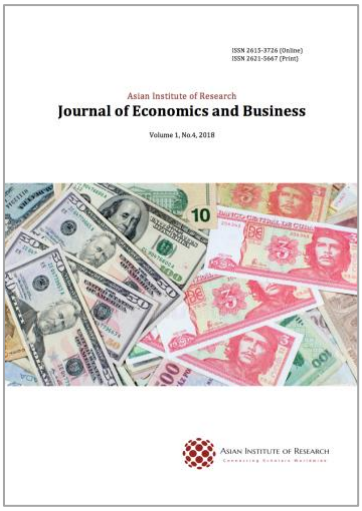

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The Intrinsic Attribute of Digital Currency

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Abstract
With the advent of the fourth industrial revolution, the sharing economy based on Internet, big data analysis, artificial intelligence, and cloud computing came into being. Similarly, Subversive changes in interactive information processing, network e-commerce, government services have occurred. The new industrial revolution needs new financial forms to support. As an innovative financial model, the financial technology relies on technological innovation to reduce service costs, and provides fast and accurate cloud services, becoming the trend of modern financial industry development. The development of financial technology also needs innovative currency forms to support it. Therefore, accelerating the development of legal digital currency is of great significance in boosting the development of financial technology.

Keywords: Digital Currency, Intrinsic Property, Financial Technology

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1. Introduction

At present, the blockchain-based digital bill trading platform promoted by the central bank in China has been tested successfully. The legal digital currency issued by the central bank has been commissioned on the platform. At the same time, the digital currency research institute under the central bank has been officially listed. At the second annual meeting of the Digital Finance Research Center of Peking University on November 4, 2017, Yao Qian, director of the Digital Money Research Institute of the People's Bank of China, said that the development of legal digital currency would help improve the quality and efficiency of financial technology.

However, the essence of legal digital currency is still digital currency, which has similar currency attributes as Bitcoin, Litecoin, etc., which we are familiar with. Bitcoin has various financial risks such as payment, technology, money laundering, and cash withdrawal. Similarly, there are similar risks in legal digital currency. Therefore, this paper will start with the origin of currency and analyze the current digital currency problems and development trends so as to give the central bank some suggestions to develop the legal digital currency.

2. Currency origin and form

Marx believed that money is the inevitable outcome of exchange development and the accompanying development of value form. The process of exchange development can be condensed into the evolution process of value form. The value-form has experienced from "simple value form" to "expanded value form." , to the "general form of value" and then to the "currency form." Therefore, the currency is produced along with the emergence and development of the exchange of goods and commodities. It is the product of the spontaneous development of the commodity economy and the result of the development of the contradiction between social labor and private labor.

So far, money has gone through several stages, such as physical currency, metal currency, credit currency, and virtual currency. From the trend point of view, the form of money has evolved from a low-level to a high-level with the improvement of the production and circulation of goods and social and economic development. In the time dominated by the physical currency form, shells, cloth, cattle, and sheep have all served as physical currency. However, due to the bulky currency or bulky weight, they are not portable; or the texture is uneven, difficult to divide; or it is easy to rot, difficult to store; or the size is different, difficult to compare, so with the development of commodity economy, the physical currency gradually withdraws from the currency history stage.

Since then, metal smelting technology has emerged and developed rapidly, and the metal currency has been widely used. Metallic currencies such as gold and silver are stable, easy to divide, and easy to store. Metallic currencies have been used for quite a long time.

Later, credit currency appeared, originating from the rapid circulation of metal currency. Early commercial papers, banknotes and bank notes were all credit currencies. Initially, the credit currency could be cashed into a metal currency. When the government issued too much credit currency, inflation was caused, which undermined its redemption with the metal currency. However, ceasing exchanges between credit currency and metal currency also promoted the gradual improvement of the credit currency system. After that, the metal currency was replaced by credit currency, and the metal currency gradually withdrew from the historical stage.

With the continuous development of science and technology and the credit currency system, the use of virtual currency has become more and more popular. Virtual currency refers to the exchange of a certain amount of cash or deposits from the issuer and obtaining data representing the same amount, or a fast payment service launched by banks and third parties. As a result of the rapid development of the industrial economy and the technological innovation of the financial industry, virtual currency represents the future development trend of electronic and communication technologies.

3. Principles and functions of digital currency

As Internet technology replaced traditional electronic information technology, the virtual currency also began to change and gradually evolved into digital currency. Digital currency refers to a virtual currency that does not rely on any physical object but uses only cryptographic algorithms. It involves various technologies such as distributed architecture, cryptography, security chip, mobile payment, and trusted computing. Among them, the blockchain is one of the most important implementation technologies. Whether digital currency can be promoted depends largely on the network security and business processing performance of blockchain technology. Digital currency introduces a completely different payment structure that enhances transaction transparency through decentralization. Digital currency adopts classified accounting based on blockchain technology, namely distributed recording, distributed storage, distributed communication, without central system or third-party management organization, completely dependent on asymmetric encryption mathematics and database. It is a brand new payment system. Digital currency is different from credit currency and virtual currency and is a new form of currency. The digital cryptocurrency does not rely on any physical objects, is distributed and maintained

using cryptographic techniques and verification techniques, and can be distributed by everyone. The distribution path and total amount are entirely derived from some open algorithms.

