Research Paper

Demystifying regulatory responses towards bitcoin: Does the internet-based currency have a bright future in the context of financial modernization?

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ABSTRACT

This study investigates a number of regulatory responses towards Bitcoin and attempts to liaise such responses with these jurisdictions' economic freedom level. It is proposed in this study that in order to understand various regulatory responses towards Bitcoin, the more restrictions the government imposes on its economic freedom, the more conservative policy the regulatory authorities may take towards Bitcoin with the reluctance to recognize and embrace this digital currency into its financial system. Nonetheless, in some cases, for example China, amid its official policy prohibiting the use of Bitcoin, there remains a certain level of flexibility for the market to trade Bitcoin. Some conservative regulatory and policy responses towards Bitcoin are in flux subject to a variety of economic and policy factors. The take-away of this study is that financial innovation and financial modernization may not fit well into the current financial system given their potential risk and challenges to the financial market.

Key words: Bitcoin, digital currency, risks, regulatory responses, financial modernization.

INTRODUCTION

In January 2016, the People’s Bank of China (PBOC), China’s central bank, hosted a forum with the focus on digital currencies (DC). It was highlighted that the development of DC, inter alia, Bitcoin, has not only been an opportunity but also a challenge for the government’s authorized fiat currency. The PBOC also announced that it plans to have its own DC in the foreseeable future. This is an interesting movement compared with what the PBOC’s earlier Notice (2013) No.289 in which the DC was not only classified as a commodity but also banned from being used and traded by any financial institution.

Facebook and 27 other partners in May 2019 made an announcement of the plan to launch a new digital currency called Libra which could be used to send money around the world through their own global payment network. Any modest success of this plan is likely to switch much of the control over monetary policy from central banks to private entities. Libra has its value pegged to a basket of currencies and other assets. An independent association—composed of some of the world’s largest companies such as Visa, Mastercard, Uber, eBay, among others, with a membership fee of US$10 million—based in Switzerland will oversee Libra’s administration, security and underlying assets. Libra’s decentralized form of governance, through a new corporate layer between the central banks and individuals, is likely to undermine the public interests, and it is framed...
as a full-frontal assault to commercial and central banks.\textsuperscript{3} Different from Bitcoin, Libra, built upon Facebook's massive user base, may turn cryptocurrencies into a mainstream but without permission, a system without the involvement of a centralized regulator.

The existing literatures mostly cover specific aspects of the Bitcoin, ranging from the technical mechanism underlying the Bitcoin to inherent risks relating to the production, operation and trading of Bitcoin. The legal scholarship focuses on the economic or financial impacts that Bitcoin may bring to the financial markets. Nonetheless, there is a shortage of legal studies focusing on the law and economics of the Bitcoin, the gap which this article tends to fill.

The key argument of the study is that regulatory responses towards Bitcoin varies largely depending on a particular jurisdiction's economic freedom level. In open economies, the government tends to be more laissez-faire and hence is more likely to adopt a relative market-oriented approach towards Bitcoin, while in economies where the governments grant the monopolistic power to financial institutions, they would tend to be more conservative and reluctant to accept Bitcoin at first.

This study is organized a follows. Firstly it tries to explain the characteristics of Bitcoin followed by a discussion of the challenges and risks that Bitcoin is facing. Thirdly, it conducts a comparative study analysing different regulatory responses in varying jurisdictions and, more importantly, underlying rationales of such regulatory movements towards Bitcoin. The final part is the conclusion.

**BITCOIN'S “PAYMENT SYSTEM”**

The origin of DC can be traced back to the internet and the potential for DC with some advantages over the traditional monetary system has been realised before the Bitcoin. However, Bitcoin, together with its blockchain technologies, was the first system to overcome the issue of double-spending, meaning that the same coins would be sent to several different parties. This was highlighted in a study by Satoshi Nakamoto.\textsuperscript{4} The first set of Bitcoins were generated in January 2009. A little over a year later, Bitcoin took on monetary value when the first economic transaction using Bitcoin occurred: a man used it to pay for a pizza delivery, establishing a real-world value of 4 Bitcoins per penny.\textsuperscript{5} The public trading of Bitcoins started in 2010.

As of January 2021, there were approximately 18.59 million Bitcoins in circulation with a combined market capitalization of approximately $593 billion.\textsuperscript{6} The daily transaction volume is about 373,000 Bitcoins, equivalent to approximately US$12.6m at the current exchange rate.\textsuperscript{7} Bitcoins can be divided into amounts less than one, the smallest one being equal to one hundred-millionth of a Bitcoin. As of 14\textsuperscript{th} February 2016, Bitcoin accounted for around 85% of the world's decentralized DC market value.\textsuperscript{8} Bitcoin's entire creation occurs in cyberspace. In order to participate in the Bitcoin network, a user is required to download the "Bitcoin core" software. This software offers users the possibility to store Bitcoins in so-called digital "wallets". Further, it creates an individual access to the Bitcoin network and the ledger (called “blockchain”) using a standard internet connection. Bitcoins can be acquired either by converting commonly used currencies on one of the exchanges or in a process called "mining", which keeps the transaction record operational and updated.

Cryptography technology is used to store and spend Bitcoins. Every user has a private and a public key, with the former acting as a signature of the user. The real identity of the users is not linked with this private key and transactions are therefore relatively anonymous. A person making a transaction (for a sale of service or good) uses the "public key" of the receiver and confirms it by using the "private key". The public key is used by the sender to encrypt transactions that can only be deciphered by using a second key (private key) known only to the recipient.

Each transaction made is recorded in a public ledger which is similar to the blockchain. This blockchain is considered a public good and represents the basis of the Bitcoin system. Anyone can have access to the blockchain and can keep it operational and updated either directly or through a “pool”. Then she would be compensated with Bitcoins via mining.\textsuperscript{9} The transaction is settled by multiple miners through computer network. The settling process is done within a pool of miners. A miner that participates in this process, as verification process, has to solve increasingly complex mathematical computations (or cryptographic puzzles) to attach blocks to the network, which requires large volumes of computer power resulting in both high energy costs and equipment maintenance. The miner who is the first to solve a mathematical puzzle that correctly helps attach a new block will be rewarded with a Bitcoin for her service.\textsuperscript{10} Another motivation for users to

\textsuperscript{3} Richard Waters and Hannah Murphy, “Facebook’s full- Frontal Assault on Finance”, Financial Times, June 25, 2019.

\textsuperscript{4} https://bitcoin.org/bitcoin.pdf


\textsuperscript{7} https://www.blockchain.com/charts/in-transactions


\textsuperscript{9} Supra note 4

participate in the mining activity is a small fee paid to them based on the size of the transactions verified. Once puzzles (complex mathematical computations) are solved by users, the transaction is being confirmed by grouping it with other new transactions in a “block” or “blockchain.” On average, about each 10 minutes, a new block is added to the blockchain. Each block thereafter also confirms all the previous blocks (going back to 2009). As a result, an individual Bitcoin can be traced back through the moment it came into circulation. Ultimately, blockchain technologies, with Bitcoin being a prominent example, solves the problem of “trust” in financial transactions, a public good that has been thus far provided by either centralized financial institutions, with their sophisticated technologies and long-established business reputation, or central governmental authorities, as backed up by their taxing power, among others. The provision of such a public good by a centralized entity incurs high cost that is shifted to the users, such as in the form of commissions of transaction. Blockchain technologies facilitate decentralized financial transactions, and thereby reducing transaction costs, by solving the trust problem with some kind of “collective wisdom”, namely, miners’ consensus regarding all public records up to date. In practice, according to bitoin.org, one confirmation, a consensus among miners that the transactions are legitimate, can already be sufficient for a low-level small-amount transaction, which is less subject to fraud. However, for larger amounts (normally exceeding US$1,000), it is recommended to wait for at least six confirmations, after which point the chance of having a change in the transactions decreases significantly. Essentially, the Bitcoin payment system differs from the traditional payment system which relies upon banks and bank-centred facilities.

**Key players in Bitcoin’s trading system**

Currency exchanges enable participants (that is, buyers and sellers) to exchange Bitcoins in both other virtual as well as conventional currencies. They function in the same way as commonly known currency exchanges and charge commission fees (between 0.2%-2%). Technical requirements are limited and mainly relating to maintaining infrastructure that can weather hacking attacks. However, currency exchanges tend to be the target for regulatory actions. Therefore, the numbers of sizeable currency exchanges are limited.

Digital Wallet Services are used to store the private keys that are needed to sign transactions and access Bitcoin addresses. From a technical point of view, Bitcoins are not actually stored. Currently there are several different ways to maintain desktop wallets. The most common ones are desktop wallets and online/mobile wallets.

Desktop wallets require the user to download a specific software (that is, Coinbase, Electrum, or Trezor) in order to manage their files. Not only are desktop wallets relatively difficult to maintain and can require much storage space (30 GB for the entire blockchain), they can also be risky as a computer failure or hack can be equivalent to the loss of the Bitcoins. For these reasons, the online/mobile solutions are far more popular. These digital wallet services including ones both online and offline can mainly be distinguished by whether or not they offer to store the private key instead of leaving the responsibility to the user. Both options are at risk of compromising the private key and therefore the potential loss of the Bitcoins. A third and less commonly used option are hardware wallets that can hold private keys.

Mixers are services that help to mask information of transactions by putting them into random combinations. Mixers tend to solve problems that appear when Bitcoins transactions are made. Due to the attachment of the public key as pseudonym to the relevant transactions, others can track previous transactions of the users. This service helps to ensure anonymity by “mixing” different transactions thereby masking the originator of the funds. These mixers can be combined with digital wallet services. However potential problems can occur as flows of similar amounts tend to be rare and effectiveness remains to be proven. Additionally, the fees charged by mixers can be quite considerable (1-3%).

Mining Pools are groups of cooperating miners who agree to share block rewards in proportion to their contributed mining hash power. As mentioned above, miners are rewarded with Bitcoins when they help to verify transactions. Given that the rewards are getting smaller and the mathematical puzzles that are required to be solved become more difficult, mining pools put together resources from miners each awarding a fair share of the awarded Bitcoins. The two biggest pools were F2Pool and Poolin as of December 2020, which combined made up approximately 32% of Bitcoin mining. Mining pools are desirable to the average miners in the sense that they smooth out rewards and make them more predictable. However, mining pools concentrate power to the mining pool’s owner. There is a potential risk if a pool groups more than 50% of miners, wrong transactions could be recorded. This has not happened to date, but if it would be the case, the integrity of the system might be at stake. The other

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potential concern is related to the mining centralization in China. In other words, most mining pools are in China only with Chinese websites and support.

