



# Risks and Preventive Mechanisms of Digital Currency and Financial Security

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**Abstract:** With the rapid development of digital technology, digital currency, as a new financial form, is profoundly changing the operation mode of the traditional financial system. However, the anonymity and decentralization of digital currencies have also brought about many financial security risks, such as technological risks, market risks, legal risks, etc., which not only threaten the safety of investors' assets, but also may have an impact on financial stability. This paper analyzes the financial security risks brought by digital currency from multiple dimensions such as technology, market and law, and explores the corresponding preventive mechanisms, aiming to provide theoretical references for the healthy development of digital currency and policy suggestions for maintaining financial security and stability.

**Keywords:** Digital Currency; Digital Finance; Security risks; Preventive mechanisms

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## 1. Introduction

In recent years, digital currencies have continued to evolve, sparking widespread interest across the globe. With its advantages of decentralization, anonymity, and convenient cross-border payments, digital currencies have shown great potential in payment and settlement, cross-border remittances, asset management, and other areas. However, the rapid development of digital currencies is also accompanied by many financial security risks. In this context, it is of great theoretical and practical significance to study the risk and prevention mechanism of digital currency and financial security.

## 2. Financial security risks posed by digital currencies

### 2.1 Technology risks

The technological risks of digital currencies are mainly reflected in their high dependence on the Internet and digital technology. Both the transaction and storage of digital currencies need to be carried out through the Internet, which makes them highly vulnerable to threats such as hacker attacks and network security vulnerabilities. Digital currency wallets may suffer loss of funds due to design flaws, password cracking or malware attacks, or data leakage or tampering of transactions due to design flaws in the digital currency system. With the rapid development of blockchain technology, new types of attacks such as 51% attacks and side-chain attacks continue to emerge, posing a continuous threat to the security of digital currency systems. These technical risks may not only lead to the loss of user assets, but also affect the overall stability and reliability of the digital currency system. Once the digital currency system suffers from a serious attack, it may lead to payment delays, transaction failures, or even the paralysis of the entire system, which may in turn lead to turmoil in the financial market.

### 2.2 Market risks

The market risk of digital currencies is mainly reflected in their price volatility. Compared with the traditional financial market, the digital currency market is characterized by more drastic price fluctuations, which are mainly affected by multiple factors such as market sentiment, investor expectations, changes in regulatory policies and the macroeconomic environment. The sharp fluctuations in the price of digital currencies bring both the opportunity for high returns and the risk of huge losses to investors, so that investors are likely to suffer significant asset losses due to market judgment errors or price fluctuations. And some investors or institutions may manipulate the market price by means of capital advantage and information advantage, leading to abnormal price fluctuations and damaging the interests of other investors. This risk not only affects the healthy development of the digital currency market, but may also pose a threat to the overall stability of the financial market.

### 2.3 Legal risks

Different countries have different regulatory policies on digital currencies, which may lead to legal risks in cross-border transactions and compliance. On the one hand, the anonymity and decentralized nature of digital currencies make it easy to become a tool for money laundering, illegal transactions and criminal activities, which violates relevant laws and

regulations. Although some digital currency trading platforms claim that they will cooperate with governments in anti-money laundering efforts, due to the anonymity of digital currencies themselves, it is difficult for regulators to fully grasp the specifics of the transactions, which poses an unprecedented problem for global financial regulation. On the other hand, the issuance and trading of digital currencies may involve unauthorized issuance of securities, fraud and other violations. Some digital currency projects may involve false propaganda and misleading investors, resulting in investors suffering losses. These legal risks not only affect the standardized development of the digital currency market, but also may pose a potential threat to the overall stability of the financial market. [1]

## **2.4 Other risks**

In addition to the above risks, cross-border payment risks and financial stability risks may also be encountered. Among the cross-border payment risks, digital currency cross-border payment is characterized by decentralization, anonymity, high efficiency and low cost, but it also faces many risks. There are differences in the legal regulation of digital currencies in different countries, and cross-border payments may face the risk of conflict of laws and regulations, and there may be technical loopholes or design flaws in the digital currency cross-border payment system, which may easily lead to data leakage or tampering of transactions. In terms of financial stability risks, the rapid development and wide application of digital currencies may have some impact on financial stability. The anonymity and decentralized nature of digital currencies make it easy for them to become a tool for money laundering, terrorist financing and other illegal activities, thus threatening the stability of the financial system.

