

Reflections and Suggestions on Blockchain Technology to promote SME Financing -- Taking China as an Example

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Abstract: With the rapid development of the market economy, small and medium-sized enterprises have become an important part of the national economy, in providing jobs, accelerate regional economic development and so on play an important role, but financing is difficult, expensive financing has been the development of small and medium-sized enterprises faced by the dilemma. The emergence of blockchain technology provides a new way of thinking to relieve the difficulties in the development of small and medium-sized enterprises, and helps to promote the healthy and rapid development of small and medium-sized enterprises. This paper takes the integration and development of blockchain and SME financing as the research focus. By analyzing the problems existing in SME financing, this paper puts forward the solutions to solve the pain points by applying blockchain technology, and then gives the policy suggestions to promote SME financing by integrating blockchain technology.

Key words: blockchain; Small and medium-sized enterprises; financing

1 Introduction

In recent years, with the rapid development of the new generation of information and communication technologies and the deepening of the development of networking, digitization and intelligence, the economy and society have rapidly shifted from the information age to the digital age. In the "13th Five-Year Plan for National Informatization" issued by The State Council of China in 2016, blockchain, as an innovative technology, was included in the national action plan, and blockchain rose to the national strategy. In the 18th collective study session of the Political Bureau of the CPC Central Committee in 2019, it was stressed that "we will take blockchain as an important breakthrough in independent innovation of core technologies", "accelerate the development of blockchain technology and industrial innovation" and "actively promote the integrated development of blockchain and economy and society". Blockchain plays an important role in promoting data sharing, optimizing business processes, reducing operating costs, improving collaborative efficiency, and building a trusted system. The deep integration of blockchain and the real economy can effectively solve the problems of financing for small and medium-sized enterprises, risk control for banks, departmental supervision and other problems, maintain the principle of "industry-oriented, finance for use", and effectively improve the ability of financial services to serve the real economy.

2 Literature review

2.1 Research on SME financing

From the perspective of theoretical research, it is mainly divided into two parts: one is the theory of financing structure, and the other is the theory of smes' financing needs. (1) The development of financing structure theory has gone through three stages. First, the early capital structure theory dominated by Durand (1952) established the connection between financing cost and enterprise market value. Second, modern enterprise financing theory based on MM theory; The third is the introduction of information asymmetry theory, game theory, signal theory and other new theories of capital structure, among which the most representative theories include financing sequence theory (Myers, 1984), agency theory (Jensen & Meckling, 1976) and life cycle theory (Weston&Brigham, 1970). (2) There are abundant theoretical explanations for the financing needs of smes. The main viewpoints and conclusions include: first, the theory of financial repression and financial constraint (Mekinnon and Shaw, 1973), which points out the influence of macroeconomic policies such as monetary policy, financial liberalization, banking consolidation and structural adjustment on corporate financing; Second, credit rationing (Stiglitz&Weiss, 1981) and relational lending theory, due to information asymmetry, inevitably lead to adverse selection and moral hazard, which explains that it is more difficult for small and medium-sized enterprises to obtain credit support and so on.

From the perspective of practical research, it focuses on the analysis of the causes and countermeasures of smes' financing difficulties. (1) The reasons for financing difficulties include two aspects. The first is the cause of small and medium-sized enterprises: their own defects (He, 1999; Li et al., 2011; Tan et al., 2022), Information Asymmetry (Lin, Li, 2001; Yang, 2017; Zhao et al., 2022); The second reason is the external environment of financing: the discrimination theory of State-owned banks (Zhang, 1999; Gao, 2014; Liu et al., 2022), The Lack of government and financial intermediary Function (Wang, 2004; Li, 2016; Li et al., 2022), Financial system is not theoretical (Zhou, 2015; Liu Yang, 2021), et al. (2) The countermeasures to solve the financing dilemma of smes are mainly carried out from four aspects: first, accelerate the development of smes themselves (Ji et al., 2018; Xue, 2023); Second, developing the financing service system for smes (Wang, 2016; Zhu, 2018; Meng et al., 2023); Third, the establishment of credit guarantee mechanism (Liang, 2015; Guo, 2022); Fourth, the government's direct participation in indirect support (Yang, 2016; Yu, 2017; Sheng et al.,2022).

2.2 Research on blockchain

Blockchain was proposed by Satoshi Nakamoto in 2008 along with the birth of bitcoin, but the academic research on it began in 2013. As the underlying technology of digital currency, it has the characteristics of decentralization, data security, immutable information and traceability.