**Key defining characteristics of Bitcoin**

There are four main distinctive features of Bitcoin that set it apart from traditional currencies, including the decentralized nature, issuance limit, anonymous transaction and direct transactions without intermediaries. These features present Bitcoin as a challenge for the real financial and regulatory system.

**Decentralized nature**

Bitcoin was the first peer-to-peer payment network driven by its users without the permission or involvement of central bank or government authority. It is able to issue currency without any other third parties’ involvement except that users participate in the mining process. There is no central institution that can control the Bitcoin network, not even the creator Satoshi (it is not clear whether this is a pseudonym or a real person) himself. The system is supported by all the users helping to confirm transactions. This is opposite to the traditional currencies that are issued, recorded and controlled by a central bank. This lack of government backing, or inherent worth, is also one of the key features that makes Bitcoin fail to satisfy the key criteria of being a bona fide currency. 15 While a decentralized system can avoid political intervention, it is purely subject to a supply and demand equilibrium, which has led to a higher volatility of Bitcoins than widely used currencies.

Libra, like other cryptocurrencies, is likely to disrupt and weaken the monetary sovereignty of nation states. As cryptocurrencies attract and enable people to use alternative currencies to fiat currencies, the use of cryptocurrencies will weaken the nation states’ ability to control the monetary supply, the local means of exchange and the ability to impose capital controls. A foreseeable consequence is a collapse of the financial safety network centred on the network of central banks, and its interconnected financial stability. The decentralization of Libra and other cryptocurrencies forms a new centralization without nation states or their regulators, which creates a new form of uncertainty and monopoly in the financial sphere.

**Limited issuance of Bitcoins**

The only way new Bitcoins come into the system is through the process of mining. However, not only will the complexity of the mathematical equation to confirm transactions increases, but the number of Bitcoins awarded for solving them is reduced. The supply of Bitcoins is inherently fixed in the system, with the Bitcoins awarded set to be halved every four years until eventually no Bitcoins will be awarded after the threshold of 21 million Bitcoins has been reached. 16 In the traditional currency system, the opposite is the case. Central banks or authorised commercial banks can always issue the currency which is used as a tool for making and executing monetary and economic policies with the aim of maintaining the commodity price stability. The Bitcoin system therefore faces a deflationary challenge, which can potentially keep it from becoming a unit of account.

**Anonymous transactions**

The private key of users is not linked with the identity. As a result, transactions have a certain degree of anonymity. Bitcoin can be transacted without being personally identified. Anyone may transfer money around the world, virtually anonymously, by trusting only code. "Mining" or other systems that allow one to put trust in computer code instead of in centralized institutions. While in the traditional currency system, transactions are tightly coupled with an account like a bank account and complex structures can be established to hide the identities of persons. This characteristic of Bitcoin can therefore be an advantage for people with a preference for privacy. On the other hand, it also attracted several non-compliance activities such as tax evasion, which becomes a concern to monetary authorities everywhere. While individuals want more privacy from banks and counterparties that can see their data and transactions, transacting bitcoins also attracts criminals. The solution is dubbed “controllable privacy”, which, like cash, aims to allow one transact without handing over personal details by being “loosely coupled” with an account.

In reality, information linked to the Bitcoin transaction can still reveal the person behind it. Further, at the point of interaction with the traditional currency systems, such as exchanges, the identity of users can be shown. Another problem with anonymity is that the user may not have access anymore to his/her bitcoins if the private key is lost or stolen. The trade-off between privacy and control will be one of the great political battlegrounds of the coming decades.

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16 Supra note 15, p. 2
**Direct-finance transactions**

Bitcoin is considered a peer-to-peer payment system without the involvement of intermediaries. This means that it would be cheaper, easier and more secure to transact with the digital currency than with cash. Counterfeiting would become less of an issue. Transactions logs (blockchain) are maintained and confirmed by other users that participate in the "mining" process. As a result, the transaction fees are considerably lower for Bitcoins. While the system for establishing fees is relatively complex, the idea behind it is to compensate the miners for their efforts. This is especially the case once the maximum limit of Bitcoins issued is reached and the only motivation of "miners" to participate in the system is to receive a transaction fee. Nonetheless, the fee is considerably low with some transactions not incurring any fees and a current average of approximately 7 US dollars. Libra is also supposed to meet a market need and reduce friction in the financial system by serving people who do not have access to traditional banking.

**The case of China: unique response as a solution**

The Chinese government is apparently in a dilemma. On one hand, its regulatory stance on cryptocurrencies needs to appeal to the population. The Chinese were some of the most enthusiastic adopters of bitcoin due to the technical easiness to skirt capital controls. On the other hand, the Chinese government has been a long-term sceptic of any flexible investment channels that could allow the people to get money out of the country. Thus, the anxiety caused by bitcoins is obvious. On December 3, 2013, the PBOC, China’s central bank, and four other central government ministries and commissions jointly issued the Notice [2013] No.289 (henceforth 'The Notice') on Precautions Against the Risks of Bitcoins. Defining it as a special "virtual commodity," instead of fiat currencies, which are issued by the country’s monetary authority and are then not mandatorily accepted legal tender, the Notice says that by nature the Bitcoin is not a currency and should not be conducted and used in the market as a currency. Banks and payment institutions in China are prohibited from dealing in bitcoins. Retailers are banned from accepting bitcoins. The Notice requires that, "at this stage, financial and payment institutions may not use Bitcoin pricing for products or services, buy or sell Bitcoins, or provide direct or indirect Bitcoin-related services to customers, including registering, trading, settling, clearing, or other services; accepting Bitcoins or using Bitcoins as a clearing tool; and trading Bitcoins with Chinese Yuan or foreign currencies". However, the government allows citizens to freely participate in the online trading of these virtual commodities. The Notice further specifies that the oversight of websites providing Bitcoin-related services should be strengthened. It also alerts the danger of using Bitcoin for illegal activities such as money laundering.

Prior to the Notice, Bitcoin value was equivalent to renminbi 7,000 and as a result of this PBOC Notice, the value instantly dropped as low as renminbi 4,523.12. The decline of the Bitcoin value in China had a ripple effect and led to a reduction of Bitcoin’s global value in the amount of US$ 5 billion in 2013.

Despite the official prohibition on the usage of Bitcoin as a currency, China in reality appears to be the leading market for Bitcoin trading. In March 2015, Goldman Sachs claimed that over 80% of the Bitcoin trading volume took place in China with the leading platforms such as Huobi, OKCoin and BTC China.

The BTC China weekly trading volume hit an all-time high in January 2018 (168.8 million yuan, or $24.3 million), but has gradually dropped.

In addition to the unexpected popularity in Bitcoin’s trading volume, another unforeseeable aspect is reflected on the recent high-profile investment on a start-up company, Blockstream, which focuses on developing blockchain technologies. The highlight of the investment funding is not only about the amount of fund raised—US$ 55 million—but also the source of fund, such as from high-profile investors including the wealthiest man in Hong Kong Mr. Lee Ka Shing and AXA Strategic Ventures. Through ICOs, IEOs (initial exchange offerings) and private sales, funds raised reached a high point of $10 billion in 2018. The Chinese government later aimed to reassert control, and has taken a series of regulatory measures to crack the unexpected popularity in Bitcoin’s global value.

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down on cryptocurrency-related activities due to potential financial risks associated with these “virtual commodities”. The PBOC in 2017 began enforcing tougher regulation on exchanges that made buying bitcoin easy.\(^{23}\) It reversed course by shutting down all domestic exchanges and, for purposes of investors protection and financial risk prevention, completely banning initial coin offerings (ICOs) that raised cryptocurrencies like Bitcoin and Ethereum to fund new ventures.\(^{24}\) Financial risks involved in such illegal ICO include the illegal issuance of tokens or securities, illegal fundraising, financial fraud or pyramid selling. However, millions of Chinese still possess and trade it, mostly through overseas exchanges and local brokers that arrange P2P trades without an exchange.

The government then took a different track by offering an alternative to the population. The PBOC has been exploring issuing its own DC since 2014. Ramping up this exercise in 2017, the PBOC set up small-scale experiments with mock transactions between it and commercial banks as the first layer for issuance and redemption purposes while the commercial banks would re-distribute this DC to retail market participants as the second layer. The PBOC Vice Governor Fan Yifei made a groundbreaking announcement detailing the PBOC plan for issuing a DC, which resembles cryptocurrencies like bitcoin. The then PBOC Governor Zhou Xiaochuan in March 2018 released the news that the PBOC had been conducting a study of digital currency for over three years. The PBOC completed trial runs on the algorithms needed for a digital currency supply. The difference lies in the fact that this DC, backed by the central bank, is a digital form of the sovereign currency, with manageable anonymity and encryption features, centrally controlled like a routine fiat currency and backed 1:1 by fiat reserves.

The aim of the Bitcoin or other forms of DC is to replace cash, competing with bank deposits and other financial products. While cash virtually becomes untraceable and can be transacted with no records, the digital version replacing the cash have “controlled anonymity”. The PBOC plan effectively allows the Chinese government to use its own DCs with the same legal status as the renminbi to increase control. The plan makes strides not only on the technical side but also in the arguably more difficult process of obtaining consensus in a cautious political system and buy-in of banks. The PBOC’s plan again indicates the Chinese government’s dilemma. While it views DCs as a threat or challenge it cannot control, it also wants to capture some of the benefits of DCs like bitcoin by embracing the technology underlying bitcoin without relinquishing control. This regulatory approach of simultaneously using and controlling bitcoin not only marginally improves the central bank’s existing monetary systems and control but also has a great impact on other central banks and financial regulators which can ponder their own plans to issue DCs. These efforts would start with a digital substitute for cash that allows for institutional learning and experimentation without requiring a fundamental rethink of money and monetary policy. While the issuance of China’s own DC increases the renminbi’s turnover rate and global reach, it may also increase capital outflows that would weaken the renminbi.

