

Digital Currencies and Financial Stability: Risk Assessment and Prevention

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Abstract: This paper delves into the realm of digital currencies, a revolutionary form of money that exists in digital form and leverages cryptography-based encryption technology for secure verification and transaction recording. Digital currencies, in contrast to traditional currencies, do not rely on central banks or government issuance but are instead issued, traded, and managed through a decentralized network of technologies. Originating in 2008 with the proposal of Bitcoin by Satoshi Nakamoto, digital currencies have evolved significantly, leading to the emergence of various types including cryptocurrencies, centralized digital currencies, and non-fungible tokens.

1. Introduction

A digital currency is a currency that exists in digital form and enables secure verification and transaction recording through cryptography based encryption technology. Unlike traditional currencies, digital currencies do not rely on central banks or government issuance, but are issued, traded and managed through a decentralized network of technologies. The concept originated in 2008, proposed by Satoshi Nakamoto, the most famous digital currency is Bitcoin. Bitcoin is based on block chain technology, which implements a decentralized currency issuance and exchange system. With the success of Bitcoin, more and more other digital currencies have also emerged, such as Ethereum, Litecoin, Ripple and so on. The development of digital currency has been supported by technologies such as block chain technology, cryptography, distributed computing and decentralized network, which has triggered widespread attention and discussion in the financial, technological and social fields, and has become a new financial tool and payment method [1-2].

2. The rise of digital currencies

2.1 Definition and classification of digital currency

A digital currency is a currency that exists in digital form, with transactions and management based on cryptography and distributed ledger technology, rather than relying on central bank or government issuance and management. According to their nature and purpose, digital currencies can be divided into different types such as cryptocurrencies, stable coins, centralized digital currencies and non-fungible token. Cryptocurrencies such as Bitcoin and Ethereum are widely used as payment instruments and investment assets, stable coins are designed to maintain price stability, and centralized digital currencies are forms of digital fiat money issued and managed by central banks. In addition, there are non-fungible token, whose value is often tied to traditional currencies or other physical assets. In general, the emergence of digital currencies has brought entirely new possibilities and challenges to the payment, investment and financial systems.

2.2 Development history of digital currency market

The history of the digital currency market can be traced back to 2008, when a white paper titled "Bitcoin: A peer-to-peer electronic cash System" was published by an individual using the pseudonym Satoshi Nakamoto, setting out the concept and technical principles of Bitcoin. Bitcoin, as the first successful digital currency, gradually went to the market in the following years, and broke the \$1,000 mark for the first time in 2013, triggering a global investment boom in digital currencies.

Driven by Bitcoin, the digital currency market has developed rapidly, and more and more other digital currencies have emerged, such as Litecoin, Ethereum, etc., forming a diversified pattern of the market. However, the digital currency market also faces regulatory, technical, security and other challenges. Despite this, the digital currency market continues to develop, and innovations in block chain technology and fintech continue to emerge, promoting the further maturity and development of the market.

2.3 Advantages and potential application areas of digital currency

Digital currency is a new form of money based on block chain technology with many advantages, such as decentralization, security, transparency, fast and low-cost cross-border transactions, programmability, and financial inclusion. These features make digital currencies largely free from dependence on central banks or governments, thus enhancing the security and independence of money. By using cryptographic technology for secure verification and recording, digital currencies can effectively prevent risks such as double payments and tampering, while facilitating real-time settlement and cross-border transfers. In addition, the digital currency also supports smart contract functions, which provides a wider range of possibilities for financial and commercial applications. At the same time, digital currencies also provide access to financial services for the poor worldwide, lowering the threshold and cost of financial services.

In terms of application fields, digital currency has shown a wide range of application prospects. Not only can it be used as an alternative to traditional currencies for online shopping and cross-border payments, but it can also change the operational model of traditional banking and promote the transparency and efficiency of supply chain finance. In addition, as an emerging asset trading and investment market, digital currencies provide investors with diversified investment opportunities. Digital currency technology also supports the development of smart contracts and distributed applications, providing solutions and application platforms for various industries, heralding profound changes and developments in the financial and technology sectors.

2.4 Impact of the digital currency market on the traditional financial system

In recent years, the digital currency market has experienced rapid development, which has had a broad and far-reaching impact on the global financial system and economy. First of all, the market size is expanding rapidly, the market value of various digital currencies continues to grow, and the price of mainstream digital currencies such as Bitcoin continues to refresh historical highs, attracting a large number of investors and funds. The total market capitalization of the global digital currency market has exceeded trillions of dollars, becoming an important part of the global financial market.

