

Analysis on the Development Status and Prospect of Digital Currency under Blockchain Technology

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Abstract: Block chain technology is considered to be the next core technology with a disruptive impact on the world after Internet technology. As the basic means of digital currency technology, block chain technology has greatly promoted the development of digital currency and digital finance. Based on the integration mechanism of block chain technology and digital currency, this paper analyses the development status of block chain and digital currency, the problems faced by the development of digital currency, proposes feasible development paths, and looks into the future development direction of digital currency.

Keywords: Digital Currency; Block Chain; Prospects

1. Introduction

Digital currency, also known as electronic currency, is an important form of electronic currency issuance and application based on block chain technology as the underlying architecture, getting rid of the traditional physical medium carrier. The emergence and development of digital currency is not only the inevitable result of technological development, but also plays an important role in the issuance of legal tender, payment by commercial banks, corporate finance, formation of digital financial system and transaction of data assets. At present, central banks around the world have strengthened their attention to the development of digital currency, promoted the application of digital currency in social economy, and played a positive role in promoting the innovation of economic operation mode.

2. Emergence and Development of Digital Currency

2.1. The Birth of Digital Currency

In 1983, David Chaum first introduced the concept of digital currency in his paper, followed by the emergence of digital currency as a medium of payment business. For example, Coca-Cola vending machines introduced mobile payments in 1997, and Tencent introduced Q-coins in 2005. The emergence of Bitcoin in 2009 marked the beginning of decentralized digital currencies based on blockchain. In the early days, digital money was known as digital gold money, a form of electronic money named after the weight of gold. As the purchasing power of digital gold currency is affected by the fluctuation of gold value, the value of digital gold currency is often unstable and lacks specific regulations. Digital gold currency mainly relies on self-regulation to develop. Modern digital money, also known as digital money, mainly relies on checksum cryptography to create. For example, the birth of bitcoin blockchain and fair exchange rate of Bitcoin is well known. With the continuous development of Bitcoin transactions, a large number of websites or funds began to accept bitcoin transactions and donations. Subsequently, in 2016, the Central bank began to carry out the pilot work of digital currency.

2.2. The Development of Digital Currency

In 2016, the central bank began preparing to issue a digital currency, known as the digital renminbi, which is equivalent to fiat currencies such as notes and coins. As early as 2014, China began to study digital currency and set up a special research team. Approved by The State Council, the People's Bank of China, the Central bank, commercial banks such as Industrial and Commercial Bank of China, Bank of Communications, Bank of China, Postal Savings Bank and other financial institutions officially

started the RESEARCH and development of DECP in 2017. In 2018, the Digital bill platform of Shanghai Clearing Exchange was launched and started trial operation. In 2019, the CENTRAL bank repeatedly pointed out the need to accelerate the development and application of legal digital currency.

Digital currency has many advantages and is conducive to promoting China's economic development. Firstly, digital currency can greatly save the circulation cost and printing cost of paper currency. In addition, digital currency can also improve the efficiency of transactions. In People's Daily economic activities, every amount of money spent will have corresponding bills in the corresponding account. Digital currency greatly simplifies the transparency and convenience of transactions. Finally, with the central bank as the issuing body, the issue of digital currency is controlled by national policies, which can also protect the security of digital currency and the stability of economic transactions. As a unique product of the digital era, the digital currency DECP issued by the Central bank with the application of block chain technology fits in with the financial technology advocated nowadays. In the future, the intelligent ecology of payment industry chain mainly relies on three levels of account end, merchant end and clearing end, which will flourish.

2.3. Promotion Stage of Digital Currency

Since 2020, the promotion of digital currency has been very frequent. In April 2000, digital currency was first piloted in the salaries of civil servants in Suzhou. Didi Chuxing reached a strategic consensus with the Digital Currency Research Institute of the People's Bank of China, and the news that Didi Chuxing would pilot digital currency in multiple scenarios came one after another, accelerating the process of the comprehensive promotion of digital currency in China. As an important link in the development of fintech, digital currency is integrated into daily life in an all-round way, such as clothing, food, housing and transportation. The Central Bank is trying to plan to promote and test DECP on Meituan operating platform. DECP has taken another important step from closed test to large-scale promotion. In addition, bytedance, Bilibili and other companies are also actively participating in the construction of diversified scenarios of DECP application. In October 2020, Luohu District of Shenzhen city distributed digital red envelopes of 10 million YUAN to the general public, and the full promotion and commercial use of digital currency from closed-loop internal test to the first public test marked digital currency will be soon.³ The integration mechanism of blockchain technology and digital currency.