The PBOC also plans to impose transaction limits to ensure that the DC is primarily used for small payments. These limits would be consistent with existing policy that tries to make large cash payments cumbersome. China’s largest paper bill is the 100 yuan note (approximately US$15), making it much harder to make large payments in yuan than in other currencies with larger denominations – the US$100 bill. It is not yet clear how this work when the nuts and bolts of transaction clearing and settlement, security, and the methods of holding the new currency in digital wallets are not yet public. By doing so, the PBOC is able to maintain flexibility in monetary policy when interest rates are cut down to the zero lower bound as imposing daily and annual transaction limits gives the central bank more tools to control the velocity of money and its supply when the interest rates cease to be a viable channel for intervention.

The PBOC explores the ways to automatically implement “smart” contracts with computer code. While the potential to add new social functions is viewed positively, including automating taxpaying and blocking terrorism financing, smart contracts will not be a part of the digital currency, at least this stage. Legal footing does not yet exist to issue a DC that goes beyond traditional functions of a routine currency like a store of value, medium of exchange, and unit of account. If this pilot works, the PBOC may be able to lobby for changes to the legal framework under which it operates that would allow smart contracts to be built in.

Considering that Bitcoin’s demand is high in the financial market and its related technological development and investment opportunities are welcomed by major market players, then what is the underlying challenge that justifies the PBOC’s regulatory prohibition? In the following part of this article, a comprehensive list of challenges would further be analyzed.


\(^{24}\) On September 4, 2017, seven Chinese central government regulators - the People’s Bank of China (PBOC), the Cyberspace Administration of China (CAC), the Ministry of Industry and Information Technology (MIIT), the State Administration for Industry and Commerce (SAIC), the China Banking Regulatory Commission (CBRC), the China Securities Regulatory Commission (CSRC), and the China Insurance Regulatory Commission (CIRC) - jointly issued the Announcement on Preventing Financial Risks from Initial Coin Offerings (ICO Rules) according to which the irregular sale and circulation of tokens and engagement in public financing without official authorization are illegal.
PROBLEMS AND CHALLENGES FACED BY BITCOINS

This section is dedicated to an overview of a number of challenges with a specific focus on China. Within the Bitcoin system, besides the platform providers and users, the policy makers and regulators are also playing an important role with each one of them facing a unique set of challenges.

Usage risk

Value volatility risk

Like any other currency, DC faces market risk via fluctuation in the exchange rate between bitcoin and other currencies. Different from Bitcoin which is subject to high volatility, Libra is backed by a reserve fund of short-dated securities from stable governments. This means Libra’s value might fluctuate against a specific fiat currency but will be relatively stable as the association would mint new coins only as demand for Libra increases. But this does not change the fact that the value of cryptocurrencies can be highly volatile.

Most traditional currencies in developed economies enjoy relative low volatility. The price stability is important for an efficient economy as well as individuals and businesses having confidence in its transactions. While new adopters might have taken into account the risk of higher volatility as part of using a new currency pre-2013, the continued price spikes over relatively short periods of time can be a source of concern. When for instance a country officially announces a ban on DC, its value would drop dramatically. This scenario has occurred when the PBOC issued the Notice to impose a ban on Bitcoin, which resulted in the price collapsing over 70% within a short period of time in 2013. Even until recently, sharp changes in prices have not been uncommon, which raise the question of DC, especially Bitcoin, being a suitable medium for exchange.

In addition, at times there is a low volume of Bitcoins being traded in the market, which can be a problem for a user intending to trade a relatively large number of Bitcoins. Not only can this be cumbersome for the traders, but it can also increase the volatility of the DC and bring with it the aforementioned disadvantages.

Platform insecurity risk

Bitcoin exchanges can technically be classified as banks as they do not only provide exchange services but also store Bitcoins for users. However, while banks are heavily regulated in order to prevent systematic risk in a financial safety net which consists of a deposit insurance scheme (up to remunibi 500,000), this is not the case for Bitcoin intermediaries, resulting in serious risks. For example, given the sheer number of Bitcoin exchanges (estimated at over 200), they tend to appear and disappear on a regular basis. Popular platforms have more often been subject to security breaches due to hackers interfering with the system. After discovering a security breach, Bitfinex, a Hong Kong-based exchange, claimed that it had halted all trading on its platforms, as well as all deposits to and withdrawals from the exchange. Some media reports pointed to around 120,000 Bitcoins – worth about USD65million – having been stolen. Bitcoin sank as much as 15% after one of the largest exchanges trading the DC informed the market it was hacked. The empirical study affirms a negative correlation between the exchange’s average transaction volume and the probability of its premature closure.

The extent of the loss that the users of the platform might encounter during an attack is beyond their control and only a more advanced firewall might provide some protection. Lower-volume platforms on the other hand have often stopped services without explanation. The study also found that 46% of the platforms that closed down did not reimburse Bitcoins to their customers. There was also a serious case revealed by the PBOC about the ‘disappearance’ of a Bitcoin platform in China in 2014. The platform advertised that there was a tenfold return on Bitcoin holdings and successfully drew more than 4,000 members to buy Bitcoins through the platform. The clients later discovered that the platform was no longer active and that they were not able to retrieve the money. It turned out to be a scam as the platform manager was using the cash to purchase real estates, commercial spaces and consumer products and to gamble and never intended to deliver the promised high return. To prevent loss of Bitcoins, some

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users have favored services such as digital wallets. However, such firms as inputs.io and most recently, Ledger, have also been subject to hacker attacks and their users suffered serious losses.\textsuperscript{32}

Before the Notice was published, Bitcoin was only classified as a virtual commodity in China and the public was free to buy and sell at their own risk. In order to ensure financial safety, it was first requested by the Notice that the Bitcoin trading platform must be legally registered with the Telecommunications Bureau in accordance with the People’s Republic of China’s Telecommunications Regulations and the Internet Information Service Managing Guidelines.\textsuperscript{33} Later, restrictions were imposed by the ICO Rules on the primary business of cryptocurrency trading platforms, which are prohibited from converting legal tender into cryptocurrencies, or vice versa. Such platforms were also prohibited from purchasing or selling cryptocurrencies, setting prices for cryptocurrencies, or providing other related agent services. Non-compliance with these restrictions would lead the government authorities to shut down the website and mobile applications of platforms, remove the application from application stores, or even suspend the platform’s business licenses.\textsuperscript{34} These restrictions eventually shut down their trading business in China. To strengthen this hardline, the government blocked websites related to cryptocurrency trading and ICOs including foreign platforms.

Financial systemic risk is certainly a major concern to the financial regulators. A Great Chinese Wall is set up by the ICO Rules which prohibits financial institutions and non-bank payment institutions from directly or indirectly providing services for ICOs and cryptocurrencies, including opening bank accounts or providing registration, trading, clearing or liquidation services.\textsuperscript{35} Nor can they provide insurance services relating to ICOs or cryptocurrencies. This effectively cut off the channel between the fiat currency and cryptocurrency. The government further retreated its support for or connection with the cryptocurrency by removing existing, preferential policies for Bitcoin mining companies in terms of electricity prices, taxes, or land use, and guide the orderly exit of such companies from the Bitcoin mining business. As a consequence, many Bitcoin mines in China have stopped their operation.\textsuperscript{36} The reports say that Bitcoin traded with Chinese yuan dropped from over 90% of global Bitcoin trading to under 1%.

**Unenforceable contract risk**

Despite Bitcoin being considered a virtual commodity by the PBOC thereby setting a legal framework, there is lack of enforcement mechanisms with regard to the disputes such as double spending and dissatisfaction with a product paid for by Bitcoins. When there is an error with the transaction, one may only rely on the receiver to revert the fund transmitted due to the DC’s decentralized and anonymous nature and the technical difficulty in identifying the counterpart. The protocol of Bitcoin does not offer a function by which transactions can be reversed by force. The fundamental difference from the centralized currency is that there lack the authority to monitor irregular transactions for the customers and assume ultimate liability for any errors. Intermediaries such as PayPal have several dispute resolution processes, which can for example lead to the buyer being refunded with the money in the seller’s PayPal account in case of positive ruling by PayPal, a private regulatory authority.\textsuperscript{37} Moreover, there can also be transaction risks when trading and sending Bitcoins. Transactions are not considered final until confirmed by several sources and added to the blockchain. However, a new block is only added about every 10 minutes, which creates potential issues. To begin with, there is a risk, albeit low, that a block that has already been added to the chain is overridden. This refers to the risk related to a single party which has more than 51% of control over the network mining power. Such a party could undertake potentially fraudulent activities since a simple majority is enough to decide whether or not transactions are legitimate. Second, users with bad intentions can spend Bitcoins more than one time before the new block is added to chain. In the meantime, steps have been taken to prevent such double-spending no matter how some risks will remain.\textsuperscript{38}


\textsuperscript{34} Announcement on Preventing Financial Risks from Initial Coin Offerings.

\textsuperscript{35} This ban on banks and non-bank institutions was placed by the Notice on Precautions Against the Risks of Bitcoins in 2013. Banks and payment institutions in China must not deal in Bitcoins; use Bitcoin pricing for products or services; buy or sell bitcoins; or provide direct or indirect Bitcoin-related services, including registering, trading, settling, clearing, or other services. They are also prohibited from accepting Bitcoins or using Bitcoins as a clearing too, or trading Bitcoins with Chinese yuan or foreign currencies.


Privacy risk

There is a risk of abuse or loss of privacy to Bitcoin users as transactions could be traced back to them. Although users might believe that transactions are anonymous as real names are not communicated, other information that is attached to the transaction might be sufficient to link back to the real identity. Especially when the Bitcoin system links to the traditional financial institutions, for example when Bitcoins are exchanged for other currencies, users’ real names can be revealed.

