Outlook of Digital Currencies and Future Restrictions on Cryptocurrencies

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ABSTRACT
The concept of cryptocurrency first started to come into public awareness in 2009, when Bitcoin was released. Over the years, due to its secrecy and unregulated value, an immense amount of wealth was gathered in the market, leading to a series of problems. This article aimed to identify the potential threats the crypto market brought to society and create suggestions to the government for further regulations. The mining process is a huge energy consumer that not only creates a burden to the electricity of the area but also significantly amplifies the carbon emission to the atmosphere. Besides, the unregulated market, as well as its secrecy, provides a haven for illegal transactions. In China, more than 60% of the population uses digital payment every day. Accompanied by the issuing of e-CNY, the Chinese government should establish strict restrictions to regulate the currency, such as prohibiting mining of all sizes. Shortly, centralized digital currencies, accompanied by government restrictions on cryptocurrency, will continue to prosper and create convenience for the entire society.

Keywords: Cryptocurrency, Digital Currency, Bitcoin, Restrictions on Cryptocurrency

1. INTRODUCTION

1.1. Background

After experiencing the rapid development of the Internet, people have understood the value of data, so virtual currency is a product of the times. Virtual currency is stored in data and discloses transaction information, and Bitcoin is now the most famous virtual currency. The decentralization is the characteristic of current Bitcoin because it makes Bitcoin no longer rely on the central bank's recording system but gives each user right to record the transaction. Under decentralization, Bitcoin is freed from the troubles caused by the excess issuance of traditional currencies. Since transaction records are public, the public can guarantee the currency's security. But Bitcoin still shows enormous drawbacks. In the past 24 hours of November 7 in 2021, 70,077 traders were liquidated [1]. The turbulent price makes it unsuitable for being a currency; on the contrary, it is more likely to be regarded as a commodity. The value of Bitcoin comes from its demand, supply, and mining process. However, those characteristics separate the value orientation of currency from the real economy [2]. Therefore, it is not suitable for use as legal virtual currency, but the characteristics of Bitcoin are still precious for establishing a digital currency system for legal currency. The establishment of Central Bank Digital Currency (CBDC) focuses on maintaining the value of digital currency under supervision from the government.

1.2. Related Research

Aziz et al. used Bitcoin as an example to introduce virtual currencies. The emergence of virtual currency is the impact of technology on the financial field. Aziz et al. first introduce the development process of Bitcoin, including its appearance and development, as well as the emergence of significant changes: blockchain. After that, Aziz et al. introduce some of the characteristics of Bitcoin: Consensus, Provenance. Then Aziz et al.
proposed the state of Bitcoin in the form of interviews, which exposes some of the problems of Bitcoin, such as the inability to retrieve Bitcoin. And raised some doubts about the emergence of Bitcoin, and finally made a summary of the status of Bitcoin [3].

Josephine aimed at discussing the business problems caused by cryptocurrency. He introduced the characteristics of cryptocurrency. Cryptocurrency itself has no value, its circulation is relatively independent, and it has a special security system. These characteristics have caused a lot of trouble in many ways. Cryptocurrencies are easy to lose, are subject to a high risk of fraud, and economic activities cannot be monitored. Later, Josephine detailed the impact of cryptocurrency on companies in bankruptcy. First, cryptocurrency cannot be accurately defined as a commodity or currency. The easy loss of cryptocurrency will also cause trouble in the bankruptcy stage of a company [4].

Cameron discussed the potential of cryptocurrency and a series of problems it faces by comparing the development process of gold. First, Cameron introduces cryptocurrency, including its working principle, mining methods, characteristics, and shortcomings. Later, through data analysis, the trend of the currency. Bitcoin in the same period was compared, and the impact of the economic situation on the two at that time was analyzed. After that, Cameron began to analyze the technical barriers encountered by virtual currencies, such as the problems encountered in transactions. Then introduce the institutional obstacles of virtual currency: the life cycle of intermediaries under legal management is short, but the article immediately proposes the concept of substitutes for intermediaries [5].

