Will Virtual Currency Replace Classic Money in The Future

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Abstract. Virtual currency is not an entirely new concept. As a special type of digital currency based on internet technology, virtual currencies are believed to have the potential to change the traditional monetary system. However, its applications lack the recognition of many countries. This study aims to explore whether virtual currencies can replace traditional currencies in order to provide theoretical support for the development and application of cryptocurrency. This article first reviews the characteristics of virtual currencies, and analyzes their comparison with traditional currencies in terms of value -formation mechanisms, levels of risk and the direction of currency circulation. Then, it discusses the impact of virtual currencies on monetary policy, including weakening the effectiveness of monetary policy and reducing the accuracy of currency indicators. Finally, measures and suggestions for regulating the issuance and development of virtual currencies are proposed. The study finally finds that virtual currency has both merits and demerits and that it may have some negative effect on classic money. Through in-depth analysis and research on virtual currencies, this article believes that virtual currencies have the potential to replace traditional currencies to a certain extent, but a comprehensive replacement is impossible.

Keywords: Virtual currency; traditional currency; classic money.

1. Introduction

In the background of the current rapid development of digital technology, virtual currency serving as an innovative payment method has gradually emerged and attracted widespread attention. The cryptocurrency dates back to the 1980s, which was called cyber currencies [1]. These coins gained great popularity after Bitcoin was introduced in 2008, which was created by an anonymous programmer or a group of programmers named Satoshi Nakamoto [1]. Virtual currency is a type of unregulated digital currency, which is stored in and transacted through designated software, applications, and networks in digital form. Its emergence spawns some new financial innovation and business models, but because the corresponding network legal system is not yet mature, the development of virtual currencies is limited. At the same time, the rise and application of this type of currency have produced a significant impact and challenge to the status and existence form of traditional currencies, which has led many countries to restrict the transactions of virtual currencies at present. According to the U.S. Library of Congress, as of November 2021, a total of nine countries have banned cryptocurrency completely [2]. Another 42 countries have an implicit ban on the assets, generally by means of not allowing financial institutions in the given country to take on crypto companies as clients [2]. The emergence of these issues and challenges has triggered people's thinking of future trends of cryptocurrency and the financial market. Therefore, it is of great significance to study whether virtual currency will take the place of traditional money in the future. This article will study the basic characteristics of virtual currencies and the impact on monetary policy, as well as answering this important research question through comparison with traditional currency, in order to better understand the potential and restrictions of virtual currencies. Finally, some suggestions will be proposed. In this way, more reasonable predictions and decisions will be made for the formulation of related policies and the stability of the financial system.

2. Properties of Virtual Currency and Classic Money

2.1. Characteristics of Virtual Currency

First of all, Cryptocurrency can be classified in many ways. For example, it can be classified as open and closed, convertible and non-convertible, centralized and decentralized virtual currency [3]. Each of them has its own encryption technique as well as its own distribution process. The most famous and popular one is Bitcoin, which includes several options for tracking and monitoring transactions, therefore assisting in risk management and mitigation. Another example is Ethereum. It is a decentralized blockchain that supports smart contracts [4]. Varieties of virtual currency provide users with more choices because they are different in design goals, technical characteristics and application scenarios. Users can choose the appropriate currency according to their needs for transactions and investment. Digital currency also promotes technological progress and new mechanisms. Some emerging currencies continue to break through the restrictions of classic money to provide users with more convenient and secure trading methods.However, diverse types also bring some challenges and problems. The rapid development of the virtual currency market has also triggered some illegal activities and risks. Besides, there exist issues with compatibility and interoperability.

Secondly, plenty of ways are offered to get the currency. People can purchase and store one or more cryptocurrencies directly [5]. Investing in cryptocurrency firms and cryptocurrency-focused funds is also allowed.These methods are flexible enough to promote the development of virtual currency.

Thirdly, the use of cryptocurrency is limited. Retailers and other businesses are still reluctant to accept cryptocurrency as payment due to the incomplete regulatory mechanism. Some countries even prohibit or restrict the transactions and use of virtual currencies to maintain the stability of national currencies and the security of the financial system. As a result, utilizing them for ordinary transactions may be difficult.

