

Research on the Regulatory System of Digital Currency under the Background of Digital Finance

Hao He

Guangzhou Haihua Senior High School, Guangzhou, China

Abstract. From the perspective of the composition of the world financial system, the emergence and development of digital finance are closely related to information technology, especially artificial intelligence, big data, blockchain, Internet of Things and other technologies, which have transformed the traditional financial system from a "credit" framework to a "data"-based digital financial business model. Digital currency lacks unified industry standards and mature policy supervision, and its advantages of no geographical restrictions and anonymity of transactions are easily seized by criminals and become an important way to escape investigation. Therefore, it is necessary to recognize the practical difficulties in the supply-side reform of the financial system, analyze its potential risks around the encrypted digital currency, and put forward regulatory suggestions from the perspective of improving the regulatory mechanism. In this regard, this paper analyzes the operating characteristics of various digital currency and the contingent risk factors in the development of digital currency. Combined with the operational characteristics of digital currency, the central bank of China, this paper constructs the supervision system of digital currency, and puts forward some supervision thoughts on digital financial products and blockchain risk management.

Keywords: Digital finance, Digital currency, Supervision system

1. Introduction

With the development of economy and information technology, the monetary form has gradually evolved from commodity currency, metal currency and credit currency to digital currency. Especially, the blockchain technology and programmable smart contracts have given digital currency more functional attributes. From the composition of the world financial system, the emergence and development of digital finance are closely related to information technology, especially artificial intelligence, big data, blockchain, Internet of Things and other technologies, which transform the traditional financial system from a "credit" framework to a "data"-based digital financial business model [1]. In order to meet the realistic demand of decreasing transaction costs, under the trend of continuous integration of technology and finance, digital currency's underlying technology distributed ledger is gradually applied to banking and insurance business, securities trading and payment and other related fields[2]. The core of digital currency's distribution lies in the digital economy based on mathematical algorithms. Based on the joint action of digital encryption algorithm and node network, the traditional payment theory and method have been subverted, and the economic transaction mode has changed to code and intelligence. In recent years, inflation and payment security problems caused by the international financial crisis have occurred frequently, and digital currency has made a strong breakthrough with the advantages of quickness, anonymity, fixity and encryption [3]. Digital currency lacks unified industry standards and mature policy supervision, and its advantages of no geographical restrictions and anonymity of transactions are easily seized by criminals and become an important way to escape investigation. At the same time, we should also see that digital finance has a profound impact on society, financial institutions, enterprises and individuals, especially the inclusive characteristics of digital finance increase the incidence and infectivity of risks [4]. Therefore, it is necessary to recognize the practical difficulties in the supply-side reform of the financial system, analyze its potential risks around the encrypted digital currency, and put forward regulatory suggestions from the perspective of improving the regulatory mechanism. In this regard, this paper analyzes the operating characteristics of various digital currency and the contingent risk factors in the development of digital currency. Combined with the operating characteristics of digital currency, the central bank of China, the paper puts forward suggestions from the perspectives of

regulatory standards, technical uncertainty and prevention of financial disintermediation, and puts forward regulatory thinking on digital financial products and blockchain risk management [5].

2. Analysis of Potential Risks in digital currency

2.1 Lack of definition of relevant legal provisions in digital currency.

Digital currency's issuance needs to be clearly defined by the Law of the People's Republic of China on the People's Bank of China, which stipulates that digital currency can replace paper money and coins to perform barter rights and have the status of legal tender together with coins and paper money [6]. However, the current Regulations on the Administration of Renminbi in People's Republic of China stipulates that the power of currency printing and coin manufacturing is under the jurisdiction of the People's Bank of China. However, production management in digital currency is not included in this category. There are frequent illegal crimes committed by taking the network as the object and using the network, and the gray and black industry behind cyber crimes is gradually emerging. Malicious registration and false authentication provide "amulets" for many crimes such as online fraud, theft and drug trafficking. Judging from the operation process of digital currency, its application of modern science and technology, especially the decentralized feature brought by blockchain technology, makes digital currency face more difficult regulatory dilemma. As shown in Table 1, digital currency can be divided into four categories: central bank currency, encrypted digital currency, bank currency and electronic currency. Among them, the central bank currency is the legal tender issued by the central bank and the sovereign digital currency. Cryptographic currency is a digital token created and issued by private institutions on the blockchain network. Common ones are Bitcoin and Ethereum.