Michelle focused on the research on the regulatory systems of virtual currencies in the United States, Nigeria, and China. The political system of each country is different, and the definition of virtual currency is also different. Based on the problems of virtual currency in various political systems, Michelle discusses some regulatory regulations and taxation frameworks implemented by the United States, Nigeria, and China to respond to virtual currencies since the emergence of virtual currencies [6].

Feng et al. analyzed the newly emerging loan derivatives in the cryptocurrency market and studied the value fluctuation and risk characteristics of Bitcoin as the basic product. Also, Feng et al. analyzed the time series and established the GARCH model. And based on the correlation between the value of financial derivatives and basic products, some characteristics of cryptocurrency lending derivatives are analyzed. The conclusion is that Bitcoin's return rate has peak fat tail characteristics and volatility clustering characteristics. At the same time, Bitcoin also has higher risks and leverage than traditional financial products. Investors are more responsive to the decline in yields and have a greater impact on the market. As a cryptocurrency, Bitcoin has the characteristics of risk compensation, and its price fluctuation lasts for a long time [7].

Dang evaluated the status quo of cryptocurrency in Vietnam and provided several solutions and suggestions for the government, the State Bank of Vietnam (SBV), and other related institutions to effectively and efficiently monitor, manage and control cryptocurrency. The results show that, based on the current research on cryptocurrency and Vietnam's cryptocurrency status, the author has proposed some solutions to provide suggestions for the management and development of cryptocurrency operations in the most practical way. The governments of many countries in the world still need to ensure the security of cryptocurrencies and comply with the control and supervision capabilities of the central government and the central bank [8].

Zaiets et al. analyzed the cryptocurrency market and how the country regulates cryptocurrencies. Research on the cryptocurrency market and its regulatory experience reveal some similarities. The new system conditions can be put into circulation of Cryptogrivna. At the same time, whether in the medium or short term, cryptocurrency cannot completely replace traditional payment methods and payment methods. To ensure national economic security, the integration of current tax and financial legislation with international law is particularly important. [9]

Manahov analyzed the following five cryptocurrencies, namely the millisecond data of Bitcoin, Ethereum, Ripple, Litecoin, and dash, and two cryptocurrency indexes (Crypto Index (CRIX) and CCI30 Crypto Currencies Index). Manahov Studied the relationship between the liquidity of cryptocurrencies. The results of the research prove that cryptocurrency traders promote extreme price movements, and liquidity is required even when extreme price movements are most severe. On the entire data set, it observed the existence of herding behavior during the market rise, and it gradually decreased over time [10].

1.3. Objective

This article first briefly introduces the current status of virtual currencies, including the value of Bitcoin, the current status of altcoins, and the phenomenon of speculative chaos. After that, this article studied the negative impact of Bitcoin mining, cryptocurrency trading, and celebrity effects on cryptocurrencies. Also, we can learn more about the government's supervision of this currency. Finally, based on previous studies and learning, this essay puts forward prospects for the development of digital currency, which is embodied in the description of the future regulations of
cryptocurrency, bitcoin's contribution to DCEP, and the prospect of digital currency.

2. THE CURRENT STATE OF VIRTUAL CURRENCY

2.1. The value of Bitcoin

In 2009, the first cryptocurrency to use blockchain technology, Bitcoin, was mined. Since then, thousands of crypto-tokens have been created, trading actively and unregulated in the global market. Unlike other paper money, cryptocurrencies do not exist in a physical form; rather, binary data serves as the medium of exchange. With strong cryptography and stored in a computerized database, transactions of cryptocurrencies leave little record. For most unofficial cryptos, the token owners receive additional ownership through the process of mining, which is to provide computer processing power for the crypto network. Many of the cryptocurrencies are not issued by a central authority and are considered as having the same status as commodities by some tax authorities.