Second, the rise of digital currencies has driven the development and innovation of fintech. The application of technologies such as block chain technology and smart contracts has changed the way traditional financial services are provided, improving the efficiency and convenience of financial markets. The emergence of digital currency makes payment and cross-border transactions more convenient and fast, and realizes real-time settlement and cross-border transfer through block chain technology and smart contracts, reducing transaction costs and time, and improving the efficiency and security of payment. In addition, the emergence of digital currency challenges the centralized structure of the traditional financial system and provides an opportunity for the reform and innovation of the financial system.

However, the digital currency market also comes with investment and regulatory challenges. Its huge price fluctuation attracts a large number of investors and institutions to participate, but it also brings market volatility and speculative risks. As technology and markets continue to evolve, the digital currency market will continue to have a profound impact on the global financial landscape and economic development. As time goes on, the digital currency market may further mature and better adapt to market demand, while the regulatory mechanism needs to be continuously improved to ensure market stability and the legitimate rights and interests of investors[3-4].

3. The current situation of the digital currency market

3.1 Major digital currencies and their characteristics

Bitcoin, Ethereum, Litecoin and Ripple are the main representatives in the digital currency market, each with its own unique characteristics. Bitcoin, as the first successful cryptocurrency, proposed by Satoshi Nakamoto in 2008, is characterized by its decentralized nature and fixed supply, with a maximum issuance of 21 million coins, becoming an important asset for store of value and investment. Ethereum, created by Vitalik Buterin in 2015, is not only a digital currency, but also a programmable platform that supports smart contracts and distributed applications, playing a key role in the digital currency space with its flexible development environment. Litecoin, sometimes referred to as the "silver" version of Bitcoin, was created by Charlie Lee in 2011 and is suitable for everyday payments and small transactions through faster transaction confirmation times and higher transaction throughput. XRP, launched by Ripple Labs, aims to improve the efficiency of cross-border payments and inter-bank settlements, characterized by fast transaction speeds and low costs, with a unique consensus mechanism. Together, these digital currencies are driving the evolution and transformation of the market, with each offering solutions for specific application scenarios and needs.

3.2 Global digital currency trading volume and market capitalization trends

Global digital currency trading volume and market cap trends are a dynamic process that is continuously influenced by multiple factors such as market supply and demand, investor sentiment, and regulatory policies. The trading volume of digital currencies is often directly affected by market sentiment, major news events, and technological developments. When market sentiment is positive and investor confidence is high, trading volumes usually increase rapidly as investors tend to actively participate in trading in pursuit of profit. On the contrary, when market sentiment is pessimistic and uncertainty increases, trading volume may decrease significantly, and investors are more inclined to take a wait-and-see attitude and wait for changes in the market.

Digital currency market capitalization refers to the total value of all digital currencies in circulation and is usually calculated by multiplying the market price by the number of digital currencies in circulation. Changes in market capitalization are influenced by a variety of factors, including market demand, investor sentiment, and technological developments. In an overall rising market environment, digital currency market capitalization usually increases accordingly; When the market declines or adjusts, the market value may decrease accordingly.

In general, the trend of digital currency trading volume and market capitalization is similar to that of traditional financial markets, which are influenced by a combination of factors such as supply and demand, investor behavior, and market environment. As the digital currency market continues to develop and mature, the volatility of trading volume and market cap may gradually diminish, and the market will become more stable and predictable. However, it is important to note that the digital currency market is still in the process of changing and growing, so the monitoring and analysis of the market remains crucial.

3.3 Major digital currency trading platforms and trading methods

The digital currency trading space offers a variety of trading platforms and ways to meet the needs and preferences of different investors. Binance, one of the world's largest trading platforms, has attracted many global traders with its advanced trading functions, high liquidity and security, supporting a variety of digital currency trading pairs including Bitcoin, Ethereum, Litecoin, etc. Us-based Coinbase Pro offers professional trading tools and apis for advanced traders, while established platform Kraken has offered a wealth of trading pairs and features since 2011, including spot and futures trading. Huobi, a global platform, also offers diversified services including spot, futures and leveraged trading.