Generally speaking, money has four functions: a trading medium, value scale, payment means, and storage means. The trading media function refers to the use of money as an exchange medium for goods and services. The use of money allows goods to be purchased and sold independently of each other, thereby increasing economic efficiency. The value scale function refers to the use of money as a measure of all goods and labor values. The function of the means of payment of money means that money can be used as a means of deferred payment. The function of value storage means the function of money as a temporary residence for purchasing power. The four functions of money are not parallel but have a hierarchical structure. According to the definition of a monetary function, the digital currency has a monetary function. First of all, the digital currency has the function of trading media. At present, the number of global Bitcoin users has exceeded 100 million, and the number of people holding bitcoin is rising. The UK was the first country to develop and use digital currency and the most friendly country for the development of the bitcoin industry. According to the latest digital currency research report from Cambridge University, the total number of British Bitcoin wallets increased from 8.2 million in 2013 to nearly 35 million in 2016, an increase of more than four times. Secondly, the digital currency has the function of value scale, and payment means. Up to now, nearly 10 million retailers around the world are willing to accept bitcoin as a payment method and will continue to rise in the future. In terms of storage functions, Bitcoin prices continued to rise, and the daily currency price rose to a maximum of $8040, breaking the highest record. Up to now, the unit price of Bitcoin has reached $8,119.

According to the principle of digital currency, the path and total amount of supply are fixed, but from the perspective of monetary functions, the demand outlook is not stable. Digital currency lacks internal demand in terms of consumption and production, and there is no central institution support. The future demand for digital currency can only depend on whether digital currency can be used as a trading medium. As far as the current situation is concerned, the demand for digital currency is extremely limited. Although the non-zero price of digital currency indicates that they are valuable to many users, the exchange rate of digital currency and traditional currency fluctuates drastically. Studies have shown that the standard deviation of Bitcoin's daily exchange rate fluctuations is 17 times that of the pound, so the value storage function is also short-lived. In addition, there is currently little evidence that digital currencies have accounting unit functions. Although transactions between a small number of individuals are conducted after the negotiation of bitcoin prices, these transactions are independent and irrelevant. Retailers quoted in bitcoin often update prices to ensure price stability when converting dollars and pounds. In fact, companies that pay in bitcoin in transactions typically provide retailers with pricing for fiat money, which is used only for temporary payments.

4. Digital currency trends and issues

According to the development trend of digital currency, the author believes that digital currency has huge financial risks. First of all, digital currency is a kind of virtual currency, not a real currency. It does not have monetary attributes such as legal liability. Therefore, the digital currency has a risk of payment. Secondly, digital currency does not have an accounting book with a central storage organization. Blockchain technology is similar to distributed accounting（Sun & Yang, 2016）. One block is equivalent to a part of bearer information. The distribution, circulation and transaction records of digital currency are all stored in each node（Yao, 2018）. In order to achieve the decentralization of virtual asset settlement, the digital currency has technical and operational risks.

In addition to financial risks, digital currencies will also bring many problems to macroeconomic development（Li & Zhu, 2017; Song & Wang, 2016）. First, a fixed money supply can lead to tighter prices for goods and services. More seriously, the fact that money supply cannot change as demand changes can lead to sharp fluctuations in prices and markets. If deflation is infinite, then aggregate demand and potential output will fall, and unemployment will continue to rise（Dai & Li, 2016）.

Second, digital currency holders increase their holdings by borrowing money, and price fluctuations can also affect currency lenders（Fan, 2016）. The combination of digital currency and financial instruments creates a new mechanism whereby direct holders of digital currencies and other financial market participants will hold leveraged positions in digital currencies（Yao & Tang, 2017）. If the digital currency rises to a certain important position as a payment system, the holders may jointly control the computing power of the digital currency, create deceptive "double payment," and implement system-wide fraud, which will lead to systemic banking risk. The risk will have an impact on the entire macro economy（Zhuang & Zhao, 2017; Yao, 2017）.

5. Implications for legal digital currency

The legal digital currency issued by the central bank is a digital currency that is supported by national credit and has value anchoring and can effectively exert its monetary function. The legal digital currency has the function of credit creation and the function of stabilizing the value of money, thus having a substantial effect on the economy. Although the legal digital currency has the advantage that private digital currency cannot match, the essence of the legal digital currency is still the digital currency. It has the same principle and function as the digital currency, and it also has the same development trend, risks, and problems as the digital currency. Therefore, the central bank should pay attention to two issues when issuing legal digital currency.

First, the digital currency payment system is concentrated on a small number of people. When these people use the currency to trade as much as possible, then there will be economic fragmentation, and the central bank's control over this part of consumer demand is weakening. If everyone uses digital currency for every day's transactions, they only use traditional currency to pay taxes to the state, which may lead to the monetization of the entire economy. When all payments no longer use traditional currency, the central bank's ability to regulate economic activities and prices will be destroyed, and the stability of the currency will inevitably be severely impacted. Second, the use of digital currency will lead to a decline in cash usage, which implies a coinage tax issue. The central bank's assets and the resulting coinage tax underpin the central bank's independent operations, including the implementation of monetary policy through the provision of independent sources of income outside of the government budget. This part of the tax is used to finance the operation and reserves of the central bank, and the remaining net tax is regularly transferred to the tax administration every year. If the coinage tax fluctuates, not only will the central bank's cash liabilities change, but the interest on financial assets will also change, and it may bring huge losses to government taxation.

In response to possible problems with legal digital currencies, the author suggests that the central bank can set a rule to address price deflation and market demand volatility. Since the fluctuations in the total demand for money are seasonal, periodic, and structural, the digital money supply can be allowed to grow at a constant rate of growth per period to accommodate real-time trading volumes. Under the premise of not destroying the law of economic activity, it responds to changes in demand, so that price fluctuations are within a certain range. At the same time, a decentralized system can be developed to find matching official broad money data and adjust the current digital currency system to a fixed exchange rate.

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