However, unlike the other cryptocurrencies, Central Bank Digital Currency (CBDC), issued by central banks of countries, is under centralized control. The CBDC, compared to blockchain-based cryptos, has an official legal tender status; even though it is not widely implemented, the CBDC can play an important role in trading markets in the future. Issued by the People's Bank of China, the Digital Renminbi (e-CNY) is the first digital currency that is legally distributed and governed by a leading country. The e-CNY was first introduced to the public in April 2021 and had the same value as CNY. The establishment of e-CNY created a fast and reliable form of transactions between two devices, both domestically and internationally.

2.2. Derivatives

With the widespread popularity of Bitcoin in the world, many Chinese-made virtual currencies have also appeared. These domestic virtual currencies are collectively referred to as altcoins in the industry. It includes more than 30 types of virtual currencies such as Shiba Inu, Infinite Coins, Quark Coins, and Zeta Coins. Bitcoin and altcoins have not lost their popularity in recent years. Instead, when Bitcoin broke through its highest point at $19,875, the entire virtual currency market began to flood in a large number of novice buyers. However, the altcoins among them are louder than Bitcoin. For example, the new currency TKO, which was just listed in 2021, was loved by investors and caused a monthly increase of more than 31 times. We can see from this information that altcoins have attracted many investors to buy so far, whether they are students or adults. At the same time, the Shiba Inu coin, which has been the most popular in the past year, is also at the forefront of substantial increases. Many college students are also keen to purchase Shiba Inu coins or pig coins and other new online celebrity currencies. However, some people think that the price of the widely popular air currency is very worrying about whether people control it. They are afraid of being deceived by the manipulator behind it. Moreover, the person in charge of Huobi believes that the high sentiment in the market causes the surge in Shiba Inu. These sentiments cannot consistently maintain the upward trend of Shiba Coin.

In addition, Ciaian et al. researched the price index of Bitcoin, 16 alternative virtual currencies, and two altcoins during the period 2013-2016, and the results showed that Bitcoin and altcoin markets are interdependent. Moreover, the relationship between the prices of these two currencies in the short term is stronger than the relationship in the long term.

2.3. Speculation Chaos

Bitcoin price fluctuations cause investment chaos. Even if Bitcoin follows economic theory and monetary quantity theory in the long term, it will produce bubbles and busts in the short-term because the government's supervision cannot control the production and circulation of Bitcoin. Bitcoin's instability comes from a variety of drivers. Ladislav pointed out that the circulation of Bitcoin will also affect its value. When Bitcoin's circulation speed is higher, its demand is greater, which makes the price of Bitcoin also higher. However, at the same time, the value of Bitcoin is also easily negatively affected by fluctuations, price uncertainty, and changes in the dollar value of transaction costs. Speculation itself is also one of the drivers of Bitcoin. The existence of speculation promotes the transaction and circulation of Bitcoin, so the price of Bitcoin will increase. Lahmiri and Bekiros point out that when the price of Bitcoin is at a high level, the uncertainty of returns increases because the transmission of information will weaken.

3. SUPERVISION

3.1. Negative Impact of Cryptocurrency Mining

Mining is the process of providing computing power to the cryptocurrency network to process the transaction in return for a payment given by the network. This mechanism is the foundation of cryptocurrency transactions; however, it brings a series of issues such as energy consumption which in turn adversely affect the environment.

In the research conducted by Alex de Vries in March 2021, it was pointed out that the rising price has caused a significant increase in the energy consumption of mining: estimated to consume 78 and 101 terawatts-hours (TWh) of electricity annually. As the price of bitcoin, as well as
other crypto tokens, continues to increase, more machines will be put into use for mining, causing even greater energy consumption [18].