This is also the case for Libra which relies upon a payment system embedded into its messaging services. Users using Facebook’s app can easily and inexpensively send money to friends or make purchases. Facebook, as a social networking company with 2.7 billion users, can propel cryptocurrencies into the mainstream, which was the primary goal of Bitcoin a decade ago. Amid other differences such as transaction costs, Facebook shares one similarity with banks in that both possess the private data of customers. Privacy activists as a result are among the key opponents to the idea of Libra due to the potential possibility that Facebook may use its users’ financial information for advertising purposes. Financial or antitrust regulators subject internet companies including social networking companies to heightened scrutiny even though these companies may try to skirt tough regulation.39

Operational risk

This risk can refer to activities relating to hacker attacks over the technical system as mentioned above in relation to the DC platforms. One major threat is the ability of a group of miners who may gather more than half of the computational capacity and potentially alter the blockchain.40 Although this has not happened yet and the potential mechanism for defense could be developed, there is a potential for creating a serious issue which could result in a lack of trust for Bitcoins.

The other key operational risk is the denial-of-service attacks on Bitcoin intermediaries. In such attacks, firms are flooded with a high volume of requests and messages that result in services not being available or extremely slow. A potential motivation of such an action is to prevent other parties from participating in validating the blockchain, that can increase the importance of other participants. Further, hackers could threaten service providers with denial-of-service attacks and ask for ransom. Although such attacks are quite common, Bitcoin is a relatively easy target due to its business nature. This is not only detrimental to the service providers but also to Bitcoins as a whole. Compared to the traditional financial system which also relies on technology and is subject to hacker attacks, Bitcoin is much more vulnerable as it is fully web-based.

Non-compliance risks

Money laundering

The traceability for DC is limited as anonymity can avoid the name to be used to open an account. Further, transactions are recorded in the public ledger, which prevents them from being associated with the identities in the real world. This unique feature has a direct impact on destroying financial integrity. This is not merely a theoretical concern of the government, but an issue which has been confirmed by industrial developments in recent years.

In the World Drug Report 2014, the United Nations Office on Drugs and Crime identified that Bitcoin is used for online illicit drug transactions, thereby facilitating the sophistication of these global transactions. The dismantling of the most widely broadcasted online drug-trafficking website called Silk Road in the US, an operation that lasted three years, revealed 9.5 million bitcoins which were worth US$ 1.2 billion at the time of 2013.41

In battling against the money laundering risk, the Financial Action Task Force, an independent inter-governmental body, published an extensive list of recommendations concerning DC anti-money laundering and counter terrorist financing standards. It is pointed out that the regulatory focus placed on the participants that are involved in the DC exchange into fiat currency process includes but is not limited to rules governing the entire stablecoin system, issuance, redemption and stabilization of the value of digital currencies, transfer mechanisms and interactions with users. 42 Although these recommendations are extensive, there are continuous challenges in the implementation process. Difficulties arise because each jurisdiction has its own priority and approach in preventing money laundering activities. In China, any association between the DC platform and the regulated financial institutions is forbidden.43 Italy, on the other

hand, only issued a precautionary warning on the use of DC in order to discourage the financial institutions to trade in DCs.44

Capital control breakdown

DC has potential to disrupt existing payment system or even monetary system.45 DC can also be used to evade cross-border capital controls.

For countries that have a foreign exchange control regime, DC’s decentralized characteristics can obviously be taken advantage of and used as a channel to bypass the capital control regime. This can be done by purchasing the DC anonymously online with minimal transaction costs but without an exchange limit, unlike the traditional exchange through centralized banks that have a limit of US$5,000 per person per day.46 This serves as one major justification for the popularity of Bitcoin trading in China. With the increasingly growing DC trading market in China, this can ultimately be destructive for the government’s control on exchange outflow.

Tax evasion

There is no mechanism in verifying the user’s identity during the process of registering an account. As a result, regulators may not monitor how much DC a taxpayer owns and hence it is impossible to tax the profits resulting from buying and selling DC.

Further, there are complications with the definition of gain and loss for the tax purpose that depends on the different classification of the DC as decided by the governments. If the DC is defined to be a commodity, then one pays a VAT when the DC is sold; if it is an asset, then a wealth tax would apply on the market value of the DC on a certain date; whereas if it is a currency, then one will need to recognize foreign gain and loss for the transaction to be taxed. As a result, given the volume of global transactions, the governments will find it impossible to have a unifying tax system for DCs and it is inefficient to impose any measures for tax system. When a government manages to classify DC and impose a tax system upon it, the record tracking for collecting tax is heavily relying on the intermediaries, which may leave room to the possible tax evasion. While the government can always chase after the intermediaries for tax collection purposes, given the nature of these cyber intermediaries, however, some of them may not be properly registered entities which the government can regulate easily; others may not fall within the jurisdiction of regulation. At present, without the ability to formulate an efficient tax system for the DC, the higher volume of DC that citizens possess, the higher the tax loss of the government will suffer.

REGULATORY CHALLENGES

In China’s context, with PBOC’s classification of Bitcoin as a virtual commodity in 2013, three main potential risks related to its use were officially identified: the volatility risk, risk of money laundering and potential criminal activity. Nevertheless, in the same Notice, the PBOC expressed only little concern over Bitcoin due to its limited trading volume, and the financial and payment institutions’ restriction on the handling of Bitcoin transactions. As a result, the PBOC considered that Bitcoin was currently not a risk for China’s financial system.47 The Chinese regulators would need to establish a more comprehensive regulatory framework because of the technology’s ever changing nature and 80% of Bitcoin mining is performed in pools, of which five of the six largest are in China.48 Resultantly, regulating the financial and payment institutions is simply insufficient if the government intends to subdue the DC’s trading in China.

Classification challenge

DC can be classified in a variety of ways: a currency, a commodity, or a payment system. There are some key similarities between Bitcoins and traditional currencies. None has intrinsic value and both are recognized as a medium of exchange. While classifying DC as a currency would be an obvious option, the DC lacks several key characteristics of traditional currencies. In fact, due to the design of the Bitcoin system, there are many similarities with commodities especially in terms of the supply structures. The similarities include the decentralized nature

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without being monopolized neither by the government nor the private sector. Costs of production are both high. DC is of a decentralized nature and has an inflexible supply (the case for Bitcoin but not all DC). The availability of Bitcoin is inflexible and the commodity supply is also inflexible. Both are scarce resources. There is also a relatively high cost of production due to electricity consumption for the “mining” process. Without a consistent classification, it is impossible to benchmark DC in order to determine its legal treatment and regulatory design. There is no standard approach in order to establish a legal base for the use of the virtual currency and the disparity of definition amongst various jurisdictions which makes the regulation coordination even more ineffective.

The complex nature of DC leads to a long deliberation process for an agreement on a classification at a national level. The DC’s particular multinational nature further makes regulators find it inefficient to gather statistical data and to enforce the law. Although international organizations over the years have acknowledged the potential risks associated with Bitcoin, comprehensive international standards must be established in order to guide and enhance the regulatory collaboration across jurisdictions.

**Inefficient regulation implementation challenge**

In addition, the DC’s decentralized nature adds another layer of complication in asserting jurisdiction over the virtual currency: the lack of a central intermediary like in the traditional financial model makes it difficult for the regulator to attribute liabilities. As a result, it becomes even more ambiguous as to which party within the virtual currency system should be regulated and once again, different jurisdictions would have different priorities in doing so as shown in Table 1.

**Consumer protection challenge**

When a conflict occurs in a DC transaction, technical difficulties arise when retrieving evidence. One reason is related to the difficulty in identifying the user through its DC profile. The other reason is the mere availability of electronic evidence as the whole transaction is completed through the cyberspace.

**DIFFERENT REGULATORY RESPONSES TO BITCOIN**

**Different responses to Bitcoin**

There are currently three major approaches towards the legal status of Bitcoin in various jurisdictions, that is, positive, restrictive or negative. Countries that take a positive approach towards Bitcoin include the United Kingdom, Germany, France, Canada, the United States, Japan, Australia, New Zealand, and Singapore. A restrictive approach is adopted by China, India, and Ecuador. Countries like Pakistan, Bolivia, Saudi Arabia, Qatar and Vietnam respond negatively toward Bitcoin. This section selects the approaches of the U.S. and China as the target of study due to the following four reasons. First, more than 97% of Bitcoin exchanges presently involve the Chinese renminbi and U.S. Dollars. The exchange volume of Bitcoin in renminbi accounts for 68% of, and US Dollars for 24% of the total. The exchange volume of Bitcoin by the market in renminbi accounts for 62%, and US Dollars constitutes 14% of the total. However, the Bitcoin Charts Source currently does not include renminbi. The ICO rules drove DC trading onto the black market so current official numbers are not available for China. Second, China and the U.S. are the cases which represent the different stages of shaping regulatory attitudes towards Bitcoin—from conservative to positive and from restriction to regulation. They are considered the leading indicators of future policies towards Bitcoin in the positive and restrictive groups respectively. Third, China is a typical example of countries which applies financial repression whereas the U.S. is an example of implementing the financial liberalization policy. Although they are both leading economies, China is a typical representative for developing countries whereas the U.S. for the developed countries. There is a significant difference between their levels of economic freedom.

The approach of the Chinese authorities towards Bitcoin is said to be skeptical and quasi-prohibitory. On 3 December 2013, the PBOC and four other central government ministries and commissions jointly issued the “Notice on the Prevention of Risks Associated with Bitcoin” (hereinafter referred to as “the Notice”) for the purposes of safeguarding the interests and the legal standing of

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52 Ibid.
53 https://bitcoincharts.com/charts/volumepie/.
Table 1: Bitcoin vs. Traditional Currency*.

