

The relationship between blockchain and government regulation and governance—The distinctions between different countries

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Abstract. Blockchain technology, derived from the underlying technology of Bitcoin, is a decentralized infrastructure and distributed computing paradigm that has emerged with the growing use of digital technology in the financial sector[1]. This digital ledgers for distributed storage has brought technological innovation for governments to control in areas such as various financial institutions and technology companies. Blockchain is being developed in major countries around the world, and this technology does bring opportunities for innovation in government governance as well as challenges for government regulation of ICOs. In the era of economic globalization, to develop blockchain technology comprehensively also needs to face policies and regulations in different countries. This paper will explore the relationship and impact between blockchain and government regulation and governance through directed analysis method, combined with application cases, and compare the regulatory system under different countries' policies and national conditions.

Keywords: Blockchain, Government, Regulation And Governance, Different Countries.

1. Introduction

Blockchain technology originated on November 1, 2008, when a person or organization with the net name Satoshi Nakamoto published a paper "Bitcoin: A Peer-to-Peer Electronic Cash System" in the cryptography mailing list on the Metzdowd.com website [2]. Blockchain has gone through three different stages. Blockchain 1.0 is the budding of the technology, Blockchain 2.0 is the technical implementation of blockchain in the direction of finance and smart contracts. And blockchain 3.0 is the solution to the problem of mutual trust in all walks of lives and the landing and realization of data transmission security technology. NASDAQ in the United States took the lead in launching a securities trading platform based on blockchain technology in December 2015, which became an important milestone in the trend of decentralization of the financial securities market [1]. And the emergence of blockchain-related policies in China can be traced back to 2013. From 2013 to 2021, China's overall attitude towards blockchain industry has gradually developed from strict regulation in 2013 to positive response in 2015-2017 and then to actively promote the development of blockchain in various industries at present. In 2020-2021, China has written blockchain into the "14th Five-Year Plan", aiming to accelerate the integration of blockchain with various industries and expedite the process of industrial digitization. The characteristics of blockchain, such as decentralization, non-tampering, traceability and

high security, are well suitable for the concept of joint participation and collaborative control of multiple subjects in social governance [2]. Governments around the world differ greatly in their practice of combining technology and control.

2. Global market overview

According to CoinMarketCap data, as of July 3, 2022, there are 20,091 coins in the global digital currency market, with a total market capitalization of about \$870.8 billion, of which the total market capitalization of the TOP 30 digital currencies is about \$834.9 billion, accounting for about 95.88% of the total market capitalization of all digital currencies. The top three global digital currency coins in terms of market capitalization are: BTC, ETH and USDT.

According to the "Blockchain Industry Business Model Innovation and Investment Opportunities In-depth Analysis Report" published by the Foresight Industry Research Institute, the global blockchain market size is expected to increase from \$411.5 million in 2017 to \$7,683.7 million in 2022, equivalent to a CAGR of 79.6%. The global blockchain industry scale will keep growing, and China remains the second largest single country in the global blockchain market scale, with the market size of China's blockchain industry reaching \$5.36 billion in 2021, an increase of \$2.117 billion or 65.3% year-on-year from 2020.

3. China's blockchain policies

As a disruptive technology, blockchain can both enable and disrupt government governance, which is the reason that General Secretary Xi Jinping emphasized the need to "strengthen the guidance and regulation of blockchain technology and strengthen the research and analysis of blockchain security risks"[3].