Aside from its direct effect, the carbon footprint caused by mining continues to amplify. Li et al. analyzed the carbon emission generated by the mining of Monero (XMR), another type of open-source cryptocurrency [19]. They discovered that in China alone, from April to December 2014, approximately 19.12 ~ 19.42 thousand tons of carbon were emitted into the atmosphere, further contributing to climate change [19].

3.2. Trade

Bitcoin provides users with security, but Bitcoin is still a product with high risk because the security of Bitcoin is highly dependent on the protection of the platform. Except for hacker attacks, Bitcoin holders will still face pressure from the platform. The first is the trust issue between the platform and consumers. Due to the decentralized nature of the Bitcoin market, the market is less regulated, which leads to a very vague relationship between the Bitcoin platform and users. The platform acts as a representative for users to hold bitcoins in the market and conduct transactions, but the fact is that most platforms will use the customer's property for financing. In addition, due to legal deficiencies, the Bitcoin platform cannot be defined as a "stock manager" in legal [20]. Thus, the manager can’t follow the existing well-established laws when the platform goes bankrupt and faces liquidation. Under such a situation, it is necessary to ensure that the platform always guarantees a certain amount of Bitcoin storage. The platform should keep Bitcoin instead of cash because customers are more inclined to accept Bitcoin during liquidation.

3.3. Celebrity effect

At the beginning of 2021, Bitcoin fell crazily to 45,000 US dollars, and the amount of liquidation reached 5.8 billion U.S. dollars in just a few days. It was Musk's remarks that caused the phenomenon of Bitcoin's plummet. On February 8, 2021, Musk tweeted that Tesla has bought $1.5 billion worth of Bitcoin and intends to accept Bitcoin as its new payment method in the future. At the same time, he showed a variety of Bitcoin-related behaviors on Twitter. This move caused Bitcoin to rise wildly to 47,000 U.S. dollars in the market. On February 17, Bitcoin broke through the value of 50,000 U.S. dollars. According to the current situation, Musk's Tesla market and the Bitcoin market have formed a bundle, and the stock prices of the two markets have changed with the changes in the other's market. Another indication that Musk's comments have had a significant impact on the bitcoin market is when the value of bitcoin passes $8,000, Musk said on Twitter that bitcoin was worth a little too much. The next day there was a downward movement in the value of bitcoin [21].

In addition, not only did Musk say that Tesla bought a large amount of Bitcoin, but Seiler, the founder of another corporate pioneer MicroStrategy, said that he has invested 200% of the company's balance sheet in Bitcoin and will stick to it forever. Buy [21].

4. CENTRAL BANK DIGITAL CURRENCY

4.1. Future Regulations on Cryptocurrency

Due to its recent boom in market value, cryptocurrencies are being recognized by the general public, so more transactions will be conducted through tokens, and more mining will be conducted. However, both increases can be damaging to the wellbeing of society: the decentralized currency makes transactions untraceable for any government or individual, creating a safe passage for illegal money transfer. For instance, the ransomware developed and spread across the globe in 2017, WannaCry, has attacked over two million devices. Locking the files in the computer, the virus requested a fund to be transferred through bitcoin to unlock the data [22].

In terms of mining, because of the inability to refund mining machines, the miners will continue to consume great amounts of energy despite the change in prices. This will increase electricity consumption and carbon emissions [18]. Transactions Bitcoin and any other decentralized cryptocurrency should be disallowed by any banks, which include both government-owned and privately owned. The government should outlaw the unregulated mining factories that continue to create electricity shortages for the public, saving as much energy as possible. In case of publicity, any advertisement from crypto trading markets should be banned, allowing as little attention as possible toward this topic.

