of central bank digital currency (CBDC). The rise of stable-currency makes countries realize the importance of digital payment and accelerate the research and development and implementation of CBDC (such as China's digital RMB), so as to consolidate the status of legal tender in digital finance. Countries usually balance innovation and risk by strengthening regulation (such as requiring the transparency of stable-coin anchor assets and integrating them into the financial regulatory framework), so as to maintain the core position of legal tender.

4 Analyze the Potential Risks and Countermeasures of Stablecoins Based on Case Studies

The first is about the differences between stablecoins and central bank digital currencies, and an in-depth analysis of why the United States should promote stablecoins instead of digital currencies

According to Money and Payments: The U.S. System in the Age of Digital Transformation." Although the existing U.S. payment system is generally effective and efficient, there are still some challenges. In particular, a significant number of U.S. citizens currently lack access to digital banking services, as well as payment services." CBDC adoption in the United States would take time and cost, and the report notes that there are still many challenges to cross-border payments, "including slow settlement and high fees, as well as how currencies work, differences in legal systems and technological infrastructure in different countries, time factors, coordination issues between intermediaries, including correspondent banks, The United States cannot solve the problem of implementing CBDC in a short period of time. However, due to the development of the international situation, the United States has chosen to support the US dollar stablecurrency through legislation. Its purpose should be to maintain the hegemony of the US dollar, fight against the digital RMB and make it easier to control cross-border payments.

In fact, the United States chooses stablecoins because they have a certain scale and considerable usage, so it is easier to use stablecoins to maintain the US dollar hegemony, and their inspection of overseas transactions will not be limited by cultural differences in different regions [7].

The reason is that CBDC still needs to carry out research and development related to stablecoins, while the US has completed the research and development of stablecoins.

Secondly, based on the current situation, it is necessary to clarify the regulatory methods and specific implementation methods of stablecoins.

The regulatory path of stablecoin can be roughly divided into four parts: the first is the basic principle of supervision, covering risk-based, penetrating supervision, collaborative supervision and based on national conditions; The second is the core supervision direction, including issuer supervision, circulation and trading supervision, technology and security supervision, and consumer and investor protection; The third is the specific implementation path, which involves improving laws and regulations, establishing a classified regulatory framework, carrying out pilot projects and dynamic adjustment, and promoting international cooperation and standard docking [8].

Finally, this paper focuses on the current situation of high fees and long settlement cycle of traditional cross-border payment system, and discusses how to improve the technology.

The optimization scheme of cross-border payment technology starts with the optimization of the underlying technology architecture (high-performance blockchain network selection, cross-chaininteraction and protocol unification) [9]. Secondly, the optimization of payment process and clearing mechanism (disintermediation and process

simplification, real-time reconciliation and linkage of reserve assets, and third, embedding of security and compliance technology (balance between privacy protection and traceability, anti-risk technology mechanism). Fourth, personalized optimization suitable for cross-border scenarios (small high-frequency scenarios: lightweight processing, large low-frequency scenarios: high security priority). Finally, technical standards and ecological collaboration (formulating industrial technical standards and building multi-party collaborative ecology) [10].

5 Conclusion

In the wave of digital economy, stablecoins have the advantages of price stability and adaptation to digital financial ecology to play a role in financial inclusion, cross-border payment and other scenarios, but they are also associated with multiple risks such as sovereignty and regulation. In order to promote their healthy development, it is necessary to build an adapted regulatory framework, synergization of regulations, technology and international cooperation, deepen the application of scenarios, promote coordination with fiat currencies and central bank digital currency, and release the potential of cross-border payment and digital financial ecology. In the future, it should pay attention to technological innovation (such as blockchain optimization) and regulatory coordination (global rule adaptation), explore the path of deeper integration with the digital financial ecology, help the steady operation of the global digital economy and financial system, and enable digital financial innovation.

It is suggested to build a multi-level and differentiated regulatory system. According to the issuance mode, strict licensing, custody and disclosure of fiat stablecoins; Algorithmic stablecoins focus on contract and algorithm supervision; Decentralized stablecoins strengthen on-chain monitoring and coordination. According to the application scenario, the retail scenario limits the transaction quota and connects the anti-money laundering system; Institutional large-amount settlement scenarios require issuers to set aside capital quality and emergency reserves. In the future, it expect stablecoins to make breakthroughs in technology and regulation. In terms of technology, zero-knowledge proof may improve its security and efficiency; In terms of regulation, it can accelerate the adaptation of global rules and reduce cross-border frictions. At the same time, it will explore collaboration and integration with fiat currencies, explore more application scenarios, become a bridge connecting traditional and blockchain finance, help the digitalization of the global financial system, and provide a more stable and efficient value carrier for the digital economy.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

References

1. Liu, D. M., Song, S.: Digital Currency, Cross-border Payment and the Transformation of the International Monetary System. Financial Forum **25**(11), 3-10 (2020)
2. Chen, Y. L.: Several Key Issues in Current Global Central Bank Research. Journal of Financial Research **12**(2), 1-14 (2020)
3. Zhao, B. H.: Foreign Experience and Chinese Solutions in Addressing Regulatory Challenges of Cryptocurrencies: A Focus on Stablecoins. Political and Legal Forum **18**(2), 176-191 (2022)
4. Ferreira, A.: The Curious Case of Stablecoins—Balancing Risks and Rewards?. Journal of International Economic Law **24**(4), 755-778 (2021)
5. Grigg, I.: Why the Ricardian Contract Came About: A Retrospective Dialogue with Lawyers. In: Allen, J., Hunn, P. (eds.) Smart Legal Contracts: Computable Law in Theory and Practice. Oxford University Press **161**(12), 651-675 (2022)
6. Zhang, L. Q., Wu, T.: The Application of Blockchain in the Financial Field: Theoretical Basis, Practical Dilemmas and Solution Strategies. Reform **61**(12), 65-75 (2019)
7. Qi, A. M., Zhang, Z.: On the Concept and Legal Nature of Digital Currency. Journal of Law Science (Northwest University of Political Science and Law) **40**(2), 80-92 (2021)
8. Li, M.: The Definition of Attributes of Digital Currency: A Cross-disciplinary Perspective of Law and Accounting. Law Review **16**(2), 107-120 (2021)
9. Zheng, L.: Innovation and Regulation of Decentralized Finance and Digital Finance. Research on Financial and Economic Issues **12**(4), 65-74 (2022)
10. Wang, X., Jia, Y. Y.: International Monetary Competition in the Context of Digitalization and Its Implications for the Internationalization of the RMB. Southern Finance **15**(5), 12-21 (2020)