

Research on the Impact Mechanism and Regulatory Framework Optimization of Stable Coin Development on Financial System Risks

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Abstract: This article focuses on the impact of stablecoin development on financial system risks and the optimization of regulatory frameworks. With the rapid expansion of the global stablecoin market, it is widely used in cross-border payments, cryptocurrency transactions, and other scenarios, which has brought impact to the traditional financial system. By analyzing the impact mechanism of stablecoins on financial system risks, sorting out the current situation and problems of international regulation, proposing optimization suggestions such as improving regulatory rules, strengthening risk prevention and control, and promoting international regulatory cooperation, the aim is to provide theoretical support for regulatory agencies to formulate scientific and reasonable stablecoin regulatory policies and maintain financial system stability.

Keywords: Stablecoin; Financial system risk; Regulatory framework.

1. Introduction

In recent years, the global stablecoin market has shown a rapid expansion trend. Mainstream stablecoins represented by USDT, USDC, etc. occupy an important position in the field of cryptocurrency and related financial activities. Since 2020, the size of the stablecoin market has surged from \$5 billion to hundreds of billions of dollars today, with a compound annual growth rate of over 100%, and transaction volume approaching \$37 trillion. Stablecoins have been widely used in cross-border payments, cryptocurrency transactions, and other scenarios. In terms of cross-border payments, relying on blockchain peer-to-peer transactions, USDT cross-border transfers only take 2 minutes and cost as low as 1 US dollar, while traditional wire transfers take 2-3 days and have transaction fees as high as 1% -3%. The efficient and low-cost advantages of stablecoins are fully demonstrated. In cryptocurrency trading, stablecoins have become an important hedging tool for investors during market fluctuations due to their relatively stable value. They also provide a pricing benchmark for various cryptocurrency trading pairs, making trading smoother.

However, the rapid development of stablecoins has also brought many impacts and challenges to the traditional financial system. It has to some extent changed the mode and process of traditional financial transactions, and has potential impacts on aspects such as money supply and monetary policy transmission mechanisms. Moreover, the regulation of the stablecoin market is not yet perfect, and there are many risks and hidden dangers, such as opaque issuance mechanisms and uneven quality of reserve assets, which may lead to a loss of investor confidence and pose a threat to the stable operation of the financial market [1].

2. Overview of Stablecoin Development

2.1. Definition and Classification of Stablecoins

2.1.1. Definition

Stablecoins are a special type of cryptocurrency whose core characteristic is to achieve relative price stability by being

pegged to fiat currency, commodities, or algorithms. Unlike cryptocurrencies with volatile prices such as Bitcoin, stablecoins aim to provide a relatively stable value scale and trading medium for the cryptocurrency market. For example, common US dollar stablecoins attempt to maintain a 1:1 exchange ratio with the US dollar to ensure their relatively stable value in the market, allowing users to reduce uncertainty caused by price fluctuations when trading. This price stability mechanism makes stablecoins play an important role in the cryptocurrency ecosystem, serving as a bridge connecting the traditional financial system with the cryptocurrency field.

2.1.2. Classification

Fiat collateralized stablecoins: Represented by USDT, this type of stablecoin operates by the issuer promising to deposit 1 unit of legal tender (such as US dollars) as a reserve in a bank account for every 1 unit of stablecoin issued. Users can exchange stablecoins back to fiat currency in a 1:1 ratio when needed.

Crypto asset collateralized stablecoins, such as DAI, are issued by mortgaging other cryptocurrencies, such as Ethereum. The specific process is for users to deposit a certain amount of encrypted assets into a smart contract as collateral, and the smart contract issues a corresponding amount of DAI based on the value of the collateral assets and the set collateral rate.

Algorithmic stablecoin: Taking UST as an example, its operating mechanism is based on algorithmic regulation of market supply and demand to maintain currency stability. When the UST price is higher than the anchor price, the algorithm will prompt the issuer to issue additional UST, increase market supply, and thus lower the price; On the contrary, when the price is lower than the anchor price, the algorithm will guide users to exchange UST for other assets, reducing market supply and causing prices to rise [2].