In addition to traditional exchanges, over-the-counter (OTC) trading provides a way to trade directly between buyers and sellers for large transactions or for investors seeking privacy, while peer-to-peer (P2P) trading allows buyers and sellers to trade without the involvement of intermediaries, with secure transaction protection through online platforms. In addition, futures trading and contract

trading, as derivatives trading methods based on the price movements of digital currencies, allow investors to buy and sell digital currencies through contracts and may amplify profits or losses through leverage, both of which often involve trading rules and margin requirements.

When choosing trading platforms and methods for digital currency trading, investors should choose according to their own needs and risk appetite, and always remain vigilant to risks to ensure the safety of digital assets. These trading platforms and methods together constitute a complex and diverse digital currency trading ecosystem, which promotes the development of the market and the diversification of investors' trading strategies.

4. Current status of digital currency regulation

4.1 Digital currency regulatory policies in different countries and regions

Regulatory policies on digital currencies vary in different countries and regions depending on their specific laws, regulators, and financial systems. In the United States, the regulatory policy is relatively open, but it is also being strengthened. Primary regulators include the Securities and Exchange Commission (SEC), the Commodity Futures Trading Commission (CFTC), and state financial regulators. These institutions are committed to protecting the interests of investors and maintaining market order by regulating the issuance, trading and investment activities of digital currencies.

In contrast, China has adopted a stricter regulatory policy. This includes measures such as banning ICOs (initial coin offerings) and shutting down digital currency exchanges. Supervision is mainly carried out by departments such as the People's Bank of China and the National Mutual Fund Office to maintain financial stability and prevent financial risks. In the EU member states, regulatory policies vary, but EU institutions have played an important role in promoting the harmonization and standardization of the regulatory framework for digital currencies. This helps ensure the steady development of the digital currency market and facilitates cross-border transactions. Japan has adopted a more friendly regulatory policy towards digital currencies, with the Financial Services Agency responsible for regulating digital currency exchanges and wallet providers. This policy encourages the development of the digital currency market and provides room for innovation. Singapore's regulatory policy is relatively open, and the Monetary Authority promotes the development and innovation of the digital currency industry by establishing a regulatory framework and policy guidance. This open regulatory environment has attracted digital currency businesses and investors, propelling Singapore to become an important hub for digital currencies and block chain technology.

Digital currency regulatory policies in different countries and regions have different focuses, but with the development and changes of the digital currency market, regulatory policies are constantly adjusted and improved to cope with new challenges and risks. Such changes and adjustments will help promote the healthy development of the digital currency market and safeguard financial stability and investors' interests.

4.2 Main regulatory bodies and their responsibilities

On a global scale, the digital currency regulators and their responsibilities in various countries and regions reflect the importance and norms of the digital currency market. One of them is the U.S. Securities and Exchange Commission (SEC), which is primarily responsible for regulating aspects of digital currency securitization, initial coin offerings (ICOs), and exchanges. Its mission is to ensure fair, transparent and compliant markets. Complementing the SEC is the U.S. Commodity Futures Trading Commission (CFTC), which oversees the digital currency futures and derivatives markets to maintain market stability and compliance.

In Europe, the European Central Bank (ECB), while not directly involved in the regulation of digital currencies, has an important impact on the stability and security of the European financial system and monetary policy. The People's Bank of China (PBOC), on the other hand, is responsible for the issuance, trading and supervision of digital currencies, aiming to ensure market order and financial stability. In Asia, Japan's Financial Services Agency (FSA) is responsible for regulating

digital currency exchanges and wallet providers to protect market compliance and investor safety. The Monetary Authority of Singapore (MAS) promotes the healthy development and innovation of the digital currency industry through the development of regulatory policies and norms.

These regulators are each responsible for ensuring the healthy, stable and transparent development of the digital currency market, reflecting the diversity and complexity of the global regulation of the emerging digital currency market. Through coordination and cooperation, these institutions work together to build a safe, orderly and regulated digital currency market environment to protect the interests of investors and maintain the stability of the financial system[5-6].

5. Regulatory risks of digital currencies

The regulation of digital currencies faces multiple challenges, which relate not only to financial stability, but also to the prevention of illegal activities, user privacy and market fairness. First, the rapid development and wild volatility of the digital currency market poses a huge challenge to financial stability. Due to the frequent and large price fluctuations of digital currencies, investment risks are relatively high, which may adversely affect the stability of financial markets. In particular, when there are large-scale transactions and capital flows in the digital currency market, it may trigger instability in the financial system. Therefore, regulators need to strengthen risk monitoring and management to ensure the stability of the financial system.