3. The Integration Mechanism of Blockchain Technology and Digital Currency

3.1. The Relationship between Block Chain and Digital Currency

Based on unique encryption technology, block chain provides a relatively secure environment for huge information and data resources, thus laying the foundation for mutual trust. Modern money is credit money in essence, digital money is modern electronic money, also need to have credit function. Therefore, the development of block chain technology can lay a solid credit foundation for the development of digital currency. In a broad sense, the field of digital currency includes block chain, which has become the foundation and technical support of digital currency, greatly guaranteeing the confidentiality and security of information database and enriching the connection between information and data.

3.2. Creation Mechanism of Digital Currency

The creation mechanism of digital currency is based on the value creation mechanism. Only by giving digital currency the same value as legal currency can it better play its function as a medium of exchange in the market. Digital currency itself is built on the basis of block chain technology support, relying on the distributed ledger structure of block chain technology and highly confidential signature technology, consensus algorithm, etc., so as to ensure the credit form of digital information transfer. Like modern money, the creation of digital currency value also comes from credit creation. Compared with its own value and use value, the value of digital currency itself can be ignored. Based on block chain formed digital currency, and on this basis, the value of the national central bank credit guarantee and credit guarantee, the value of the digital currency strong make people can trust digital currency cash, and widely used currency, when digital currency widely traded in the market, and increased demand, the central bank will direct digital currency issue, This is the process by which banks create digital money.

Broadly speaking, digital currency has the characteristics of both virtual currency and electronic currency. Therefore, from the perspective of the creation mechanism of digital currency, there are also two different types of creation mechanism. One is the digital currency issued by the central banks of various countries, such as China's digital RMB, which is issued by the People's Bank of China and belongs to the bank money creation mechanism. However, some digital currencies are issued by enterprises, such as some digital cryptocurrencies, such as Bitcoin and Ethereum. Digital cryptocurrencies created and issued by other enterprises are far less effective and functional than digital currencies issued by national central banks. Therefore, the creation mechanism of digital money in most countries is basically equivalent to the creation mechanism of modern money. The bank creation mechanism of digital currency is based on the current bank money creation system, introducing computer technology to upgrade the digital currency, so as to improve the control of the issuance and circulation of digital currency.

Take China's digital RMB as an example. China's digital RMB is issued by the central bank. The creation mechanism of currency is basically the same as paper currency, and the total amount of currency issued is basically in balance with the original paper currency issuance. The supply-demand relationship of digital currency as well as the equilibrium state in the whole market should be controlled by the monetary and fiscal policies of the central bank. In short, the creation mechanism of digital currency also belongs to the category of credit creation, and the creation of digital currency also needs to follow the universal law of credit creation activities.

3.3. Technical Support for Block chain and Digital Currency Integration

To realize the integration of block chain technology and digital currency, innovative technical support system must be taken as the means of implementation. The current technical research on this aspect mainly focuses on the two aspects of basic support technology and privacy protection technology. The present technical system, both legal and digital currency and private digital currency, basic it is block chain as the underlying implementation technology, but due to legal digital currency itself is based on national sovereignty endorsed, so in May authorize centralized, large financial data controls and income, payment and settlement system construction also need to further carry out technical innovation. At the same time, the block chain technology based on digital currency trading, often because of the anonymity and privacy protection for safety operation and legal supervision to bring certain influence, therefore also shall cooperate with the point-to-point mixed protocol, distributed hybrid network and the expansion of currency, to ensure the security of trading information protection.

4. Potential Problems of Digital Currency Based on Blockchain Technology

There are two major problems in the development of digital currency. One is caused by the architecture of block chain technology itself, and the other is the obstacles encountered in the development of digital currency as currency itself.

4.1. Problems Caused by the Architecture of Block chain Technology Itself

Mechanism first, consensus, and distributed book block chain is the basis of the establishment of the technical architecture and innovation, but it also brought block synchronous time-consuming, low system throughput, books data quantity, such as faults, often cannot meet the requirements in the practical business application scenarios, not as legal application and frequent daily digital currency trading.