2.2. Development Status and Trends of Stablecoins

2.2.1. Market size and application scenarios

The global stablecoin market is showing a continuous

growth trend. Currently, over 95% of stablecoins worldwide are US dollar stablecoins, which dominate the market. Stablecoins have been widely used in multiple fields. In the field of decentralized finance (DeFi), stablecoins serve as the fundamental trading medium and value storage tool, supporting the operation of various DeFi applications such as lending, trading, and liquidity mining. In cross-border e-commerce payments, stablecoins provide more convenient payment methods for cross-border e-commerce enterprises and consumers due to their fast and low-cost cross-border transfer advantages. Especially in some emerging market countries, the use of stablecoins helps to solve the problems of cumbersome procedures and high fees in traditional cross-border payments. In terms of international capital flows, stablecoins also provide investors with a new channel for fund transfer, which to some extent avoids the strict supervision and cumbersome processes in traditional financial systems, and improves the efficiency of cross-border fund flows [3].

2.2.2. Development Trends

Technological innovation: With the continuous upgrading of blockchain technology, stablecoins will benefit from more efficient and secure blockchain infrastructure. For example, future blockchain technology is expected to achieve faster transaction confirmation speeds, lower transaction costs, and stronger privacy protection features, which will further enhance the user experience and market competitiveness of stablecoins. The new consensus mechanism may be applied to the blockchain platform of stablecoins to improve the scalability and stability of the system, ensuring that stablecoins can still operate normally in large-scale trading scenarios.

Compliance development: With the continuous expansion of the stablecoin market and the deepening impact on the financial system, regulatory agencies in various countries continue to pay more attention to stablecoins, and compliance has become an inevitable trend in the development of stablecoins. The United States, the European Union, China and other countries and regions have successively introduced relevant regulatory policies to regulate the issuance, trading, operation and other aspects of stablecoins. In the future, stablecoin issuers will need to strictly comply with regulatory requirements, strengthen information disclosure, risk prevention and control, and investor protection, in order to obtain legal and compliant operating qualifications.

Global regulatory coordination: Due to the cross-border issuance and circulation characteristics of stablecoins, it is difficult for a single country or region to effectively address the risks they bring. Therefore, international organizations such as the International Monetary Fund and the Financial Stability Board actively promote global regulatory coordination. In the future, countries will strengthen cooperation in the development of stablecoin regulatory standards, information sharing, cross-border regulatory enforcement, and jointly build a unified and coordinated global stablecoin regulatory framework to reduce regulatory arbitrage space and effectively prevent stablecoin cross-border risks [4].

3. The Impact Mechanism of Stablecoin Development on Financial System Risks

3.1. Liquidity Risk

If the issuance mechanism of stablecoins is opaque, investors may find it difficult to accurately understand the true situation of their reserve assets. When there is negative news in the market or investor confidence is dampened, it may trigger a crisis of trust in stablecoins. For example, if there are rumors that the reserve assets of a stablecoin issuer are insufficient to support the redemption of all its stablecoins, investors may demand to exchange their stablecoins back into fiat currency or other safe assets, leading to a capital run. Once a large-scale capital run occurs, stablecoin issuers may not be able to meet the redemption needs of all investors in a short period of time, leading to a significant drop in stablecoin prices and further exacerbating market panic. This kind of capital run risk not only impacts the stablecoin market itself, but may also spread to the entire financial market, causing serious impact on the liquidity of the financial market, leading to tight market funds, falling asset prices, and affecting the normal operation of financial institutions.

3.2. Credit Risk

The credit qualifications of stablecoin issuers vary greatly. Some small or emerging issuing institutions may lack sufficient capital strength, risk management capabilities, and a good reputation record. If these issuing institutions encounter financial difficulties or violate regulations during their operations, such as misappropriating reserve funds, false disclosure of information, etc., it may lead to the occurrence of default risks. Once the issuing institution defaults, the value of stablecoins will be severely affected and investors will suffer losses. Moreover, the credit issues of individual issuing institutions may trigger a crisis of trust in the entire stablecoin industry and undermine the credit system of the financial system. For example, if a stablecoin issuing institution with certain market influence encounters credit problems, other stablecoin issuing institutions may also be affected, and investors' confidence in all stablecoins will decrease, thereby affecting the normal development of various transactions and financial activities based on stablecoins in the financial market [5].