Second, the anonymity and decentralized nature of digital currencies facilitates money laundering and terrorist financing activities. Anonymity makes digital currency transactions difficult to track and regulate, thus providing a shield for illegal activities. This situation requires regulators to formulate more stringent anti-money laundering and anti-terrorist financing policies, and strengthen the supervision and monitoring of digital currency transactions to effectively prevent and combat illegal activities. In addition, digital currency exchanges and wallet providers need to adopt effective security measures to ensure the privacy and security of user data and prevent data breaches and hacking attacks.

Finally, the digital currency market has relatively low transaction transparency, which can easily lead to market manipulation and improper trading practices. Regulators need to strengthen market monitoring and information disclosure, improve market transparency and fairness, so as to prevent and crack down on market manipulation and safeguard market order and investors' rights and interests. This includes monitoring and reviewing trading activities in the digital currency market to detect and respond to potential improper trading activities in a timely manner.

To sum up, the challenge of digital currency regulation is not only to protect financial stability, but also to prevent illegal activities, protect user privacy, and maintain market fairness. Effective regulatory measures need to take these aspects into account and work with the international community to jointly address the risks and challenges of the digital currency market.

6. Measures to deal with digital currency regulatory risks

In order to ensure that regulatory norms can keep pace with market developments and safeguard the stability of the financial system and the rights and interests of investors, a number of measures are needed to address the regulatory challenges of digital currencies. First, international cooperation and information sharing are essential. Regulators need to strengthen cooperation with regulators in other countries and regions to jointly address the risks and challenges of the digital currency market. Through the establishment of international alliances, signing cooperation agreements, holding high-level dialogues and other means, strengthen communication and cooperation between regulators, share information and experience, and form a joint force to deal with the regulatory issues of the digital currency market.

Second, in the face of the rapid development and complexity of the digital currency market, the development of a comprehensive digital currency regulatory framework is one of the key measures to ensure regulatory effectiveness and compliance. According to the characteristics and development trends of the digital currency market, regulators need to formulate a comprehensive regulatory framework including laws, regulations, guidance documents, etc., to clarify regulatory

responsibilities and authority, regulate market behavior, and improve regulatory efficiency and transparency. At the same time, with the continuous development and innovation of digital currency technology, regulators need to actively explore and apply new technical regulatory means to enhance regulatory capabilities and efficiency. New technologies, including blockchain technology, artificial intelligence, and big data analysis, can be used to regulate and monitor the digital currency market, strengthen real-time monitoring and early warning of the market, timely detect and respond to market risks and illegal behaviors, and safeguard market order and investor interests.

Moreover, the development of the digital currency market cannot be separated from financial innovation and industry self-discipline. Regulators can promote the development of the digital currency market in the direction of compliance, regulation and health by encouraging fintech innovation and supporting the development of the digital currency industry. At the same time, regulators also need to strengthen the guidance and supervision of the digital currency industry, promote industry players to strengthen self-discipline, regulate market behavior, and jointly safeguard market stability and investors' rights and interests.

7. Conclusion

The rise of digital currencies stems from the challenge to the traditional financial system and the need for new forms of payment. Its decentralized, efficient and fast features have attracted more and more users and investors. However, the digital currency market also faces a number of regulatory challenges, including financial stability and risk prevention, anti-money laundering and anti-terrorist financing regulation, user data privacy and security protection, transaction transparency, and market manipulation risks. To address these challenges, regulators need to strengthen international cooperation and information sharing, develop a comprehensive regulatory framework for digital currencies, innovate the application of technological regulatory means, and promote financial innovation and industry self-discipline. At the same time, the digital currency industry should also actively cooperate with regulatory policies, strengthen its own compliance and risk management, improve industry transparency and trust, and jointly promote the healthy development of the digital currency market.

In the future, with the further development of digital currency technology and the expansion of application scenarios, digital currency is expected to play a more important role in the financial field. Regulators should strengthen the research and development and application of regulatory technology to improve the efficiency and capacity of supervision. At the same time, strengthen the monitoring and early warning of the digital currency market, and timely detect and respond to market risks and illegal activities. In addition, the regulatory policy should be adjusted and improved in a timely manner according to the development and changes of the digital currency market, and the regulatory policy should be flexible and forward-looking. In general, the development of the digital currency market is full of challenges and opportunities. Through the joint efforts of regulators, industry players and investors, digital currencies are expected to become an important part of the global financial system, injecting new vitality into economic development and financial innovation.

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