<table>
<thead>
<tr>
<th>Risk</th>
<th>Bitcoin</th>
<th>Fiat currency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volatility</td>
<td>High volatility</td>
<td>Moderate to low for most currencies</td>
</tr>
<tr>
<td>Platform security</td>
<td>Low regulation and more difficult to control</td>
<td>High regulation and deposit guarantees</td>
</tr>
<tr>
<td>Transactions</td>
<td>Lack of mechanism to reverse incorrect or fraudulent transactions</td>
<td>Financial services firm generally provide dispute resolution mechanism</td>
</tr>
<tr>
<td>Privacy of users</td>
<td>In theory anonymous, in practice certain information can reveal true identity</td>
<td>Not anonymous</td>
</tr>
<tr>
<td>Operational</td>
<td>Due to system design prone to hacker attacks and subject to operational issues</td>
<td>Well-developed although operational issue can appear at times</td>
</tr>
<tr>
<td>Non-compliance</td>
<td>Relatively high risk especially due to anonymity and ease of cross-border transactions</td>
<td>Relevant but necessitates more effort due to heavy regulations of financial services firm</td>
</tr>
<tr>
<td>Type of risk</td>
<td>High exchange risk</td>
<td>Inflation risk</td>
</tr>
<tr>
<td>Supply Nature</td>
<td>Privately decentralized</td>
<td>Public monopoly</td>
</tr>
<tr>
<td>Issuance Volume</td>
<td>Fixed to 21 million of Bitcoins</td>
<td>Flexible according to Central Bank’s economic decision</td>
</tr>
<tr>
<td>Medium of exchange</td>
<td>Minimal especially in Bitcoin restricted market</td>
<td>Yes</td>
</tr>
<tr>
<td>Production cost</td>
<td>High (computer consumption for solving puzzles)</td>
<td>Low</td>
</tr>
<tr>
<td>Centralized Ledger</td>
<td>Not recorded by government</td>
<td>Recorded</td>
</tr>
<tr>
<td>Risk to inflation</td>
<td>Not for independent DC</td>
<td>Possible due to mismanaged monetary policy</td>
</tr>
</tbody>
</table>


Renminbi, preventing the risk of money laundering, and maintaining financial stability. The Notice represents China’s restrictive regulatory response to the use of Bitcoin in China. It outlines five major points: (1) Bitcoin is a “virtual commodity” rather than a currency circulated in the market;55 (2) financial and payment institutions may not use Bitcoin to price products or services, buy or sell Bitcoins, provide direct or indirect Bitcoin-related services; 56 (3) websites serving primarily as Bitcoin trading platforms must, according to the Telecommunications Regulations of the People’s Republic of China and the Internet Information Services Managing Guidelines,57 legally register with the Telecommunications Bureau; 58 (4) it also warns about the high risk of using Bitcoin for money laundering and other crimes;59 (5) it requires that financial and payment institutions guide the public to establish a correct understanding of currency and virtual goods and commodities.60 The Notice also points out that “Bitcoin trading constitutes a method of buying and selling commodities online, and ordinary people are free to participate, as long as they are willing to assume the risk.”61 This allows individuals and some non-financial institutions to participate in Bitcoin trading, an exception to the general restriction.

In the U.S., there is a lack of regulatory clarity even though several government agencies have their own definitions of Bitcoin, and have taken various measures to investigate and regulate Bitcoin for the purpose of fitting it into the existing regulatory framework without restricting its use. On the federal level, the U.S. does not officially declare Bitcoin as a currency. However, in SEC v. Trendon T. Shavers and Bitcoin Savings and Trust (2013),62 the Federal Judge Amos Mazzant for the Eastern District of Texas ruled that “Bitcoin is a currency or form of money,” and is therefore subject to relevant U.S. laws. On 25 March 2014, the Internal Revenues Service (the “IRS”) issued a notice providing that virtual currency, like Bitcoin, is treated as the property for U.S. federal tax purposes.63 General tax principles apply to

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55 Para 1 of the Notice.
56 Para 2 of the Notice. Including registering, trading, settling, clearing or other services; accepting Bitcoin or use of Bitcoin as a clearing tool; trading Bitcoin with CNY or foreign currencies; storing, escrowing, and mortgaging in Bitcoin; issuing Bitcoin-related financial products; and using Bitcoin as a means of investment for trusts and funds.
57 Telecommunications Regulations of the People’s Republic of China, Article 1; Internet Information Services Managing Guidelines, Article 1.
58 Para 3 of the Notice.
59 Para 4 of the Notice.
60 Para 5 of the Notice.
61 Para 1 of the Notice.
transactions using virtual currency. Further, the U.S. Justice Department also echoes and in 2013 stated that Bitcoin is a legal means of exchange. The SEC cleared a blockchain start up to start selling bitcoin-like digital tokens, which could give young cryptocurrency businesses a new fundraising template in the US. President Trump appeared to be doubtful about the standing or dependability of Libra in his tweets even though the Libra coin is to be pegged to a basket of government-issued currencies. His unofficial response to Libra coin is subject to all banking regulations, domestically and globally.

England may be ready to engage with the new era of digital currencies. The Bank of England is ready to allow tech companies to store funds overnight at the central bank so that they can leave deposits with commercial banks. This not only adapt the central bank to this new revolutionary move of cryptocurrencies but also bring own costs for these payments systems. This is also a step moving towards issuing digital currencies by the central bank by giving tech companies and commercial lenders the equal footing.

**Rationalities for the different responses to Bitcoin**

**Legal and policy perspectives: Two largest economies as examples**

**- China:**

China’s quasi-prohibitory approach begs several questions: (1) why does China define Bitcoin as a virtual commodity instead of a currency? (2) Why are certain restrictions imposed on financial and payment institutions? (3) Why are some Bitcoin-related activities tolerated under this approach? This part of the study will examine the first and third questions, and the second question will be analyzed from the financial perspective.

There may be a number of major reasons for China’s classifying Bitcoin as a virtual commodity instead of a currency. First, some inborn features of Bitcoin make it an undesirable currency at this stage. Bitcoin has no intrinsic value, and its worth relies on its usefulness as a currency in the consumer economy. Some scholars point out that for Bitcoin to be a *bona fide* currency, it needs to have a daily stable value so that it can serve as a reliable store of value. The volatility of Bitcoin grew 305 percent in 2020 alone. Its excessive volatility in value is more consistent with the behavior of a speculative investment than that of gold (averages around 1.2%) and other major currencies (average between 0.5% and 1.0%). Second, the Chinese government intended to cool down an excessively speculative Bitcoin market when the price of a Bitcoin reached an all-time high of US$1124.76 on 29 November 2013. Meanwhile, the open approach of the U.S. had bolstered Bitcoin fans’ confidence in Bitcoins at home and abroad. As a result, speculators piled in, and more capitals had been poured into the Bitcoin market. In order to discourage public participation in the speculative and risky market, the PBOC issued the Notice to define Bitcoin as “a virtual commodity”. Third, China believes that virtual currencies like Bitcoin might challenge the legal status of renminbi and undermine the existing monetary system in China. The Law of the People’s Republic of China on the People’s Bank of China provides that “legal tender of the People’s Republic of China is renminbi.” The renminbi therefore should be the only currency circulated in the Chinese market. The governments usually declare their money to be legal tender, so-called fiat money, to ensure the wide acceptability of government-issued money. The difference between the money’s value in exchange and its cost of production is regarded as seigniorage. As far as the government fiat money is concerned, the seigniorage goes into general revenues, whereas, in terms of Bitcoin as a decentralized open source money, the seigniorage belongs to private producers who use the computer technology to create new coins over the cyberspace. The popular usage of Bitcoin may reduce the seigniorage income for

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68 Hannah Murphy, “Donald Trump Hits out at Facebook’s Libra and Bitcoin”, Financial Times, July 12, 2019.


70 Andy Chan, ‘Here’s How Bitcoin Gets its Value’ Towards Data Science (21
revenues. Although the amount of income is trivial, particularly for the high-income states, the negative impact may increase with a growing demand for Bitcoin. In addition, Bitcoin, if defined as a currency, may adversely affect the Central Bank's sovereign monopoly power to issue the currency.

Although the Notice requires financial and payment institutions not to use Bitcoin pricing for products or services, buy or sell Bitcoin, and provide direct or indirect Bitcoin-related services, it still leaves some room for the participation of individuals and non-financial institutions in Bitcoin trading and transactions. There may be two reasons for this leeway. First, certain tolerance to innovative products, like virtual currencies, could be an effective way to boost the development of Internet-based finance in China. The importance of developing Internet-based finance has been repeatedly emphasized by the Chinese government in a variety of official reports on the work of the government from 2014 onwards. Virtual currencies being a rudimental form of Internet-based currency has been and will be widely used for economic activities on the Internet. For example, virtual currency transactions in China amounted to US$2 billion in 2008, and this figure is at an annual growth of 20%. Internet-based currency is conducive to independent pricing for digital goods, wealth effect due to online accounts, facilitation of transaction between members, creation of economic activity on the online network. Bitcoin is regarded as the most prominent virtual currency. Unlike other virtual currencies such as Amazon Coins and World of Warcraft's Gold, Bitcoin can be both exchanged for legal currency and used for purchases. Considering the wide acceptance and fast growth of Bitcoin, China has to pay ever-increasing attention to its role in facilitating the development of Internet-based finance rather than absolutely confining it.

The second reason is the practical concern of the coordination problem. Technically, it is impractical to completely stop the circulation of Bitcoin worldwide solely depending on a few several countries' domestic prohibition. Bitcoin is a distributed, peer-to-peer, and decentralized system. A Bitcoin node is part of the network that allows Bitcoin to operate in a way it does. It has been developed to estimate the size of the Bitcoin network by finding out all the reachable nodes in the network. As of 2019, there was an estimated 10,000 operational nodes. Therefore, only if all the global peer-to-peer networking is discontinued then one may say that the circulation of Bitcoin ceases. The national zero-tolerance policies towards Bitcoin in one or several countries has a limited impact, and may give rise to more legal grey areas of Bitcoin.

The Notice is subject to several criticisms. First, the Notice mainly concerns the benefits and responsibilities of the PBOC, but does not respond to some potential problems caused by the unique features of Bitcoin. For example, the Notice does not address the tax issue associated with Bitcoin trading, whether certain legislation should be made to protect the use of Bitcoin, how to tackle Bitcoin-related crimes. Although the Notice acknowledges Bitcoin as a "virtual commodity" rather than a currency, it does not give a detailed explanation of virtual commodity. The Chinese law defining the term remains vague and controversial. In fact, the Notice does not fundamentally resolve any difficulty on defining Bitcoin. The intention of the PBOC may be to warn the public that Bitcoin is not a legal tender but a speculative virtual commodity with high risk. However, it has been pointed out that it may be more appropriate to recognize Bitcoin as an innovative virtual property in China. The basic attributes of property include value, scarcity, and exchangeability. The value of Bitcoin comes from the consumption of mining efforts. The scarcity of Bitcoin is based on its limited available amount. Bitcoin can be traded in the market freely. However, whether or not Bitcoin has value is still debated. The Notice actually leaves lots of unsolved issues for further interpretation and improvement.