3.3. Market Risk

The price anchoring mechanism of stablecoins is not absolutely reliable and may fail in certain situations. For example, when the market experiences extreme fluctuations or sudden major events, the supply and demand relationship of stablecoins may undergo drastic changes, resulting in a significant deviation between their price and the price of the anchored asset. Taking algorithmic stablecoins as an example, when market panic spreads, investors may sell a large amount of stablecoins. Algorithms may not be able to timely and effectively regulate market supply and demand, resulting in a significant drop in stablecoin prices and an inability to maintain their anchor prices. The significant fluctuations in stablecoin prices not only have an impact on the cryptocurrency market, leading to increased uncertainty in cryptocurrency trading, but may also affect related financial derivative markets. Because stablecoins are often used as underlying assets or margin in financial derivatives trading,

the instability of stablecoin prices can affect the pricing and trading risks of derivatives, thereby triggering fluctuations in the entire related financial market.

3.4. Systemic Risk

There is a close relationship between stablecoins, traditional financial markets, and cryptocurrency markets. For example, if the reserve funds of a stablecoin issuer are stored in a bank and a large-scale run occurs, the bank may face liquidity pressure due to the inability to meet the redemption needs of the stablecoin issuer in a timely manner, thereby affecting the normal operation of the bank. In the cryptocurrency market, price fluctuations and credit risks of stablecoins can quickly spread within the cryptocurrency market. If a stablecoin experiences anchor detachment or credit crisis, investors may lose confidence in the entire cryptocurrency market, leading to a widespread decline in cryptocurrency prices and causing turbulence in the cryptocurrency market.

4. Current Situation and Problems of Stablecoin Regulation

4.1. International Regulatory Status

United States: The regulation of stablecoins is gradually strengthening. Recently, the US Senate passed the "Guiding and Establishing a National Innovation Act for Stablecoins" (commonly known as the "Genius Act"), which became the first bill in the United States to establish a federal regulatory framework for stablecoins. **EU:** On April 20, 2023, the EU first introduced the world's first cryptocurrency regulation, the Crypto Asset Market Regulation Act (MiCA), which has come into effect. **China:** China has adopted a relatively strict regulatory attitude towards virtual currencies. Stablecoins, as a type of virtual currency, are not allowed to be issued and traded within China. China is committed to strengthening supervision of the financial market, preventing financial risks caused by virtual currencies, maintaining financial order and national financial security.

4.2. Existing Regulatory Issues

The technological innovation and business model iteration speed of the stablecoin market are extremely fast, constantly giving rise to new product forms and application scenarios. However, the existing regulatory framework is difficult to keep up with the pace of market innovation. For emerging algorithmic stablecoins, their complex regulatory mechanisms and lack of actual asset collateral make traditional regulatory rules based on asset collateral difficult to apply. In addition, the deep integration of stablecoins with decentralized finance (DeFi), smart contracts, and other technologies has given rise to numerous new financial business models. Existing regulatory policies in these areas have a large number of gaps and cannot effectively prevent potential financial risks in a timely manner.

Stablecoins rely on blockchain technology to achieve real-time cross-border circulation, and their cross-border issuance and trading characteristics pose serious challenges to international regulation. In terms of regulatory jurisdiction, due to the distributed ledger and decentralized characteristics of blockchain, it is difficult to clearly define the place where stablecoin issuance and trading activities occur. There are conflicts in regulatory jurisdiction based on territorial and personal principles among countries, which can lead to

regulatory overlap or regulatory vacuum.