Second, although each node in the block chain network has the right to dig, but hardware caused by the differences will eventually lead to calculate force is concentrated in some more competent institutions, thus undermining the distributed mechanism design, in principle, as long as have mastered more than 50% of the work force, can win the consensus, which is centralized power nodes if attacked, It will certainly affect the entire block chain network.

Although in the end, through the design of cryptographic algorithm can make the transaction security is improved greatly, but the private key storage and transaction records of public relations to the user's security and privacy, people for a particular access validation, clear responsibility, the demand of individual rights and interests protection and the characteristics of block chain itself there is a conflict.

4.2. Problems in the Development of Digital Currency

(1) The lack of effective regulation

The lack of supervision mechanism in the early stage makes the market value of digital currency fluctuate violently, which makes the sustainable and healthy development of digital currency impossible. Digital currency once became a means of tax evasion and anti-money laundering. Some countries even banned bitcoin transactions, and the regulatory mechanism of digital currency has become a common concern of all countries.

(2) The risks of policy regulation

The risk of monetary policy regulation is one of the research emphases of legal digital currency. Statutory national credit, the issue of digital currency still need to rely on the traditional monetary policy instruments and control still need further proof, whether to need to increase the new means of market regulation, monetary transmission mechanism, the output effect and price effect needs to be assessed, but few research in the fields of the present study.

(3) The market risk of digital goods issuance

Different from the traditional credit creation mechanism, the market risk of legal digital currency issuance cannot be accurately evaluated for the time being, and the evaluation and application model of its credit creation ability has not been completed yet, which requires further analysis and research based on the digital currency framework.

(4) The confirmation of the legal status of digital currency

The determination and implementation of the legal status of digital currency is a long process, which needs to be universally recognized at home and abroad. The definition of rights and obligations in digital currency transactions and the protection of the rights and interests of both parties need to be further clarified.

Legal digital currency is usually issued and circulated electronically, which consumes a lot of manpower, material and financial resources. Therefore, it is necessary to carry out systematic reform and construction, coordinate the interests of all stakeholders and adopt the mode of gradual reform.

5. Measures to Improve the Regulation of Digital Finance

No matter in what situation, to make a new technology in the application of further development, supervision is an essential link. Especially in the field of digital finance with high risk, it involves a series of vital interests of consumers and participants, payment security and other related issues, which need to be controlled by the government. At present, block chain technology is still in the preliminary stage, there is not only a huge development space and opportunities, but also some risks. From the perspective of supervision, on the one hand, systemic financial risks should be avoided in the practical application of block chain to protect the interests of mutual participants. On the other hand, we also need to do a good job in technical promotion and pilot work. It mainly includes the following aspects:

(1) Strengthen the key control of various types of financial virtual communities;

(2) Regularization of supervision for the application of block chain technology in digital finance. With the development of the block chain technology, especially the technology further integration and mobile Internet, is bound to derive a new financial service mode, and the financial service model is multidimensional, so to three-dimensional design scheme of the corresponding regulation: first, about the issue of digital currency system shall be formulated by the central bank strictly; Second, establish and improve the control and supervision mechanism for virtual financial products; Third, improve the standardization of digital finance construction as soon as possible; Fourthly, to achieve strict international digital financial supervision and regulation, in line with international standards, to make the norms more international standards, so as to strictly supervise underground funds and illegal funds.

6. Conclusions and Prospects

The widespread application of block chain technology in the financial industry can not only effectively promote the development of the traditional financial industry, but also promote the further circulation and expansion of digital currency. In the field of digital finance, we need to grasp the

development opportunities of The Times and be prepared to meet the challenges, which requires the use of block chain technology, constantly optimize its operation mechanism, to better promote the sustainable development of digital finance. As an emerging currency, digital currency has good prospects for future development, but there are also difficulties in risk supervision. In the future, relevant laws and regulations should be further improved and corresponding management regulations formulated. At the same time, advanced technology of block chain and Internet finance should be used to control, regulate and reduce risks, comply with the requirements brought by the application of digital currency and constantly promote its own development.

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