Last but not least, virtual currency has high volatility. One main contributor is speculation and hype. When a new cryptocurrency is launched, there is usually a surge of enthusiasm as people learn about it for the first time [6]. This frequently leads to a rush to acquire and sell the new coin, driving up the price to unsustainable heights [6]. Once the coin is overvalued and people start to lose money, the hype and speculation disappear and eventually lead to a price collapse [6]. Therefore, it's quite common for cryptocurrencies to experience huge spikes and then crashes eventually. Bitcoin, for instance, soared from $200 a decade ago to nearly $70,000 in 2021 before plunging to around $29,000 in 2023 [7].

2.2. The Comparison Between Virtual Currency And Classic Money

The major difference between virtual currency and conventional currency is that they have different value -formation mechanisms. The value of fiat money comes from the stability of the issued government and the relationship between supply and demand. However, The value of cryptocurrencies is decentralized and is not controlled by a single institution, which is much more complex. There are mainly five factors to decide the price of virtual currency: supply and demand, costs to produce currency through mining processes, the number of competing cryptocurrencies, management and usage regulations, media and news [8]. That’s why cryptocurrency has a high volatility. It is easy to be affected by brand emotions and risky events.

Besides, these two currencies have different currency issuance rights. The right to issuance of traditional currency is controlled by the central bank or other currency institutions in order to regulate the supply and demand, which can ensure the stability and credibility of the currency. Oppositely, the right to issue virtual currency is scattered between the encryption technology behind it and the participants. This means that cryptocurrency is not supervised by central institutions. Generally speaking, virtual currencies are published by a process called “mining” (validating and recording

transactions) . As a result, each participant can mine and use the consensus mechanism to determine the rules and processes of currency issuance.

Additionally, they have different levels of risk. Frankly speaking, the risk of traditional currency is relatively small. Traditional currencies are issued and regulated by governments and laws, supporting the economic system of the entire country. Thus it is not easy to be affected by short-term market fluctuations. Contrarily, the crypto has a high risk. First of all, for most users, complex technology is difficult to understand, making it easy for users to suffer fraud. The second is the lack of legal recognition and supervision, and the lost money because of fraud, and physical bankruptcy also lacks a compensation mechanism. Third, there are technical security issues. Despite the difficulty of destroying blockchain systems such as Bitcoin, attackers may turn to attack individual platforms. It is hard for investors to find effective ways to solve the problem when they are met with risks.

Most importantly, there are obvious discrepancies in virtual currency and fiat money in the direction of currency circulation. The circulation of fiat money is mainly to inject currencies from central banks into commercial banks, and then commercial banks transport currency into enterprises and individuals through loans, deposits, and payment. This circulation method is concentrated and is led by financial institutions. However, virtual currencies are achieved through blockchain and other technologies, and all transaction records and asset certification are all public and transparent. The process of cryptocurrency transactions involves three steps: creating, advertising, and confirmation [9]. In the virtual currency system, participants can directly conduct point -to -point transactions to remove the intermediary role of traditional currency central institutions. It can also be converted and traded through virtual currency exchanges and other institutions. The differences in the direction of currency circulation bring some advantages to virtual currency. First of all, decentralized circulation makes the transaction more convenient and fast. Users can trade anytime, anywhere, and reduce restrictions on time and space. Secondly, because the circulation path of virtual currency is selected by users, this improves the user's ability to control funds. Virtual currencies can avoid the collection and supervision of banks and government agencies on user transaction information. In addition, the circulation method of virtual currency also increases the transparency of transactions. While it is also worth mentioning that this kind of circulation may pose some challenges. If the transaction information is attacked or leaked by hackers, the security of users may be threatened. Traditional monetary policy is mainly supervised and implemented through the banking system, while the decentralization characteristics of Bitcoin make it difficult for government regulatory departments to fully trace and monitor its development and use. The anonymity of Bitcoin also causes some illegal activities, such as money laundering and smuggling.

2.3. The Impact of Virtual Currency on the Monetary Policy

As is mentioned before, in terms of the ability to convert into classic currency, the virtual currency can be divided into convertible one and non-convertible one, open one and closed one. Closed or non-convertible cryptocurrencies only assume limited functions in a closed specific field, and has a limited impact on monetary policy and the real economy.