5. Suggestions for Optimizing the Regulatory Framework of Stablecoins

5.1. Improve Regulatory Rules

5.1.1. Clarify the regulatory body and responsibilities

Given the cross disciplinary and cross industry nature of stablecoin business, it is recommended to clarify that the central bank serves as the leading department for stablecoin regulation, fully leveraging its professional advantages and core position in currency issuance, monetary policy regulation, and financial stability maintenance. At the same time, clarify the responsibilities and boundaries of relevant departments such as financial regulatory agencies, securities regulatory agencies, and foreign exchange management departments, and establish a sound collaborative regulatory mechanism. The central bank is responsible for regulating the total issuance of stablecoins, evaluating the impact of monetary policy, and preventing systemic risks.

5.1.2. Strengthen the supervision of issuing entities

Establish a strict qualification review system for stablecoin issuers, requiring them to have sufficient capital strength, professional technical teams, and sound risk management systems. Clearly define admission standards such as minimum registered capital and core management personnel qualifications. Establish a dynamic regulatory mechanism for capital adequacy ratio, set differentiated capital adequacy ratio requirements based on the scale of stablecoin issuance, business complexity, and risk level, and implement regular evaluations and dynamic adjustments.

5.2. Strengthen Risk Prevention and Control

Utilize cutting-edge technologies such as big data, artificial intelligence, and blockchain to build a comprehensive stablecoin risk monitoring indicator system. Covering liquidity risk indicators, credit risk indicators, market risk indicators, and systemic risk indicators. By real-time collection and analysis of stablecoin market trading data, issuing institution operation data, and macroeconomic data, a risk warning model is established, and multi-level warning thresholds are set. Once a warning signal is triggered, risk warnings are promptly issued to regulatory agencies and market entities, achieving early detection, warning, and disposal of risks.

5.3. Promoting International Regulatory Cooperation

5.3.1. Unified regulatory standards

The international community should accelerate the development of unified international regulatory standards for stablecoins under the coordination of international organizations such as the IMF and FSB. Reaching consensus in key areas such as issuing entity qualifications, reserve asset requirements, information disclosure standards, and risk prevention and control measures, eliminating differences in regulatory standards, and compressing regulatory arbitrage space. Establish a dynamic update mechanism for international regulatory standards for stablecoins, adjust and improve regulatory standards in a timely manner based on market development and technological innovation, ensure the adaptability and effectiveness of regulatory standards,

promote the convergence of regulatory rules in the global stablecoin market, and create a fair and orderly international competitive environment.

5.3.2. Strengthen cross-border regulatory coordination

Establish an international stablecoin regulatory information sharing platform, unify data standards and information exchange formats, and achieve real-time sharing and rapid interaction of stablecoin trading data, issuing institution operation data, and risk monitoring data among regulatory agencies in various countries. Strengthen cross-border regulatory and law enforcement cooperation, sign bilateral or multilateral regulatory cooperation agreements, clarify cross-border regulatory and law enforcement procedures and cooperation mechanisms, establish joint law enforcement working groups, and jointly crack down on cross-border illegal and irregular activities of stablecoins. Promote mutual recognition of international regulatory rules, reduce cross-border regulatory conflicts, improve cross-border regulatory efficiency, form a global regulatory force for stablecoins, and jointly maintain the stability of the international financial market.

6. Conclusion

This study deeply analyzes the impact mechanism of stablecoin development on financial system risks and finds that stablecoins pose a threat to financial system stability through multiple dimensions such as liquidity, credit, market, and systemic risks. Its opaque issuance mechanism, reserve asset risks, price fluctuations, and market manipulation can

easily lead to fund runs, credit crises, market turbulence, and risk contagion, increasing the vulnerability of the financial system. Although there has been some progress in the regulation of international stablecoins, there are still prominent issues such as regulatory arbitrage, regulatory gaps, and difficulties in coordinating cross-border regulation. The suggestions for optimizing the regulatory framework proposed in response to the above issues include improving regulatory rules, strengthening risk prevention and control, and promoting international regulatory cooperation. They have important theoretical value and practical guidance for regulating the development of the stablecoin market, preventing financial risks, and maintaining financial system stability.

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