In December 2013, the People's Bank of China, the Ministry of Industry and Information Technology, the China Banking Regulatory Commission, the China Securities Regulatory Commission and the China Insurance Regulatory Commission jointly issued the 'Notice on Preventing the Risks of Bitcoin', which stress the attributes and riskiness of bitcoin and had earlier regulated the anti-money laundering (AML) regulatory obligations and KYC (Know Your Client) mechanism for the industry[4]. In 2017, the first step in China's aggressive regulation of digital currencies was the "Announcement on Preventing Risks of Token Issuance and Financing" jointly issued by seven ministries and commissions, which pointed out that virtual currency financing and trading is essentially an unapproved illegal financing behavior with multiple risks and required to stop issuing and complete the withdrawal as soon as possible, and in 2018, five departments, such as the Banking and Insurance Supervision, issued a reaffirmation of the "Notice on Preventing the Use of "Virtual In January 2019, the State Internet Information Office issued the "Regulations on the Management of Blockchain Information Services", marking the gradual maturation of the regulation of blockchain applications in the financial sector. The regulations, which were officially implemented on February 15, 2019, characterize the four core elements of regulatory objects, regulatory subjects, regulatory methods and legal responsibilities, which are the official standardized regulation of blockchain services. So far, China has identified virtual currencies such as bitcoin as illegal financing, and no organization or individual is allowed to engage in token issuance and financing activities, which are illegal in China.

3.1. Influence on social governance

The current application of blockchain technology in the financial field is the most successful and the most mature. Its features like polycentricity, difficult data tampering and distributed storage are suitable for many economic activities in the financial field, such as bill financing, credit financing, cross-border payment and insurance management. These applications not only improve the efficiency of transactions and reduce the cost of financial services, but also cross time and space constraints, while meeting the needs of various institutions such as the government as well as the people [2].

Secondly, in the judicial field of electronic deposition has some mature applications and perfect regulations. The definition of electronic data is clearly defined in the Provisions of the Supreme People's

Court, the Supreme People's Procuratorate and the Ministry of Public Security on Several Issues Concerning the Collection, Extraction, Examination and Disposal of Electronic Data in Handling Criminal Cases [5]. The characteristics of blockchain technology combined with judicial control make the deposition of electronic data more efficient, while reducing the cost of the parties' rights protection and promoting the construction of a credit system in society. 2018, Hangzhou Internet Court made a first instance judgment against a media company in Hangzhou for infringing the right of information network dissemination dispute against a technology development company in Shenzhen, and awarded a technology company in Shenzhen to compensate Hangzhou media company for economic losses, the case The case was the first application of blockchain technology in the field of intellectual property, and was called the "first case of blockchain electronic depository", and was also the first case in China in which blockchain electronic depository was recognized as legally valid [2].

3.2. The challenges ahead

The Blockchain Industry Security Analysis Report shows that from 2011 to April 2018, huge economic losses were incurred worldwide due to blockchain security incidents. While blockchain has the advantages of being efficient, robust, and transparent, its characteristics can also be double-edged. When a participant or hacker controls 51% of the blockchain government network, he or she has the opportunity to undermine the blockchain security mechanism, tamper with and control most of the blockchain, thus forming a monopoly and undermining the democratic mechanism of blockchain technology in government governance.

3.2.1. Security and robustness. The security risk of privacy protection in blockchain is the most important issue that blockchain has faced so far. Blockchain's asymmetric encryption mechanisms will likely become increasingly vulnerable as mathematical, cryptographic, and computational techniques evolve. While blockchains can employ several anonymous or cryptography-based mechanisms to keep information secure, the nodes within the system are not completely anonymous. Although address identifiers are not directly associated with real-world person identities, blockchain data is fully public and transparent, and with the development of various anti-anonymity identity screening technologies, it is likely that some key targets will be located and identified in the future [6]. For the government, if the management key of any node is cracked, all government governance records and citizen information are at risk of being used by unscrupulous elements [3].

3.2.2. The legal system and regulatory system are not sound. First of all, blockchain has no specific address, which leads to legal loopholes in its jurisdictional aspects. The "anonymization" feature of blockchain contradicts the provisions of China's Network Security Law, which stipulates that network operators shall implement a real-name system in their business activities. Secondly, the use of blockchain technology for digital financial transactions requires a corresponding secret key [6]. Once a transaction goes wrong, the supervisory department cannot find the secret key corresponding to the transaction chain in a short time, which further increases the difficulty of supervision.