Convertible virtual currency can not only be used directly for legitimate forms of commerce and payments but be traded for fiat currencies on exchanges as well [10]. Bitcoin is a typical example. Although the convertible virtual currency has some similar characteristics of classic currency, it is not published by the central bank or public authorities, and the circulation does not experience a traditional commercial banking system. If the scale of convertible cryptocurrency is big enough, then it will have a big influence on the regulation of central banks. The first is to weaken the effectiveness of monetary policy. The central bank monopolies currency issuance rights by regulating the liquidity of the banking system through issuing or recycling basic currencies , affecting the short -term interest rates, thereby affecting the economic behavior of savings and investment in the substantial economy. When the virtual currency reaches a certain scale and plays an important role in issuing money, its quantity and price will have a significant impact on the substantial economy. In this way, central banks lack the ability to regulate these prices and quantities, instead, they can only adjust the liquidity

of currency to impose indirect effect. The effectiveness of monetary policy will be weakened. The second is to reduce the accuracy of currency indicators. The payment network of some virtual currencies may replace and influence the existing payment system in central banks and commercial banks, thereby weakening the central bank's ability to monitor funds and collect information through the payment system.The third is that the crypto poses tax problems. The issuance circulation of virtual currency will weaken the monopoly of the central bank to currency issuance, causing the bank's coin to raise tax loss.

Some factors prevent the impact of convertible virtual currency on monetary policy. First, the current virtual currency utilization rate is relatively low, since governments in many countries are still reluctant to put the crypto into effect. The second is that the decentralized virtual currency has a fixed limit of issuance, which can easily cause shrinkage and accumulation, and even become the object of investment speculation, which leads to a significant fluctuation of prices. The third is the centralized virtual currency which has a central administrator or repository, acting as the issuer of a certain currency. The role is similar to a central bank in a regulated currency system. The issuer undertakes the payment commitment and currency adjustment function, which may cause systemic risks and can be regulated and restrained by law. Because there are still some obstacles in expanding the use of virtual currency, its impact on monetary policy regulation is still within control.

3. Suggestions

In order to increase the possibility of virtual currency replacing traditional money, some measures should be taken as follows. First of all, in terms of the high-risk of cryptocurrency and high crime, the government needs to establish and improve the legal environment of cryptocurrency applications. But now, most laws are delayed, and it is difficult to meet the demand for new crimes related to cryptocurrencies. "Notification to prevent Bitcoin's risk" published in 2013 in China and "Announcement of token issuance prevention" published in 2017 tends to identify cryptocurrencies as virtual products [11]. However, the attributes of virtual currency have not been determined yet. Therefore, relevant law makers should clarify the legal status and the concept of virtual currency definition, as well as the legal category that defines virtual currency transactions. Additionally, the mainstream cryptocurrency should be identified as assets protected by law. Second, China is currently banning only the cryptocurrency trading platform, but this does not effectively suppress cryptocurrency crime [12]. Instead, it is more likely to cause more serious problems such as mutual crimes of cryptocurrency. As a result, it is necessary to thoroughly study currency supervision technology and supervision strategy. The government should determine the regulatory agency of the cryptocurrency trading platform, increase the research and development of regulatory technology, and improve monitoring efficiency of cryptocurrency transactions. Also it is important to make sure that trading behavior is compliant and whether the safety of the platform and risk prevention are in place. Regulatory organizations can cooperate with the cryptocurrency trading platform to jointly formulate industry standards to enhance risk prevention and information.

Second, the existing hardware facilities should be perfected to promote the application of virtual currencies. Cryptocurrency mining machine manufacturers have developed artificial chip products and gradually joined the artificial intelligence chip market competition [13]. From 2014 to 2016, cryptocurrency mining behaviors were limited to some individual investors, and the global market had fewer demand for cryptocurrency mining machine equipment [13]. However, in 2017, Bitcoin's price increased dramatically, blockchain thoughts increased in the fields of finance and electrical business, and the global scale of cryptocurrency mining machines achieved more than 5 times compared with 2016 [13]. As the market's demand for high -computing cryptocurrency mining machines has continued to increase, the energy consumption of high-computing mines is huge, which is easy to cause waste of resources and is not conducive to social and economic development. This has led to an important factor in the development of cryptocurrency mining machines to restrict the development of the industry. Mining machines equipped with nanochips have the advantages of high

computing power and low energy consumption, and the market has continued to increase its attention. Therefore, the upgrade of nanochip technology is an important development trend of the cryptocurrency mining industry.

