Advances in Economics, Business and Management Research, volume 215
Proceedings of the 2022 7th International Conference on Social Sciences and Economic Development (ICSSED 2022)

The Effect of Government Policies on Cryptocurrency Market

Yunchen Huo

School of Scinence
Rensselaer Polytechnic Institute
Corresponding author. Email: huoy3@rpi.edu

ABSTRACT
Bitcoin is now famous by it's high level of price, but most people are not familiar with what Bitcoin is and why it is so expensive. Before studying different policies made by governments and how policies can affect cryptocurrencies market price, it is necessary to know several things: the characteristics of cryptocurrency and the technology behind the crypto token; how Bitcoin leads to different attitudes of the government in different countries, and policies made in the United States, Europe, China, and El Salvador respectively. Studying the market price level of the cryptocurrencies is a good way to research about how different policies can affect the trend of the Bitcoin price. And the price of Bitcoin would go down to some extent no matter whether the policy is beneficial or harmful to the cryptocurrencies.

Keywords: *Cryptocurrency, Bitcoin, Crypto mining, Block-chain, Decentralized*

1. INTRODUCTION

Bitcoin, a name that almost everyone knows now. People were wondering if the Bitcoin price went over a hundred dollars a decade ago, but now they see the potential of Bitcoin price, from nearly one cent break through to sixty thousand dollars in ten years [1]. As the price of Bitcoin went up, the problems also followed. For example, some people use Bitcoin to wash money or do illegal transfers of assets abroad; Bitcoin Mining consumes a lot of power and so on. Governments in many countries try to use policy to deal with the problems caused by the crypto market. This paper will especially focus on China, US, and European Union and how their policies affect the crypto market. Through analysis, this paper will help people understand how government policies can affect the price level, and how the government should regulate cryptocurrencies in order to make it beneficial to our society.

2. THE DEFINITION AND DEVELOPMENT OF CRYPTOCURRENCY

Cryptocurrency is decentralized digital money which is based on blockchain technology, and Bitcoin is the most famous version. Blockchain is a distributed ledger which is enforced by a disparate network of computers. Because the blockchain is enforced by different networks of computers, it cannot be issued by any central authority. This decentralized structure makes cryptocurrency theoretically free from government interference. There are more than five thousand different kinds of cryptocurrencies in circulation.

The first blockchain based cryptocurrency is Bitcoin which is still the most valuable one. Bitcoin was launched in 2009 by a person or a group of people known by the pseudonym "Satoshi Nakamoto". By April 2021, there were over 18.8 million bitcoins in circulation with a total value of 915 billion dollars in the market [2]. Bitcoin's success also promotes the spawn of other competing cryptocurrencies known as "altcoins" like Ethereum or Litecoin. By August 2021, the total value of cryptocurrency is over 1.8 trillion dollars, and Bitcoin currently represents almost 46.5% of the total value [2]. The chart below shows the makeup of the total cryptocurrencies market.

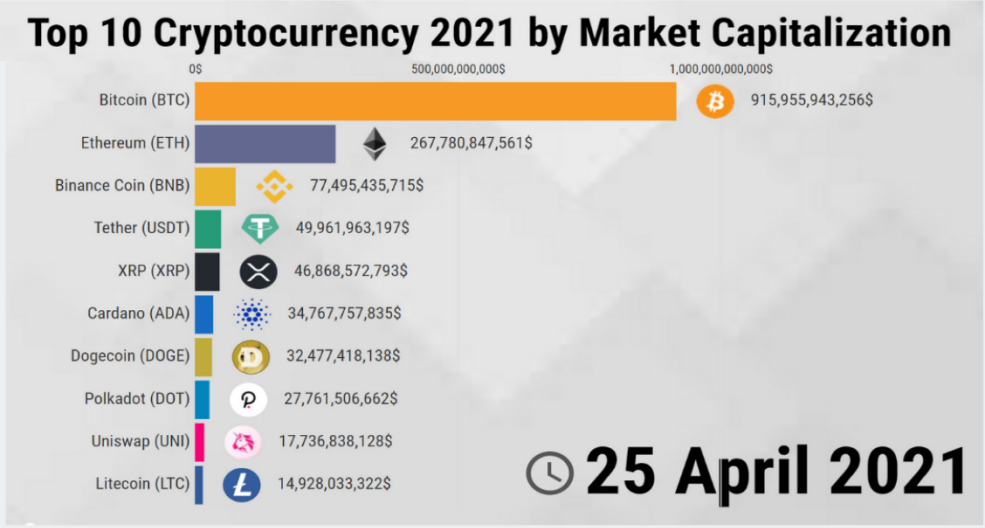

Figure 1. Top 10 cryptocurrency 2021 by Market Capitalization [3]

But why do people choose cryptocurrency? Some people believe blockchain technology is a revolution in many industries. Because the block chain technology facilitates a peer-to-peer transaction, it doesn't need any intermediary like the government or banks. And as the blockchain is a truly opened, distributed, global platform, people don't need a traditional trust system. The second reason people invest in cryptocurrency is its inflation resistance. Most cryptocurrencies are unlike fiat money, they have limited supply due to mathematical algorithms. That makes it can't be diluted by inflation.