## **3. Preventive mechanisms for financial security risks of digital currencies**

### **3.1 Technical aspects**

At the technical level, the prevention mechanism for financial security risks of digital currencies mainly focuses on improving the security, stability and reliability of the system. On the one hand, it is crucial to strengthen the security design of digital currency wallets. By adopting advanced encryption algorithms, multiple authentication mechanisms and regular security audits, security threats such as hacking and password cracking can be effectively prevented. At the same time, a robust key management system is constructed to ensure the secure storage and access control of private keys, and prevent the loss of funds due to private key leakage. On the other hand, it is also extremely critical to strengthen the security protection capability of the digital currency trading system. The use of distributed architecture, load balancing technology, firewalls and intrusion detection systems can monitor and defend against network attacks in real time to ensure the safe transmission and storage of transaction data. In addition, the blockchain consensus mechanism is continuously optimized to prevent potential risks such as 51% attacks and improve the system's anti-attack capability, while the emergency response mechanism is established and regular security drills are conducted to ensure that it can quickly respond and restore the normal operation of the system in the event of a security incident. [2] Continuously improving the security, stability and reliability of the digital currency system through continuous technological innovation and R&D investment is the core strategy for preventing the financial security risk of digital currency at the technical level.

### **3.2 Market level**

At the market level, the mechanisms for preventing financial security risks of digital currencies revolve around price stabilization, investor protection and market regulation. First, it is crucial to establish a price stabilization mechanism for digital currencies. Through the establishment of a digital currency stabilization fund, the implementation of price intervention measures and other means, market volatility can be effectively mitigated to protect the interests of investors, while at the same time strengthening the supervision of digital currency trading platforms to ensure their compliant operation and to prevent market manipulation, false trading and other illegal behaviors. Secondly, it is necessary to enhance investor education and risk awareness, and through popularizing digital currency knowledge, revealing investment risks, and providing investment guidance, help investors establish a correct concept of investment, and improve their risk identification and self-protection abilities. In addition, it is important to promote the integration and development of digital currencies and traditional financial markets, promote interconnectivity between markets, and enhance the overall stability and risk-resistant capacity of the market. At the market level, by building a price stabilization mechanism, strengthening investor protection, improving market supervision and promoting the integrated development of the market, we can effectively prevent the financial security risks of digital currencies and maintain the healthy and stable development of the market.

### **3.3 Legal aspects**

At the legal level, the prevention mechanism for financial security risks of digital currencies focuses mainly on

clarifying the legal status, improving the regulatory framework and strengthening law enforcement. On the one hand, the legal status of digital currencies should be clarified, and the definition, attributes, legal status, and rights and obligations of digital currencies should be clarified through legislation, so as to provide a legal basis for the compliant use of digital currencies. At the same time, formulate digital currency trading rules, standardize trading behavior and prevent trading risks. On the other hand, improve the regulatory framework for digital currencies, establish a cross-sectoral digital currency regulator, clarify regulatory responsibilities and authorities, and form a coordinated regulatory mechanism. Formulate digital currency regulatory policies, including regulations on market access, information disclosure, investor protection, anti-money laundering and anti-terrorist financing, etc., to ensure the compliant operation of the digital currency market. [3] In addition, it is necessary to strengthen law enforcement in the field of digital currencies, increase the investigation and punishment of illegal behavior, and crack down on market manipulation, fraud, money laundering and other criminal acts, so as to safeguard the market order and the interests of investors. At the legal level, by clarifying the legal status, improving the regulatory framework and strengthening law enforcement, an effective financial security risk prevention mechanism for digital currency can be constructed to guarantee the healthy and orderly development of the digital currency market.

### 3.4 International cooperation

In terms of international cooperation, the mechanism for preventing risks to the financial security of digital currencies focuses mainly on strengthening transnational regulatory cooperation, promoting the development of international standards and best practices, and facilitating regulatory harmonization of cross-border payments in digital currencies. On the one hand, strengthening cross-border regulatory cooperation is the core. Regulators of various countries should strengthen information sharing and communication and collaboration to jointly address regulatory challenges and risk challenges in cross-border transactions of digital currencies. By signing regulatory cooperation agreements and establishing transnational regulatory networks, regulatory synergies should be formed to enhance regulatory effectiveness. On the other hand, international organizations should play a leading role in promoting the formulation of international standards and best practices in the field of digital currencies, including technical standards, regulatory standards, investor protection standards, etc., so as to provide countries with regulatory frameworks and operational guidelines that can be drawn upon. In addition, to promote regulatory coordination of cross-border payments in digital currencies, countries should reach a consensus on the regulatory rules, technical standards and data protection of cross-border payments in digital currencies, and establish a cross-border payment regulatory cooperation mechanism, so as to ensure the compliance and security of cross-border payments in digital currencies. By strengthening international cooperation and jointly building a global governance system for the prevention of financial security risks of digital currencies, the challenges of risks in cross-border transactions of digital currencies can be effectively dealt with, and global financial stability and economic development can be maintained.

## 4. Conclusion

As a product of financial technology innovation, digital currency is reshaping the global financial landscape. However, the financial security risks it brings cannot be ignored. This paper analyzes the risks of digital currencies from multiple dimensions, such as technology, market, and law, and discusses the corresponding preventive mechanisms. In the future, with the advancement of technology and the improvement of regulation, digital currency is expected to better serve the real economy under the premise of guaranteeing security, promoting financial inclusion and inclusive financial development, and injecting new vitality into global economic development.

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