For blockchain technology, the research mainly focuses on three aspects: blockchain technology model research, development research and application research. (1) Research on blockchain technology model. NakaraotoF(2008) first proposed the blockchain technology model, VitalikFButerinF(2014) first proposed the Ethereum blockchain model in the white paper, Shen Xin et al. (2016), Shao Qifeng et al. (2017), He Pu et al. (2017) and Xia Haofei (2023) comprehensively introduced the basic technology of blockchain and analyzed the

platform architecture and characteristics of blockchain. (2) Research on blockchain technology development. Poon & Dryja (2016) proposed lightning network scheme, Sompolinsky (2017) proposed off-chain expansion scheme, Haggins (2017) established FTEchian; Han Xuan & Liu Yamin (2017) discussed the consensus mechanism of blockchain, and Yu Hui et al. (2017) studied the capacity improvement of blockchain in depth. Wang Qun et al. (2023) study interoperability and cross-chain technology. (3) Application research of blockchain technology. Yermack (2015) mainly focuses on the application of blockchain technology in corporate ownership registration and corporate governance; Kshetri (2017) evaluates the role of blockchain in enhancing network security and protecting privacy; Kshetri (2018) mainly focuses on the improvement of blockchain technology in supply chain management. Hawlitschek et al. (2018) mainly focused on the application of blockchain technology in the sharing economy system; Yuan Yong & Wang Feiyue (2016), Lin Xiaoxuan (2016) summarized the possible application scenarios of blockchain into digital currency, data storage, etc. Ren Anjun (2016), Wang He & Zhou Yuntao (2016), Ba Jieru (2017) and Lu Zhiqiang & Ge Xinfeng (2018), Ren Chunwei and Meng Qingjiang (2017) respectively introduced the application of blockchain technology in bill market, Internet insurance, cross-border e-commerce, securities clearing and settlement. Zhang Zhiyuan (2021) introduced the application of blockchain technology in supply chain finance; Wang Xin et al. (2023) studied the application of blockchain technology in green emission reduction.

2.3 Literature review

The existing research on SME financing is very rich, not only provides a good theoretical basis and analytical framework, but also points out the future direction in practice, but the traditional financing model has not found an effective solution to the problem of information asymmetry. Different from the traditional financing mode, the emergence of blockchain technology provides a solution to the problem of information asymmetry, and can be a new breakthrough to solve the financing problems of small and medium-sized enterprises. However, the deficiency is that blockchain technology is still in the stage of concept introduction and technical research, theoretical research lags behind practical exploration, and academic research needs to be further developed.

3 Blockchain helps smes solve financing problems

3.1 Solving the problem of information silos

Blockchain, as a distributed ledger technology, collectively maintains a distributed shared ledger, which enables non-trade secret data to be stored and shared among all nodes and enables data to be transferred credibly on the chain, thus greatly solving the information island problem in the financing of small and medium-sized enterprises.

3.2 Restructure the credit investigation system

The emergence of blockchain technology provides another more effective method for the formation and sharing of credit information: the realization of free notarization of the whole network, and the comprehensive and true information can be obtained without the need of financial intermediaries. (Qian et al. 2018)

3.3 Reduce transaction costs

After the application of blockchain, with the help of decentralized blockchain network, enterprises on the chain can realize point-to-point communication and transactions without the involvement of intermediaries, which can reduce the cost of trust. Including search cost, negotiation cost, proof cost, rights protection cost, labor cost.

3.4 Improving the efficiency of financing

Through well-designed smart contracts, firstly, the problem of running away from Internet finance and expensive financing can be effectively solved to ensure the safety and efficiency of financial transactions; Second, it restrains the non-compliance of capital operation after the financing of small and medium-sized enterprises to facilitate financial institutions to manage the transaction behavior; Third, reduce all kinds of risks, such as fraud, operational error, data tampering, performance risks; Fourth, we will improve the level of automated transactions and simplify financing processes such as pre-loan investigation, audit during loan and post-loan management.

4 Countermeasures and Suggestions

4.1 Organize professional teams to carry out systematic research

One is to improve the cognitive ability of blockchain technology. Second, we can learn from the world's practice of applying blockchain technology to help smes raise financing. Third, we will study and judge the development trend of blockchain finance, encourage enterprises to cooperate with universities, and promote the combination of industry and education.

4.2 Accelerating technological innovation and promoting application

First, speed up core blockchain technology innovation. Second, increase the promotion of blockchain financial products. Third, accelerate the implementation of blockchain in SME financing applications.

4.3 Improve laws and regulations to provide quality guarantee

First, establish a legal framework for blockchain finance as soon as possible. Second, we will strengthen the mechanism for protecting consumers' rights and interests.

4.4 Improving regulatory compliance mechanisms and promoting self-discipline in the industry

First, encourage innovation and risk prevention. Second, technical governance and legal governance. Third, strengthen international and domestic cooperation. Fourth, improve the financial blockchain regulatory body setting.

5 Conclusion

Blockchain technology can solve the financing problems of small and medium-sized enterprises by solving the information island, reconstructing the credit investigation system, reducing transaction costs, and improving financing efficiency. Therefore, the government should vigorously support the development of blockchain technology. The main measures are to organize professional teams and carry out systematic research. Accelerate technological innovation, promote the implementation of application; Improve laws and regulations to provide quality assurance; Improve the regulatory compliance mechanism, promote industry self-discipline; Cultivate the introduction of talents and guarantee the supply of knowledge; Establish a blockchain alliance to seize the right to speak in standard formulation.

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