3. REASONS FOR LEGISLATION ON CRYPTOCURRENCY

Cryptocurrency is decentralized and anonymous with any transaction. Therefore, governments in many countries begin to worry about the development of cryptocurrency. The first reason that makes the government worry about is that cryptocurrency has the potential to dismantle the central banking system, and the central bank has the responsibility to affect the entire economy for the whole country. Each bitcoin is unique, which means it can not be replicated and counterfeited. Also, intermediaries are not required between two peers' transactions. Thus, bitcoin doesn't need a network of banks that are chartered by a central authority to distribute.

Besides, cryptocurrency is increasingly being used for criminal activity and illicit finance. Anonymous with bitcoin transactions is mostly preferred by criminals. A study from 2019 reported that nearly $76 billion of illegal activities per year are involved with Bitcoin [4]. Cryptocurrency has been requested as ransom for kidnappings and used to transfer money to circumvent sanctions. Criminals also use crypto currency to do money laundering because it is unregulated. They use their illegal income to buy cryptocurrencies and trade over and over again across various markets, and eventually withdraw to an external wallet. Study shows the total cost of this type of money laundering is less than 15 percent of the proceeds of crimes. And it is very low compared to other money laundering methods which can cost up to 50 percent [5].

The third reason why the government is worried about cryptocurrencies is that Bitcoin can circumvent government-imposed capital controls. The government usually implements capital controls to prevent currency outflows because exports may devalue their value. This is a way that the government controls fiscal policy and the whole economy. But Bitcoin is state-less and it is easy to circumvent capital controls. One of the well-known example flights by Bitcoin has occurred in China. More than 50 billion dollars moved from China-based bitcoin wallets to foreign countries wallets in 2020 [6]. This means many people in China convert local currency to Bitcoin and transfer it abroad to avoid government regulation.

What's more, cryptocurrencies can consume huge amounts of power. Cryptocurrency is based on blockchain technology, but how can people actually get bitcoin? Before bitcoin gets into circulation, there are many complex computational math problems that need to be solved by high powered computers. And this math solving process is called crypto mining. Bitcoin mining requires specialized machines called mining machines, it requires a huge amount of time and electricity. There is some data analysed by the New York Times that can show how much power can be used for crypto mining. Bitcoin mining consumes around 91 terawatt-hour of electricity every year which is 0.5 percent of all electricity consumption for the whole world. And it has more annual electricity use than all of Finland with 5.5 million people [7].

4. THE IMPACT OF LEGISLATION ON CRYPTOCURRENCY

On one hand, making legislation to encourage high-tech financial infrastructure could make the economy more competitive. One the other hand, allowing the development of digital currency may endanger the autonomy and integrity of the national currency. In view of this, many governments have already established new legislation for cryptocurrencies.

4.1 Relevant Legislation in America

In the US, cryptocurrencies have always been focused by both state and federal governments. At the Federal level, the government focused most on administration and agency. There are many agencies engaged in crypto including the Financial Crime Enforcement Network, the Office of the Comptroller of the Currency, the Internal Revenue Service, the Federal Trade Commission and Department of Treasury, the Commodity Futures Trading Commission, and the Securities and Exchange Commission, but few of them made official legislation. Most policymakers acknowledged cryptocurrencies are important to USA's future infrastructure and they need to be world leading in this area. At the state level, many state governments have already proposed or passed laws on cryptocurrencies and blockchain technology. Some states try to offer some subsidies or advantage regulation to promote this new technology. Ohio became the first state that accepted taxes in cryptocurrencies. Also in Wyoming, the state government passed a law that allows a new type of bank to help businesses to hold digital assets legally and safely. However, some state governments are on the opposite side with cryptocurrencies. Iowa introduced a new bill that prevents the state and government branches from accepting payment in cryptocurrencies [8].