4. Conclusion

Through research, the article finds that there are still many restrictions and problems in the use and issuance of virtual currencies. Therefore, virtual currencies are only partial substitutes for traditional currencies in the future, but the possibility of comprehensive replacement is relatively low. This can be explained by the following facts. First of all, there are various types of virtual currencies and acquisition methods. Users can choose appropriate currencies according to their needs. Some new currencies break the restrictions of traditional currencies, their convenience and flexibility promote the development of virtual currencies, and also promote technological progress and new mechanisms, bringing unlimited possibilities to future financial markets. Secondly, the transaction process of cryptocurrencies omits the intermediary, allowing users to make point-to-point transactions and trade anytime, anywhere, as well as breaking the limitation of space and time. It gives participants the right to issue the currency process. From these perspectives, virtual currency may become an important factor in the financial market. However, some defects of virtual currencies have hindered it from fully replacing traditional currencies. Due to the characteristics of decentralization and not being controlled and supervised by institutions, virtual currency has high risk and high volatility, and lacks legal supervision and recognition. Virtual currencies have a negative impact on monetary policy. It weakens the effectiveness of policies and reduces the accuracy of monetary indicators. Therefore, virtual currency cannot replace traditional banknotes in all directions. Only by establishing a comprehensive legal system, strengthening supervision, and improving existing hardware facilities can the government improve the position of virtual currencies in the financial market.

This study comprehensively analyzes the characteristics of virtual currency and its impact on today's policies, which is conducive to evaluating and predicting the future development and trend of virtual currencies, so as to create a more diversified financial market in the future. The study is also helpful for other researchers to learn from. Finally, the time span of virtual currencies studied in this article is short. Because the appearance of virtual currencies is relatively new, this article can only be studied and observed within a limited time range. This also means that readers may not be able to fully understand the long-term development trend and potential impact of virtual currency. Future research should further observe and analyze the development of virtual currencies, and determine whether its alternative effect on traditional currency can last and stabilize.

References

[1] History Of Virtual Currencies and Cryptocurrencies: A Brief And Informative Idea About Cryptocurrency.

[2] Retrieved from https://financialcrimeacademy.org

[3] Julio Vargas Pérez (Oct 21, 2022) Countries Where Cryptocurrency Is Legal and Illegal. Retrieved from https://money.com/cryptocurrency-legal-status-by-country

[4] Wallstreetmojo Team Virtual Currency Definition. Retrieved from https://www.wallstreetmojo.com/virtual- currency

[5] Szalay, Eva; Venkataramakrishnan, Siddharth (May 28, 2021). What are cryptocurrencies and stablecoins and how do they work.

[6] Allie Grace Grnett (Sep 24, 2022) What you need to know about cryptocurrency investing. Retrieved from How to Invest in Cryptocurrency (investopedia.com)

[7] Kate Palomo (Aug 17, 2022)What Makes the Crypto Currency Market Volatile? 6 Key Reasons. Retrieved from https://www.makeuseof.com

[8] Katherine Baer, Ruud de Mooij, Shafik Hebous, Michael Keen (July 5, 2023) Crypto Poses Significant Tax Problems—and They Could Get Worse. Retrieved from https://www.makeuseof.com

[9] Andrew Bloomenthal (May 11, 2022) What determines bitcoin's price? Retrieved from https://www.investopedia.com/tech/what-determines-value-1-bitcoin/

[10] Blockchain Education (Jan 26, 2023) An In-depth Look at How Crypto Transactions Work. Retrieved from https://bitpay.com/blog/how-crypto-transactions-work/

[11] Adam Hayes (May 31, 2022) Convertible Virtual Currency: Meaning, Types, Example. Retrieved from https://www.investopedia.com/terms/c/convertible-virtual-currency.asp

[12] Xun Yang, Jianqi Yang (Dec, 2018) The positioning of virtual currency in Chinese law, 2-3

[13] Yuyue Wang (Mar 3, 2023) The Governance Dilemma of Virtual Currency Crime and Countermeasures, 2, 306-312

[14] Xinqi Zhan (2019) China's cryptocurrency mining machine industry market research, 33-34