The United States

Although it is generally accepted that the use of Bitcoin in the U.S. is legal, there is no consensus on the status of Bitcoin. The status quo is that Bitcoin has been regarded as

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79 Li Zhao, ‘Legal Analysis of Bitcoin’ (Maser thesis, Shanghai Shifan University 2014) 41.
80 Ping Xie et al., Internet Finance in China: Introduction and Practical Approaches (China Perspectives) (Routledge, London 2016) 83.
87 Li Zhao, ‘Legal Analysis of Bitcoin’ (Maser thesis, Shanghai Shifan University 2014) 44.
88 Ibid.
“a currency”, “form of money”, “legal means of exchange”, and "properties" by various authorities in the U.S.

The current status of the U.S. regulation of Bitcoin is not clear-cut due to the federal-state court system. On the federal level, the Financial Crimes Enforcement Network (FinCEN) is the major regulatory authority, which requires that every business dealing with cryptocurrencies have a Money Services Business (MSB) status which constitutes a prerequisite to any exchange or a payment processor operating legally in the U.S. territory. FinCEN regards Bitcoin miner and Bitcoin exchange as MSB. Nevertheless, on the state level, state authorities’ responses to Bitcoin demonstrate discrepancy, especially in terms of a Money Transmitter License (MTL). New York state is the only state with a final Bitcoin rule known as BitLicense which came into effect on 15 August 2015 and specifically regulates the activity of Bitcoin and crypto companies in the state of New York. In other three states, Montana, South Carolina, and New Mexico, no MTL is needed for any business that operates virtual currencies. The rest states either require business to be registered as money transmitter or not have a settled view on this matter as shown in Table 2.

The Table is complicated due to different opinions of various regulators and judges on whether Bitcoin qualifies under legal definition of money. Two U.S. courts defined Bitcoin as money. The case SEC v. Trendon T. Shavers and Bitcoin Savings and Trust (2013) has received extensive media exposure as Judge Amos Mazzant held that “Bitcoin is a currency or form of money.” This statement was misunderstood by some media which posted a report entitled “Decision of US District Court: Bitcoin is Legal Currency” online. This description is a misrepresentation, and caused the public to perceive incorrectly the status of Bitcoin in the U.S. Some scholars suggest that the sole sentence in the judgment should not be exaggerated to carry too much weight because this was only a decision of U.S. Federal District Court which was not authoritative enough to form a precedent. In another case United States of America v Ross William Ulbricht (2013), Judge Katherine Forrest held that federal money-laundering statues are broad enough to encompass use of Bitcoin.

By comparison, some regulatory authorities argued that Bitcoin is not money. The IRS declares that Bitcoin does not have a legal tender status and it should be treated as property rather than a currency. The IRS connected currency to legal tender and as such would not equate Bitcoin with other forms of money. The U.S. Department of Justice vaguely stated that Bitcoin was a “legal means of exchange” to avoid using the term “money” or “currency”.

In fact, neither view is incorrect, and, more importantly, they are not mutually exclusive. There is no uniform interpretation of “money”, and the different conclusions by both sides come from their different purposes when interpreting the term. In the two judgments, it would be unfair and unacceptable to allow criminals to escape the punishment merely because they committed crimes by means of innovative form of money. In this vein, judges interpreted federal statues to encompass a more comprehensive definition of money which does not limit the term to the scope of government-issued money. The IRS considers virtual currency as property for the purpose of federal taxation. The description of virtual currency as a “legal means of exchange” by the U.S. Department of Justice is said to strengthen the prospect of wider acceptance as alternative payment system.

In addition, it should be noted that only the federal government in the U.S. has the power to confer the status of legal tender upon monetary objects and has exercised this power with respect to Federal Reserve notes and coins minted by the United States Mint. Therefore, it is safe to conclude at this stage that Bitcoin is not legal tender in the U.S., and whether it constitutes “money” depends on the definition of “money” by the relevant authorities for their own purposes as shown in Table 3.

Financial perspectives

In China, the Notice requires that financial and payment institutions not use Bitcoin pricing for products or services, buy or sell Bitcoins, offer insurance products associated

Table 2: Regulation of Bitcoin on the Federal and State Levels in the U.S.

<table>
<thead>
<tr>
<th>Level</th>
<th>Regulatory Authority</th>
<th>Responsibilities</th>
<th>Guidelines/Rules</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>Financial Crimes Enforcement Network (FinCEN)</td>
<td>Legal Status of Bitcoin</td>
<td>Application of FinCEN’s Regulations to Persons Administering, Exchanging, or Using Virtual Currencies (2013)*</td>
<td>Bitcoin miner and Bitcoin exchange are Money Service Business (MSB)</td>
</tr>
<tr>
<td>State</td>
<td>The New York State Department of Financial Services (NYSDFS), New York State</td>
<td>The only state with a Bitcoin rule</td>
<td>BitLicense (2015)</td>
<td>Specifically regulates the activity of Bitcoin and crypto companies in the state of New York</td>
</tr>
<tr>
<td></td>
<td>Montana, South Carolina, and New Mexico</td>
<td></td>
<td></td>
<td>No Money Transmitter License needed</td>
</tr>
<tr>
<td></td>
<td>Other states</td>
<td></td>
<td></td>
<td>Either require businesses (exchanges and payment processors) to be registered as money transmitters or do not have a definite view on this matter</td>
</tr>
</tbody>
</table>


Table 3: Different definitions of Bitcoin by various authorities in the U.S.

<table>
<thead>
<tr>
<th>Authority</th>
<th>Responsibilities</th>
<th>Event/Document</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Revenue Service (IRS)</td>
<td>Taxation</td>
<td>IRS Virtual Currency Guidance (25 March 2014)</td>
<td>Virtual currency is regarded as property for federal taxation.</td>
</tr>
<tr>
<td>Federal Reserve</td>
<td>Monetary Authority</td>
<td>Although the Federal Reserve generally monitors developments in virtual currencies and other payments system innovations, it does not necessarily have authority to directly supervise or regulate these innovations or the entities that provide them to the market**</td>
<td>Ben Bernanke said virtual currencies may hold a long-time promise, particularly if the innovations promote a faster more secure, and more efficient payment system.</td>
</tr>
</tbody>
</table>

* Federal money-laundering statues are broad enough to encompass use of Bitcoin in financial transactions.
** Although the Federal Reserve generally monitors developments in virtual currencies and other payments system innovations, it does not necessarily have authority to directly supervise or regulate these innovations or the entities that provide them to the market.
with Bitcoin, or provide direct or indirect Bitcoin-related services to customers including "registering, trading, settling, clearing or other services; accepting Bitcoin or use of Bitcoin as a clearing tool; trading Bitcoin with RMB or foreign currencies; storing, escrowing, and mortgaging in Bitcoin; issuing Bitcoin-related financial products; and using Bitcoin as a means of investment for trusts and funds." 98

Understanding the scope of this not-to-do provision requires a definition of financial and payment institutions under Chinese law. There is no official explanatory note for "financial institutions". Jack Wong, a co-founder of a Bitcoin startup and developer of Bitpass, suggests four categories of financial institutions based on Baidu Baike’s definition compiled from previous notices: (1) the Central Bank, that is, the PBOC; (2) banks, that is, commercial banks, policy-oriented banks, and rural banks; (3) non-banking financial institutions, that is, insurance companies, securities companies, investment banks, credit unions; (4) Foreign-owned, overseas Chinese-owned (including Hong Kong, Macau) and joint venture financial institutions operating in China. 99 As far as "payment institutions" are concerned, Article 3 of the Administrative Measures for the Payment Services Provided by Non-financial Institutions (the "Measures") 100 provide that "to provide payment services, a non-financial institutions shall obtain a Payment Business Permit under these Measures and become a payment institutions. Payment institutions shall be subject to the supervision and administration of the PBOC." Article 7 adds that the PBOC is responsible for the issuance and

98 Para 2 of the Notice. Including registering, trading, settling, clearing or other services; accepting Bitcoin or use of Bitcoin as a clearing tool; trading Bitcoin with CNY or foreign currencies; storing, escrowing, and mortgaging in Bitcoin; issuing Bitcoin-related financial products; and using Bitcoin as a means of investment for trusts and funds.

99 Jack Wong, ‘China’s Statement on Bitcoin is Open to

management of Payment Business Permits. Article 8 outlines the requirements which should be met by an applicant in order to obtain a Payment Business Permit. Accordingly, a limited liability company or joint-stock company (at the same time it must be a non-financial institution) legally formed in China satisfying the requirements in Article 8 of the Measures can qualify as payment institutions in China.

After knowing the scope of the targeted institutions under the Notice, the next step is to know why these institutions are restricted. This may be explained by reference to the financial repression policies applied by the Chinese government as part of its development strategy since the economic reform in late 1970s. According to Ronald McKinnon, the term “financial repression” is used to describe policies allowing the government to regulate interest rates, set high requirements on bank deposits and mandatorily allocate resources in the economy. These financial repression policies are actually a double-edged sword. Although the policy is often blamed for constraining financial development and negatively affecting the efficiency of the financial system, its existence and implementation, as put forward by Joseph Stiglitz, could be justified by imperfect information to support financial stability. Stiglitz blames the process of financial liberalization in developing countries for the frequent occurrence of financial crisis in the past decades. It is thus argued that countries with high level of imperfect information should insist on financial restraints for the purpose of maintaining financial stability. Two Chinese scholars, Huang and Wang, after examining the influence of financial repression on China's economic growth during the past three decades, tend to prove that repressive financial policies have indeed boosted the economic development in China. The frequently mentioned repressive financial policies in China include credit controls, reserve requirement, interest rate controls, barriers of entry, and exchange rate control. This part of the study will mainly focus on the market entry restriction which may help explain the special arrangements in the Notice.