4.2 Relevant Legislation in Europe

On September 24, 2020, the European Commission passed a new legislation on crypto assets called Markets in Crypto-assets (MiCA). MiCA firstly focused on the issuance of crypto assets. Issuers of one crypto asset are required to be incorporated as a legal entity. They need to publish a whitepaper containing prescribed minimum information before any kind of crypto token issuance. And the issued crypto token must be authorized by a regulator [9]. MiCA also regulates cryptocurrency exchanges and the stablecoin which has the same currency with fiat money. The below graph shows the price fluctuation during 6 years of a US dollar stable coin called usdt.

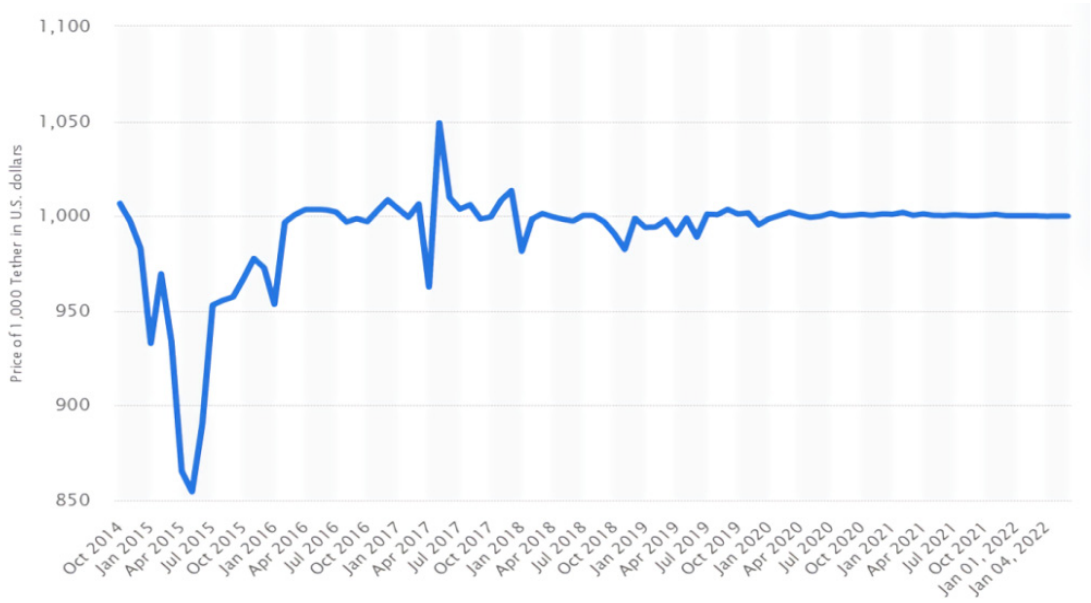

Figure 2. Price of 1,000 Tether (USDT) per day from October 2014 to January 4, 2022(in U.S. dollars) [10]

In this act, stablecoin are being strictly regulated and it needs authorisation from the regulatory authorities to be traded in Europe. Moreover, MiCA will prohibit some 'market influencers' like Elon Musk from causing a huge decrease or increase in the price of the market by social media. The below graph shows the price increase of dogecoin after Elon Musk promoted it on Feb 4th, 2021.

Figure 3. Price of doge coin after Elon Musk promoted (in U.S. dollars) [11]

MiCA acts are considered part of Europe's digital finance strategy, which is different from the US with non uniform regulation at federal level.

4.3 Relevant Legislation in China

When the US and Europe all prepare to welcome cryptocurrency, China starts to ban financial payment institutions from cryptocurrency business. On May 18, 2021, the Chinese government banned services related to cryptocurrency from financial institutions. Many crypto exchange companies claim to shut down service in China. It also leads to the biggest fall of Bitcoin price in the year of 2021. The below chart shows the Bitcoin price at the day of May 18.

Figure 4. Price of Bitcoin after China ban Bitcoin [12]

In the past few years, the supervision departments of the Chinese government have high tolerance for innovation like online payments. But why does the government in China tries to ban cryptocurrency completely?

On the government's level, China is foreign exchange control country, but Bitcoin's online anonymous transactions can perfectly bypass the central bank's foreign exchange control. Besides, Bitcoin provides a great convenience for money laundering transactions which greatly threatens China's central bank's foreign exchange policy and regulatory policy. From May to August 2017, Chinese buyers bought real estate in London in 90 days, which cost more than 3.6 billion pounds, a total of 31.7 billion RMB. After the RMB is exchanged, it can't be used to purchase assets overseas. How can it be possible for the people who spend millions of dollars to buy houses overseas? The answer is that Bitcoin provides the possibility for it. Cryptocurrency affects the government's macro-control.