4.2. Contribution of Bitcoin on CBDC

The digital payment process has become a future trend. Buchholz indicated that more than 60% of Chinese people use digital payments every day [23]. Therefore, the development of CBDC is very impressive. There is no doubt that decentralization can bring certain benefits, but for fiat currencies, decentralization will bring greater risks, so the focus is on finding a balance between decentralization and centralization. Obviously, for a country, the task of recording transactions cannot be delegated to every citizen, but it is feasible to delegate to some publicly recognized representatives. Countries can arrange such tasks for business giants in each field. They receive people's trust, and they own a large part of the transaction records in their field. Asking them to record transactions will be more efficient and avoid the cost of
mining. Sam pointed out that it currently costs between $7,000-$11,000 to mine a bitcoin [24], and the task of supervising the bookkeeping party can be handed over to the central bank.

It should be noted that the bill is transparent. Recoding transaction still needs to be opened to the public and updated quickly; otherwise, the recorder can profit by obtaining information in advance. In addition to supervising the recorder, the central bank needs to supervise encrypted accounts while ensuring the security of encrypted account information so that violations can be traced back in time when they occur.

4.3. The outlook for digital currencies

Due to the widespread popularity of digital currencies, many countries have begun to popularize and test digital currencies. Take China as an example. According to Chinese official media reports, the four large state-owned banks in China (Industrial and Commercial Bank of China, Agricultural Bank of China, Bank of China, and China Construction Bank) are all simultaneously conducting transactions on the central bank's digital currency in cities such as Shenzhen. Large-scale testing shows that the determination and issuance of the digital renminbi in China is just around the corner. In addition, in order to expand the utility of e-RMB, China's central bank has also started cooperating with many Internet companies, such as the online car-hailing companies giant Didi Chuxing. For example, in some civil servants in Suzhou, their transportation subsidies have begun to be distributed through digital currency [25].

In addition, Lithuania, a member of the European Union, became the world's first central bank to issue digital currencies. After that, other countries also began to plan to give central banks digital currencies [25]. According to news reports, Lithuania will start the pre-sale of 24,000 digital currencies issued by the central bank at the end of 2020. As an international project team in a Chinese company, PROBE probes are headquartered in Shenzhen and Vilnius, Lithuania. At the same time, it has also implemented the STO policy of the Lithuanian Central Bank [26].

5. CONCLUSION

The beginning of this paper mainly introduces the value and status quo of cryptocurrency in the blockchain and the phenomenon of speculation and confusion. Secondly, this essay also studies the government's regulation of cryptocurrencies, the negative effects that cryptocurrencies will bring as well as the behaviors that will affect the cryptocurrency market. At the end of the paper, the prospect of the digital currency market prospects, the future regulations of cryptocurrency, bitcoin's contribution to DCEP and the prospect of digital currency are introduced in detail. This article finds that Central Bank Digital Currency (CBDC) is officially recognized compared with blockchain cryptocurrency. Although it is not widely popular, it will play an essential role in the future trading market. The digital renminbi (e-CNY) issued by the People's Bank of China is the world's first digital currency legally issued and managed by the state. After Bitcoin came out, many altcoins appeared on the blockchain market, such as Shiba Inu, Infinite Coins, Quark Coins, and Zeta Coins.

As the government is unable to control the production and circulation of Bitcoin, the price of Bitcoin fluctuates, which further leads to the phenomenon of investment chaos. Second, the government's lack of supervision on Bitcoin mining has led to energy consumption and adversely affected the environment, exacerbating climate change. In addition, Bitcoin is a highly intensive transaction method that relies on the Internet, and its security issues have made Bitcoin a high-risk product. The celebrity Musk's manipulation of Bitcoin also caused massive volatility in the market at that time. Finally, this article gives prospects and suggestions for blockchain and digital currency. This article suggests that any other decentralized cryptocurrency, including Bitcoin, should be banned by the government and private banks. They prohibit not-regulated mining factories, causing public power shortages and reducing publicity. At the same time, recording transactions still need to be quickly opened to the public and checked for updates. The central bank also needs to supervise encrypted accounts while ensuring the security of encrypted account information. Finally, since the Lithuanian government issued a digital currency, many countries have begun to follow suit, so we can predict that more countries in the world will soon start to popularize and test digital currencies.

REFERENCES