As a matter of fact, the restriction imposed on the participation by the financial and payment institutions in Bitcoin businesses and transactions is reflective of the market entry restriction contained in the financial repression financial policies adopted by China at this stage. Nowadays, many industries in China are still heavily regulated and remain off-limits to foreign or even domestic privately owned companies despite China’s entry into the WTO in 2001 which brought some liberalizing measures to China’s trade and economic environment. Any foreign industry with an intention to entering the Chinese market must first consult the 2011 Catalogue for the Guidance for Foreign-Invested Industries which groups foreign investment projects into prohibited, restricted, encouraged and permitted categories. The category of "restricted foreign investment industries" covers “section VII banking and insurance industries" including:

1) Banks, finance companies, trust investment companies, currency brokerage companies
2) Insurance companies (the share of life-insurance companies is less than 50%)
3) Security companies (confined to A share consignment-in, B share, H share and government and company bonds consignment-in and transaction, the foreign-capital is less than one-third), security investment fund management companies (the foreign-capital is less than 49%)
4) Insurance brokerage companies
5) Futures companies (Chinese should hold the majority of shares)

All these industries are within the scope of “financial institutions” under the Notice. Under the financial repression policies, the market entry restriction is not only intended to limit foreign investors, but also to segregate domestic investors from favored state-owned or government-involved ones. By contrast, the financial liberalization policy, adopted by the U.S., largely treats domestic and foreign participants equally and does not establish any entry barriers to foreign investors. The prudential regulation with the goal of securing the soundness and stability of the financial market is put in place to regulate the market. The financial liberalization

8 Article 8: An applicant for a Payment Business Permit shall meet the following requirements:
1. It is a limited liability company or joint-stock company legally formed inside the People’s Republic of China and it is the corporate body of a non-financial institution;
2. Its registered capital has reached the minimum requirements of these Measures;
3. It has capital contributors that meet the requirements of these Measures;
4. It has at least 5 senior managers who are specialists in the payment business;
5. It has anti-money laundering measures which meet the prescribed requirements;
6. It has payment facilities;
7. It has a good organizational structure, sound internal control rules and effective risk control measures;
8. It has business sites and safety precautions which meet the prescribed requirements; and
9. Neither the applicant nor any of its senior managers has received any punishment for any violation or crime committed through the payment business or illegally providing payment services in the last three years.


105 Ibid. p.47.

policy is welcomed mostly amongst developed countries which aim to expand their market, boost innovation of products, technologies and services and survive the global competition. As repressive financial policies are playing a decreasing role in supporting the economic growth, the Chinese authorities have taken certain measures to gradually reduce the degree of financial repression by liberalizing its financial policies.

On 1 December 2015, China announced a negative list regime which tends to loosen the market entry restriction for foreign investors in certain industrial sectors and such relaxation will be spread nation-wide by 2018. Unlike a positive list regime, the negative list regime aims to improve the “openness, fairness and transparency of the Chinese market.”

Government intervention in some industrial sectors and business activities not covered by the list will decrease. The State Council released the Decision on Amending the Regulation of the People’s Republic of China on the Administration of Foreign-Funded Banks which came into force on 1 January 2015. The decision has lifted various constraints on foreign-invested banks in respect of market entry and renminbi business operation, a significant move to further open up the banking sector to foreign investments. Despite these efforts, the degree of financial repression in China is still beyond the world average.

China’s transformation to become an open market is unaggressive and it remains in a repressive financial market in a foreseeable period before every aspect is ready for such transition. Restrictions on financial institutions’ participation in Bitcoin business under the Notice are actually a natural product under such financial repressive policies.

Economic perspectives

In addition to legal and policy causes, there may also be economic reasons for the varying attitudes adopted by countries towards Bitcoin. The level of economic freedom may, to some degree, affect regulatory attitudes towards Bitcoin in various countries with some exceptions.

The level of economic freedom is reflected by the relationship between individuals and the government – any state action or government control would directly interfere with individual autonomy and hence limits economic freedom. The goal of economic freedom is not to have an absolute absence of government interference. Rather, it tends to strike a balance between proper government actions and maintenance of certain market freedom. The Index of Economic Freedom conducts a comprehensive research on various aspects of economic freedom in more than 178 countries. The ten measured aspects are grouped into four broad categories: (a) rule of law (property rights, freedom from corruption); (b) government size (fiscal freedom, government spending); (c) regulatory efficiency (business freedom, labor freedom, monetary freedom); (d) market openness (trade freedom, investment freedom, financial freedom).

The chosen countries whose regulatory responses to Bitcoin can be identified based on available data, and then pinpoint these countries in the Table of Ranking the World by Economic Freedom provided in the Index of Economic Freedom. These counties can be grouped into three categories based on their positions on Bitcoin: negative, restrictive, and positive as indicated in Table 3.

It can be seen from Table 3 that the majority of top 50 countries with a high level of economic freedom tend to take a more user-friendly regulatory approach towards the use of Bitcoin except for Iceland. Although Iceland, ranking 13th, enjoys a high score of 77.1 for economic freedom, it becomes the only one among the top 50 countries which is against the legality of Bitcoin. On 19 March 2014, the Central Bank of Iceland issued a statement to the effect that digital coins are not recognized and protected as a legitimate currency. Another exception is Chile (ranking 15th) which enjoys high economic freedom and is still in the transitional period moving from zero regulation over the use of Bitcoin currently to potential recognition of the legality of Bitcoin in the future. Interest in using Bitcoin is growing gently in Chile. In absence of regulation over the use of Bitcoin, the transactions are informally conducted. Among the top 50 countries, data in relation to the official stance on Bitcoin of Mauritius and Bahrain are not available.

Countries like Thailand, Indonesia, Vietnam, Russia, Bangladesh, Bolivia, and Ecuador are ranked below 50th in terms of the level of economic freedom. Their regulatory responses to the legality of Bitcoin are negative. However, Brazil is an exception to the norm: it has low economic freedom score but has set out a legal framework to formally embrace Bitcoin under certain laws. On 9 October 2013, Brazil enacted Law No.12.865 that creates the possibility for the normalization of mobile payment systems and the creation of electronic currencies including Bitcoin. Law no. 12.865 also grants the Brazilian Central Bank regulatory

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108 Ibid.
109 Ibid.
110 Ibid.
112 Ibid.
113 Ibid.
115 Ibid. p.5.
power over electronic currencies. Some analysts suspect that Brazil's legalizing Bitcoin may be attributable to the country's 12-year high inflation rate. According to the data from the country's national statistics office, the consumer price inflation in Brazil has hit record high of 9.57% on 27 September 2015. Some Bitcoin favorers believe that people will trade currency into Bitcoin in order to protect their money value when the national currency depreciates more severely. As suggested, it may not be the real reason behind the whole act of legalizing the use of Bitcoin in Brazil. The evidence observed that when inflation is high people have the option to buy government bonds which offer about 14% return a year. This is very attractive compared with the most profitable held funds in the U.S. Therefore, it is unreasonable for people to shelter themselves from a 9.6 percent inflation per year by using Bitcoin when the Bitcoin volatility is about 50-plus percent per year. Nobody will prefer using a more volatile asset to protect themselves against a less volatile one. The legal adoption of Bitcoin may not be attributed to the high inflation rate in Brazil. It should also be noted that the Receita Federal, Brazil's tax authority, is taking a similar stance as the US Internal Revenue Service in spite of some differences. Like the IRS, Brazil regards digital currencies as financial assets with a 15% capital gains tax at the time of sale.

The general trend summarized above may be challenged by the third group of countries which adopts a restrictive approach towards Bitcoin. Within this group, the level of economic freedom may not have an obvious impact on their conservative regulatory response to the use of Bitcoin. In spite of their restrictive approach, their ranking covers a broad range from 9th to 160th in terms of the economic freedom level (see Table 3). These in-between countries may have their own considerations for introducing certain Bitcoin policies regardless of the level of their economic freedom. For instance, Hong Kong regards Bitcoins as a virtual commodity rather than an electronic currency.

Unlike other countries with a high level of economic freedom, the Hong Kong government insists that there be no need for legislation directly regulating or imposing a ban on Bitcoin-related activities. There are several possible reasons behind this flexible no-action approach. The PBOC's policy against the use of Bitcoin in China brings an opportunity for Hong Kong to become a global hub for Bitcoin entrepreneurs and businesses. Bitcoin entrepreneurs, vendors, and payment facilities have been gathering in Hong Kong to take advantage of its laissez-faire and tech-friendly regulatory environment. Hong Kong may have potentials to absorb part of China's Bitcoin market. Following this logic, Hong Kong may not be willing to turn down tremendous economic benefits associated with Bitcoin business opportunities. On the other hand, the use of Bitcoin does not pose a substantial threat to Hong Kong's financial system given its lack of wide acceptance within the region. Also, some existing laws such as the Organized and Serious Crimes Ordinance in Hong Kong provide sanctions against unlawful acts involving Bitcoins such as fraud or money laundering. In addition, financial institutions in Hong Kong are subject to strict reporting requirements "when establishing or maintaining business relationships with customer or clients who are operators of any schemes or business relating to virtual commodities." The Hong Kong government indicates its unwillingness to take any action before countries like the United States clear policies on Bitcoin.

To sum up, countries with a higher score of economic freedom are most likely prone to support the legality of Bitcoin and integrate Bitcoins into the existing regulatory frameworks whereas counties that have low economic freedom (in particular below 50th ranking) currently do not desire to legalize the use of Bitcoin directly. However, this general rule may not be applicable to countries adopting restrictive policies on the use of Bitcoin. Given that the amount of exceptional cases is minimal, it is fair to say that

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116 Ibid. p.3.
120 Ibid.
the higher the economic freedom is the more likely that the country will adopt a friendly attitude towards the legality of Bitcoin as shown in Table 4 and Figure 1.

**FUTURE OF BITCOIN**

Considering the complicated nature of Bitcoin worldwide, how Bitcoin will evolve in the future has triggered heated discussions among scholars and analysts. Pro-Bitcoin group believes that Bitcoin will gradually enjoy a wider acceptance and play a more influential role in the future. Some scholars believe that Bitcoin is the combination of several innovations—a peer-to-peer network, a proof-of-work algorithm, a distributed time stamped accounting ledger and an elliptic-curve cryptography and key infrastructure—which is revolutionary to the financial market. It has brought lots of common benefits: fast transaction at low costs (including fast cross-border transfers without fees for remittances), a low-cost method of electronic payment compared to tradition credit card payment, potential for further innovation (examples are, transfer of other types of data, stocks or bets). As discussed above, even for countries like Thailand which bans Bitcoins, it still leaves room for the use of Bitcoin by companies under the condition of obtaining business licenses. Likewise, China still allows individual participation in Bitcoin transactions.