Currency is a tool of transaction medium, storage value and accounting unit. It is also a tool for managing

the economy. In macroeconomics, money supply is a very important concept. Because it will directly affect price levels of the whole society. One of the main functions of central banks is to regulate the money supply. If there is a new currency not controlled by the government, it will cause an impact on the central bank's money supply. In order to keep control of money supply, the Central Bank of China introduced the first official digital currency-(e-CNY) in April, 2020. This new digital currency is similar to Bitcoin because they both use blockchain technology, but it requires user authentication and operates with centralized permissions. Governments around the world are considering the development of their own central bank digital currencies to improve their financial system and resist the impact from cryptocurrencies like Bitcoins.

During 2014 to 2016, the RMB replaced the U.S. dollar and became the largest trading market for Bitcoin. As the population of investors in China grows more and more, on a people's level, the Chinese government needs to ban cryptocurrencies. With the skyrocketing price of Bitcoin, cryptocurrencies have a strong speculative atmosphere, and investors blindly follow the trend and even lose their rationality. Many cryptocurrency trading platforms carry out leveraged trading that lead to many speculative investors losing all their money in a really short amount of time. There were more and more people who went bankrupt after losing most of their money into cryptocurrency. There could be more social problems if the government didn't step in.

Finally, in terms of environmental level, crypto mining could waste so much electricity power and it is harmful to our environment. Before the government in China banned Crypto mining, China accounted for about 65% of all bitcoin mining computing power in the world, and Inner Mongolia accounted for 8%. According to the data from China National Statistics Bureau, from January to August 2021, the national power generation amounted to 5,389.4 billion kWh. Thermal power generation is 3872.3 billion kilowatt-hours, which is about 71.85% of the national power generation. Thermal power generation will produce a lot of carbon dioxide by burning coal and other fuels. It is not conducive to China's proposal to reach the peak of carbon dioxide emissions by 2030 and striving to achieve carbon neutrality by 2060. Besides, most of the crypto mining is located in far away country areas with low electricity prices, and this leads to an electricity shortage in that area. In order to ensure the quality of life of the residents in that area, the government has to shut down crypto mining to stabilize the price of electricity. After the new policy introduced by the Chinese government, mining operations in China dropped to zero which led to a 38% fall in mining globally [13]. According to the data from BuyBitcoin Worldwide, the average amount of new bitcoin mined dropped 900 to 270 per day. The Inner Mongolia state government classifies cryptocurrency mining as "backward and overcapacity." The draft for comments proposes that all cryptocurrency mining projects will be shut down before the end of April, 2021, and new cryptocurrency mining projects will be strictly prohibited. The following chart shows the Bitcoin value monthly after China banned crypto mining.

Figure 5. Price of Bitcoin after China ban crypto mining [12]

4.4 Relevant Legislation in El Salvador

What will happen if Bitcoin continues to develop and become the real currency for a country? On Sep 7th, 2021, El Salvador declared Bitcoin as their official currency, which is the first country to make cryptocurrency as their official money. The main reason they decide to use Bitcoin is that El Salvador's economy is dependent on

diaspora remittances which is 25 percent of their GDP. This can help users to avoid high transfer fees charged by third parties. But in fact, over 95 percent don't want to be forced to use Bitcoin. Many people in El Salvador start to protest Bitcoin. On the first day El Salvador declared Bitcoin as their official money, the price of Bitcoin tumbled about 11 percent. The price chart below shows the Bitcoin price after Salvador declared Bitcoin as their legal currency.