Table 1 Classification of Digital Currencies

Attribute	Central Bank Currency	Cryptocurrency	Bank currency	Electronic money
Type	Object	Object	Equity	Equity
Value	Accounting unit	Other	Fixed value redemption	Fixed value redemption
Technology	Centralization&Blockchain	Blockchain	Centralization&Blockchain	Centralization&Blockchain

For regulatory entities, blockchain needs to adapt to the innovation needs of blockchain from aspects such as models, concepts, and technologies. The challenges it faces are also more complex and varied. In the early stages of digital currency development, the technology is relatively backward and the operation process is complex, requiring good network equipment as the circulation foundation[7]. However, there are still some people in China who do not have the necessary environment and skills to use digital currency, which greatly affects its legal compensation function. In addition, it is difficult to define the ownership of digital currencies in law, as it involves issues such as the transfer and transfer of ownership.

2.2 High level of risk in digital currency technology

Digital currency itself belongs to character technology, and its security performance is fully guaranteed. However, money accounts are easily hacked in storage and platform transactions, resulting in security risks. Taking Bitcoin as an example, the user's proof of ownership is the private key [8]. In the process of user transaction, hackers can steal the owner's private key and seize the ownership of bitcoin by simply invading the trading platform. Due to the demand of circulation, digital currency is not a real-name authentication or has a personal mark. The anonymity and concealment of digital currency's crimes lead criminals to take advantage of digital currency's crimes. In addition, the legal nature of digital currency is not clear, and there is no legal regulation on whether the way of "currency transaction" is legal. On the means of supervision by regulators, investors also face many uncertain risks when dealing with digital currency, especially for retail investors. Regulators need to regulate the trading process in digital currency and protect the rights and interests

of investors [9]. At present, Bitcoin and Ethereum, which are widely circulated in the world, are all stored in electronic devices such as mobile hard disks and U disks in the form of digital codes [10]. Once the electronic media for storing money is lost or damaged, the holder may face the loss of digital currency. If there is no backup, and the holder has no direct evidence of money ownership, 90% of it will be irrecoverable.

3. Research on the Regulatory System of Digital Currency

3.1 Improve relevant legal provisions

Digital currency carries the basic business of the payment field, but it cannot be ruled out that it will generate digital financial products and affect core financial fields such as trading and asset management. To standardize the operation of digital currency, legal provisions related to digital currency should be supplemented and improved. First, to confirm the central bank's position as the main body of digital currency issuance, based on the Regulations of the China on the Administration of RMB, the regulations on the issuance and administration of digital currency are specified in detail. The circulation of digital currency is regulated by law, and specific legislation can refer to the corresponding legal provisions on the issuance, circulation, and trading of paper currency and coins. Regulatory authorities should popularize the true nature of digital currency to the public, remind investors that digital currency investment carries high risks, eliminate public misconceptions about blockchain related policies and speculative psychology of digital currency, and truly lead the development of the digital currency industry towards the direction of economic development needs. When dealing with the risks of digital currencies, regulatory aspects are both difficult and crucial. Currently, China adopts a "ban" policy to avoid the risks of digital currencies. This regulatory approach is easy to operate and cost-effective, but it is difficult to achieve ideal results. In fact, a strong "ban" on digital currencies may actually trigger the transfer of domestic transactions overseas, leading to asset outflows and information outflows. This article proposes regulations for preventing digital currency risks, as shown in Figure 1.

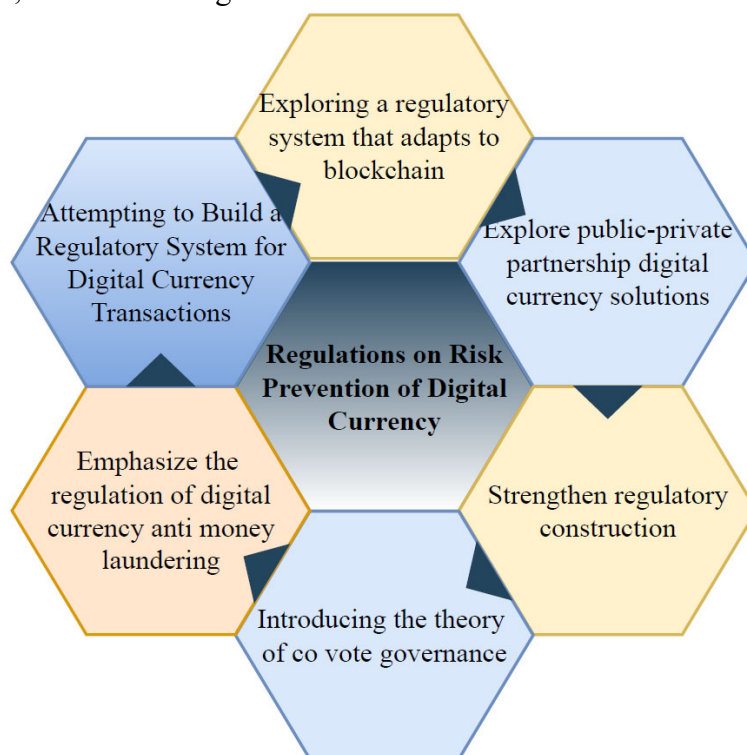


Figure 1 Regulations for Risk Prevention of Digital Currency

From the perspective of technological prevention and control, it is recommended to create a "blockchain+regulation" system, deeply explore blockchain technology, and innovate the regulatory