Nevertheless, other scholars are not optimistic about the future of Bitcoin. Their major concerns include: (1) Inborn defects in Bitcoin’s attributes; (2) Bad reputation for criminality; (3) Risk in uncertain regulation. These are all the hurdles to Bitcoin’s adoption and popularity as a legitimate currency. China’s Bitcoin policy always has a significant effect on the price of Bitcoin. After the Notice was issued by the PBOC at the end of 2013, the massive drop in the price of Bitcoin has made more people adopt conservative attitudes towards the future of Bitcoin.

In fact, it is impossible to crack down Bitcoins entirely at this stage because of its advantage and wide acceptance compared to other digital currencies. And there is no need to do so. Bitcoin adoption is expected to achieve further growth through super infrastructure; and greater adoption rates will then upgrade its reputation among the market players. Meanwhile, regulatory authorities from various jurisdictions are taking steps to offer rules and regulations to individuals and enterprises on how to integrate this innovative product into the financial market and legal systems. Currently, some countries like the U.S. are regulating Bitcoin by insufficient legislation or rules which are yet to be further developed; other regions like Hong Kong are taking wait-to-see attitude, and do not have any regulation for Bitcoin; some countries like China prohibits Bitcoin directly but still leaves room for its use in certain situations.

Since Bitcoin is the first widely accessible cryptocurrency, it is not easy to predict how the Bitcoin economy will look in the future. However, it may be true that “Bitcoin will not be dying any time soon.” Meanwhile, it is unlikely to become a leading actor in the role of cryptocurrency in the future. Bitcoin’s innate shortcomings—decentralization, unstable price, and facilitation of crimes—as well as its changing regulatory landscape lead to regulatory oversight and make it difficult to develop regulatory instruments. The irreversible trend may not be that Bitcoin will flourish or fail. Rather, it is the fact that cryptocurrency will stay and evolve over time. A new developed cryptocurrency overcoming the weaknesses of Bitcoin will eventually emerge to replace Bitcoin, if Bitcoin loses its popularity as a dominant digital currency for certain reasons one day. Some Chinese scholars even predict that the digital currency may one day become a competitor to the central bank-issued legal money, especially if the issuance of this currency is rules-based rather than predetermined like Bitcoin.

In 2015, Ecuador became the first nation to issue state-backed digital money. Early this year, the PBOC demonstrated its ambition to launch state-backed digital currency, indicating there is no plan to embrace Bitcoin by any means. The motivations behind this move are multiple-faceted. It may help renminbi to offset the global dominance of the U.S. dollar. It will limit capital outflows and reduce the cost involved in circulating banknotes. Facilitating economic activities is the other reason. It also helps banks to improve control of the money supply and enhance payment efficiency as well as combat money laundering. However, it may not be easy to realize these goals. Ben Bernanke, the former U.S. Fed chairman, states that “China’s interest in creating an alternative to the greenback would not work.” The impact of the state-backed digital currency may be limited to the domestic level. In addition, the Chinese government needs to deal with the same challenges as facing Bitcoin - how to strike a balance between tackling illegal activities and respecting user privacy at the same time. According to Xiaochuan Zhou, the PBOC will not use the

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128 Ibid.
Table 4: Countries/Regions adopting restrictive approach towards Bitcoin.

<table>
<thead>
<tr>
<th>Jurisdictions</th>
<th>Economic freedom overall score</th>
<th>Regulated or Not</th>
<th>Official Responses to Bitcoin</th>
<th>Status of Bitcoin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hong Kong</td>
<td>1</td>
<td>No legislation regulating the use of Bitcoin</td>
<td>Hong Kong Monetary Authority decided not to regulate Bitcoin but will keep a close watch at its development and usage (16 November 2013)</td>
<td>Bitcoin is only a virtual commodity</td>
</tr>
<tr>
<td>Estonia</td>
<td>7</td>
<td>The Bank of Estonia monitors financial arrangements that use Bitcoin</td>
<td>Estonian Tax Authority defined the official government position that Bitcoin is an alternative means of payment and income derived from Bitcoin transactions constitutes capital gains subject to taxation (March 2014)</td>
<td>Not create any threat to financial or price stability because of its limited virtual area of circulation Provides users with an alternative to traditional payment system Numerous risks to customers</td>
</tr>
<tr>
<td>Taiwan</td>
<td>14</td>
<td>No legislation regulating the use of Bitcoin</td>
<td>Central Bank of Taiwan and the Financial Supervisory Commission (FSC) issued a warning to the public about the risk in dealing with bitcoins (12 January 2013)</td>
<td>Not a real currency, but a highly speculative virtual commodity Regulatory actions taken by the Central Bank and the FSC towards financial institutions using Bitcoins* Bitcoin ATMs banned</td>
</tr>
<tr>
<td>Jordan</td>
<td>46</td>
<td>The Central Bank of Jordan prohibits banks, currency exchanges, financial companies, and payment service companies from dealing in Bitcoins or other digital currencies.**</td>
<td>Various risks Not legal tender But still accepted for business and merchants</td>
<td></td>
</tr>
<tr>
<td>Lebanon</td>
<td>98</td>
<td>The Bank of Lebanon has issued a Bitcoin warning and outlined various risks associated with digital currencies (19 December 2013)**</td>
<td>Various risks Issuance and use of &quot;e-money&quot; is prohibited under a decree issued in 2000 Prohibit the use of Bitcoin by financial institutions in the country Unclear situation for private citizens</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>123</td>
<td>No legislation regulating the use of Bitcoin</td>
<td>The Reserve Bank of India (RBI) issued a public notice to &quot;users, holders and traders of virtual currencies (VCs), including Bitcoins,&quot; regarding the potential &quot;financial, operational, legal, customer protection and security related risks that they are exposing themselves to.&quot; (24 December 2013)****</td>
<td>A &quot;virtual commodity&quot; rather than a currency circulated in the market Financial and payment institutions may not get involved in Bitcoin-related business No prohibition on individual use of Bitcoin</td>
</tr>
<tr>
<td>China</td>
<td>144</td>
<td>Some restriction imposed by the Notice</td>
<td>The central bank of China and four other central government ministries and commissions jointly issued the &quot;Notice on the Prevention of Risks Associated with Bitcoin&quot; (3 December 2013)</td>
<td></td>
</tr>
</tbody>
</table>

Blockchain because the technology requires too many resources such as computational power, and cannot be an efficient replacement for China’s economy. Other possible technological solutions are being investigated by China. At this stage, the Chinese government is optimistic about the plan for the state-backed digital currency, and believes that it, after creation, will first co-exist with cash for a while. However, China’s long-term plan is under suspicion. Bitcoin, as the most popular virtual currency globally, is decentralized and is not adequately regulated by the banking regulators. Some assume these as big weaknesses whereas the pro-Bitcoin group contends that these are the core strengths of Bitcoin. If China wants to produce a strong state-backed digital currency to combat Bitcoin, it needs to consider in the first place whether it can achieve the same worldwide acceptance enjoyed by Bitcoin which is based on its “shortcomings” the future digital currency intends to overcome. Instead of replacing Bitcoin, it has been suggested that the government utilize its strong computational competency to mine Bitcoins so as to put them under the control of the state thereby discouraging private mining. Meanwhile, regulation of Bitcoin should be established and intermediary organizations should be introduced to Bitcoin-transaction. These may be useful methods worth considerations before an effective state-backed digital currency is born.

CONCLUSION

This study analyzes regulatory responses of different jurisdictions to Bitcoins from legal, policy, financial, and economic perspectives. Apparently, their approaches to Bitcoins have been largely influenced by their economic conditions, policy considerations and legal frameworks. China’s restrictive response to Bitcoin at this stage is reflective of the market entry restriction in its financial repressive policies. Despite some ongoing reforms, the degree of financial repression in China is still higher than the world average. There is a long way to go before China can substantially lower the threshold for domestic and foreign investors to enter into its financial markets. In terms


of economic aspects, the study finds that countries with a high level of economic freedom are likely to legalize and regulate the use of Bitcoin whereas countries with lower economic freedom do not prefer the legality of Bitcoin at an early stage. Countries restricting the use of Bitcoin are an exception to the trend. Therefore, the analysis suggests a positive linkage between the economic freedom and embracing regulatory approach towards Bitcoins. The policy application of this finding is clear as well. A country may only embrace financial innovation when it has a certain level of economic freedom.

Bitcoin, or potentially Libra, is a double-edged sword. It has brought tremendous benefits such as fast transaction, low-cost electronic micropayment, cheap banking alternative, financial disintermediation, and energy of Internet finance, into the economy. Eventually, cryptocurrencies offer an alternative global and frictionless currency to the fiat currency. Meanwhile, it also faces numerous inborn defects and brings various risks to the financial system. Libra, built upon a social networking system, may overhaul the conventional regulatory model to the banking system. Clearly, these digital currencies undermine the sovereign institutions that control currency. Cryptocurrencies pose systemic risks while interfering with the ability of central banks to police the financial system and implement monetary policy. Given these uncertainties and challenges, there is no consensus on the evolution of Bitcoin or digital finance in the future. One thing for sure is the emergence of more tech-enabled financial innovation involving money and finance in the digital age.

China's priority goal of issuing a new state-backed digital currency is seemingly attractive from both economic and legal perspectives. At least, this approach may create a valid connection between fiat and cryptocurrencies, and avoid too severe disruption cryptocurrencies may bring to the financial system. Nevertheless, China is still facing various obstacles when it comes to using Bitcoins and other DCs, or a possible WeChat cryptocurrency, more broadly, other financial innovations such as Fintech. Bitcoin may not be the final answer, but its technologies, evolving process and concept may provide some valuable ideas for Chinese regulators' new design in the age of cryptocurrency.

The arguments against cryptocurrencies are multiple-faceted. First, no currency can be trusted and sustained other than those issued by central banks. Second, cryptocurrencies do not fulfil the criteria of money. Third, the anonymity of cryptocurrency may facilitate "Ponzi scheme" which should be separated from uniformed consumers and investors. The underlying technology also facilitates illegal or criminal activities and their financing. Last but not least, the technology and the associated business model are too disruptive to the financial sector.

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