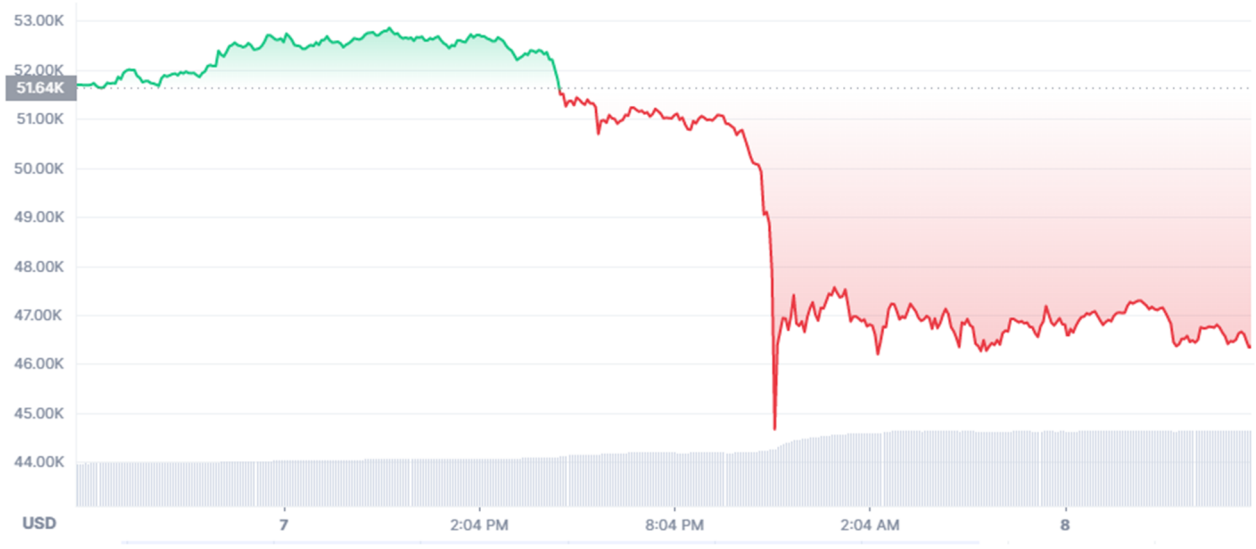

Figure 6. Price of Bitcoin after Salvador declared Bitcoin as their legal currency [12]

Such a price swing increases the possibility of overriding and also increases susceptibility to hyperinflation. When the government loses control of money supply, it is also losing the power to control inflation rates, interest rates on loans, or even influence exchange rates.

5. CONCLUSION

In conclusion, cryptocurrency is decentralized digital money which is based on blockchain technology with decentralized structure. Leaving El Salvador as an exception, governments in many countries worry about the development of cryptocurrency, especially China banning both financial payment institutions from cryptocurrency business and crypto mining. While the US and European governments are more welcoming of this new currency. But all of the three governments have their own solution due to this new technology. The US and Europe passed many laws to try to control trade in the market, China even launched their own digital money to compete with Bitcoin. The change of cryptocurrency is just like the change of this era, no one will know what the final result of Bitcoin will be.

REFERENCES

[1] John Edward, Bitcoin Price History, 2021. Online: https://www.investopedia.com/articles/forex/121815/bitcoins-price-history.asp

[2] Jake Frankenfield, Cryptocurrency, 2021. Online: https://www.investopedia.com/terms/c/cryptocurrency.asp

[3] Anonymous, Top 10 Cryptocurrency 2021 – Analysis & Data, 2021. Online: https://statisticsanddata.org/data/top-10-cryptocurrency-2021-analysis-data/

[4] Ben Lorio, Cryptocurrency and the Rise of New Illicit Financial Flows, 2019. Online: https://gfintegrity.org/cryptocurrency-and-the-rise-of-new-illicit-financial-flows/

[5] Rolf van Wegberg, "Bitcoin money laundering: mixed results?: An explorative study on money laundering of cybercrime proceeds using bitcoin", 2018. Online: https://www.emerald.com/insight/content/doi/10.1108/JFC-11-2016-0067/full/html

[6] James McWhinney, Why Governments Are Wary of Bitcoin, 2021. https://www.investopedia.com/articles/forex/042015/why-governments-are-afraid-bitcoin.asp

[7] Eugene Kim, Bitcoin mining consumes 0.5% of all electricity used globally and 7 times Google's total usage, new report says, 2021. Online: https://www.businessinsider.com/bitcoin-mining-electricity-usage-more-than-google-2021-9

[8] Joe Dewdy, Blockchain & Cryptocurrency Laws and Regulations 2022 |USA, 2021. Online: https://www.globallegalinsights.com/practice-areas/blockchain-laws-and-regulations/usa

[9] Siân Jones, Ernest Lima, Ana James, MiCA explained: the EU crypto-asset law, 2020. Online:

https://uploads-ssl.webflow.com/5df7642ffbd9264804671001/5f7b3b3116ebd4add01abd32_XReg%20EU%20MiCA%20explained%20-issue%201-1.1a%20-FINAL.pdf

[10] Price of 1,000 Tether (USDT) per day from October 2014 to November 29, 2021. Online: https://www.statista.com/statistics/1269281/tether-price-index/

[11] Dogecoin USD (DOGE-USD). Online: https://finance.yahoo.com/quote/DOGE-USD?p=DOGE-USD

[12] Bitcoin USD. Online: https://coinmarketcap.com/currencies/bitcoin/

[13] Eugene Kim, Bitcoin mining consumes 0.5% of all electricity used globally and 7 times Google's total usage, new report says, 2021. Online: https://www.businessinsider.com/bitcoin-mining-electricity-usage-more-than-google-2021-9