Blockchain technology can be both a tool to secure government operations and an umbrella to hide criminal activities in the absence of scrutiny. Specifically, the daily operation of the government blockchain is maintained by all network nodes, which means that government regulation of the blockchain is limited to macro-level organization and management, leaving the individual block nodes themselves without oversight [7].

4. The policies of the world's major countries on blockchain

Overseas, many countries and regions are open to the use of virtual currencies. By the end of 2021, the market capitalization of virtual currencies had approached \$3 trillion. Whether as an investment object or a payment tool, the impact of virtual currencies on the industry is huge, and more and more countries are bringing them under regulation[3].

4.1. The United States

The United States, which is the most active in operating virtual currencies, has become increasingly clear on blockchain, but the policy environment remains strict [8]. On June 7, 2022, a bipartisan crypto regulation bill was officially released in the United States. The bill is the first bipartisan attempt to establish a comprehensive regulatory framework for digital assets in the United States, aimed at protecting customers as well as making the cryptocurrency market more stable and clear [9]. Under the requirements of the new bill, stable coin issuers would be required to hold highly liquid assets equal to all outstanding stable coins and to publicly disclose their holdings. In addition, the bill provides for a full tax exemption for crypto transactions under \$200 and would create new federal laws for stable coins, micropayment taxes and regulatory jurisdiction [10].

4.2. The United Kingdom

The UK's Financial Conduct Authority (FCA) treats bitcoin and related cryptocurrencies as commodities. The FCA has said it plans to regulate the new asset type and will also step in to regulate bitcoin-related derivatives. The UK government plans to announce a new regulatory regime for the cryptocurrency market within 2022, with a focus on stable coins. According to John Glen, Economic Secretary of the UK Treasury, the UK government attaches great importance to the cryptocurrency market and related technologies, and will fully support the crypto asset market with an open attitude, at both policy and regulatory levels, so that the UK can be a world leader in cryptocurrency in the future.

4.3. Japan

As a country at the forefront of blockchain industry development in the world, Japan has a strict regulatory system behind it, which has outstanding significance for the establishment of blockchain regulatory mechanism [9].

In May 2019, the Japanese Senate passed amendments to the "Funds Clearing Act" and the "Financial Instruments and Exchange Act" to strengthen the regulation of cryptocurrency trading service providers and trading activities from multiple angles. For example, it requires exchanges to be "licensed" and real-name authentication of users to prevent money laundering and other risks [4].

In Japan, the amendment to the Funds Settlement Act was passed into law on June 3, 2022. The law regulates the operators of "stable coins", digital currencies that are linked to legal tender to stabilize their value. A registration system will be implemented for intermediary companies between banks, trust banks and users that are the main issuers. The aim is to clarify the legal position of stable coins and to protect users of digital currencies.

4.4. Singapore

Singapore has actively embraced fintech, seeking to make Singapore a global hub for fintech innovation. While it has given substantial support, the regulatory aspect is focused on encouraging innovation. Singapore's regulator, the Monetary Authority, has comprehensive and transparent regulation of blockchain. In early 2019, the Singapore parliament passed the Payment Services Act, which will formally regulate digital currencies, specifically defining payment-based token service providers, requiring them to meet anti-money laundering requirements and be approved with corresponding licenses [9]. To further promote the blockchain industry's compliant development in Singapore, the Act was The Payment Services Act will be formally implemented from January 28, 2020, and digital currency exchanges must apply for a license to bring their operations into compliance.

5. Conclusion

Blockchain is a new achievement in the development of financial technology [11]. Overall, the application of basic theory and technology of blockchain in government regulation and governance is still in its infancy. It is necessary to seize the opportunity at the national level, based on national conditions, and actively guide the development of technology and improve laws and regulations. At the

same time, promote the integration and application of blockchain with new generation information technology such as big data, cloud computing and artificial intelligence [2].

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