system based on blockchain, improve regulatory infrastructure, and optimize regulatory system design. Efforts should be made to coordinate and manage regulatory authorities, establish a collaborative regulatory mechanism, refine regulatory functions, operational models, division of labor, and permissions, and improve the regulatory process for both on chain and off chain regulatory collaboration. Although transactions based on distributed ledgers have advantages in terms of processing efficiency and transaction costs, asset tokenization products will have a significant impact on the financial market. Developing digital financial products can only rely on the technological advantages of blockchain and strengthen regulatory communication, rather than achieving decentralized management.

3.2 Forming an organically integrated digital economy network

Integrate the technologies of Chinese communication, e-commerce and other technology enterprises to form an organically integrated digital ecological network. The underlying technology of blockchain mainly relies on Cryptography, digital communication transmission and other technologies. We should encourage Chinese science and technology enterprises to export blockchain service technology standards, promote the formation of a multipolar pattern of the world's digital economy, and avoid the squeeze of oligopoly on China's digital currency space. Optimize the healthy operation of digital currency. Introduce competition and reward and punishment systems to better regulate regulated individuals. The free running framework provided by the regulatory sandbox itself creates regulatory conditions similar to sandboxes for blockchain technology innovation. Due to the need for a good network foundation for the implementation of digital currency, the financial department should introduce financial subsidy policies to promote telecommunications equipment service providers to increase infrastructure coverage in remote areas and create a hardware environment for the circulation of digital currency. Create a conceptual scenario for digital currency. The central bank can popularize the concept of digital currency at the four major branches and regional gates of the country, providing a detailed introduction to the standardization of digital currency use and risk prevention. On the other hand, gradually promote the application of digital currency.

3.3 Improve the ability of risk management in the field of digital economy

In order to prevent the impact of new payment instruments on the traditional financial system and promote the benign interaction between digital currency and traditional financial infrastructure, traditional financial infrastructure should absorb the characteristics of this new technological transformation, actively optimize the existing shortcomings, and achieve interactive and integrated development. With the development of cross-border blockchain networks, regulatory agencies in various countries need to build multilateral "regulatory sandboxes" and relevant blockchain risk management tools to prevent risk spillovers in the digital economy field. Any attempt to engage in illegal money laundering must be accompanied by a suspicious transaction report. By drawing on foreign anti money laundering systems and preventing and controlling digital currency risks, we should always pay attention to instances that constitute abnormal or suspicious transactions, and rely on evaluating transaction reports for prevention and control. The main evaluation key points include: abnormal patterns in transactions, anonymous transactions related to digital currencies, abnormal behavior of recipients and senders, sources of funds, and other related risk sources. Adopting innovative policies for digital currency, promoting the central bank's digital currency to occupy the forefront of technology. The technology research and development department of the central bank also needs to closely monitor the development process of super sovereign currencies such as Libra, actively learn from their innovative technologies, and achieve a digital currency system that is equivalent to or even surpasses Libra. At the same time, encourage domestic internet leading enterprises to establish cooperation with Libra Coin and deepen research on blockchain technology.

4. Conclusions

There are still many problems in digital currency's risk and regulation. Judging from the current world financial structure, digital currency is mostly controlled by developed countries. Therefore, China should actively integrate into the global cross-border payment system in the practice of digital currency regulation. In this process, we need both regulatory policies to reduce its risks and corresponding support policies to encourage its innovative development and expanded application. In terms of regulatory policies, national legislation, policies and norms of the government and competent departments, internal control operations of development units, self-discipline of markets and industries, and even international exchanges can all be the starting points. Secondly, we can learn from the experience of digital currency countries that have issued central banks, and combine the national conditions of China to explore the specific path suitable for the issuance of central banks in digital currency. Finally, actively discuss with the European Union, the United States and other major economies in the world to establish a global digital currency system, unify digital currency's regulatory standards, strive for the international voice of digital finance in an all-round way, and enhance the international status of digital currency, the central bank. This paper reconstructs the world monetary system and breaks the hegemonic position of the US dollar by constructing digital currency's supervision system. Moreover, the issuance and control of digital RMB will help to open wider to the outside world, help to alleviate the vicious international behavior of using competitive devaluation of currency to fight currency wars, and better promote the sound development of the world financial market.

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