

Innovation of Supply Chain Financing Mode for Small and Medium-Sized Enterprises in China—— Improvement of Supply Chain Financing Performance Based on Blockchain Technology

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Abstract: At present, the problem of difficult and expensive financing for small and medium-sized enterprises in China has become increasingly prominent. Supply chain finance has become an important tool to solve the financing difficulties of small and medium-sized enterprises. However, the shortcomings of supply chain finance make the financing of small and medium-sized enterprises face new risks. Therefore, in the context of vigorously promoting the supply chain financing of small and medium-sized enterprises, it is of great practical significance to strengthen the attention to the improvement of the supply chain financing model and promote the solution of the financing risk of small and medium-sized enterprises. Based on the research on the current situation of supply chain financing of small and medium-sized enterprises in China, this paper puts forward suggestions on the innovation of supply chain financing mode of small and medium-sized enterprises in China by using the advantages of blockchain technology, and provides reference for relevant policy suggestions to further promote the improvement of supply chain financing performance.

1. Introduction

Small and medium-sized enterprises are enterprises with small scale or output value accounting for the gross national product. According to the statistical data of the State Administration of market supervision and administration, small and medium-sized enterprises account for more than 99% of all economic entities in China [1]. Despite the small scale of small and medium-sized enterprises, their role in alleviating employment pressure, stimulating economic vitality and promoting sustained and healthy economic development can not be ignored. In the context of the 14th five years plan, the real economy has become the center of development, and the development of small and medium-sized enterprises is expected to be greater. However, for a long time, China's small and medium-sized enterprises have their own defects (such as inherent defects such as loose internal management, incomplete financial information and small demand for funds), high barriers to capital market access, lack of policy support, poor response of financial institutions and other objective

reasons, as well as the impact of suspension of work and business operations caused by the outbreak of the COVID-19 in 2020, It has been facing difficulties in financing and high financing costs [2]. Therefore, under the background of slowing economic growth and increasing financial risks, how to break through and reverse the financing of small and medium-sized enterprises in China has become the focus of academic attention [3].

There are many participants in supply chain finance, which can be divided into four categories according to their roles and functions: first, supply chain alliance, second, financial institutions, third, third-party logistics enterprises, and fourth, regulators. Supply chain finance is a new industrial integration mode, which organically links enterprises, logistics, information flow and capital flow, and solves many financing problems of small and medium-sized enterprises. In recent years, it has developed rapidly and occupied a place in the financial market. Supply chain finance not only has a considerable growth in scale, but also has made innovations in many aspects, breaking the traditional financing and loan services, but also includes comprehensive services composed of different financial organizations and products [4] in figure 1.

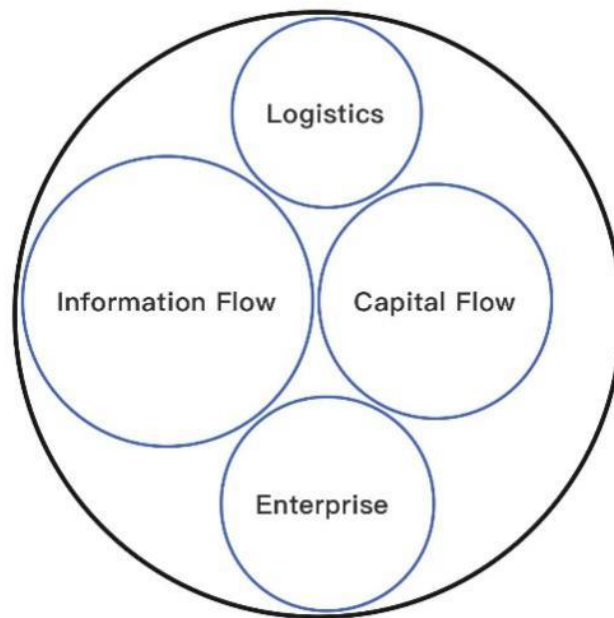


Figure 1: Content of supply chain finance

While bringing dividends to the financing of small and medium-sized enterprises, supply chain finance also brings them special financial risks [5]. Because supply chain finance has the characteristics of cross industry, cross region and multi-agent, its risks come from the special risks formed by finance and supply chain. These two risks often affect each other, making the organization and risk management of enterprises more complex, and the information between various participants can not be shared. In the supply chain, digital assets at all levels can not be split, transferred and transferred, resulting in problems such as lack of penetration of core enterprise credit, difficulty in trust transmission, complicated procedures and high cost of credit investigation. So how can supply chain finance help SMEs to solve the financing problem? How to improve the supply chain financing model? It is exactly the problem that this paper studies under the background of the frequent supply chain financing problems of small and medium-sized enterprises, and the financing mode of small and medium-sized enterprises has not been fundamentally improved.

2. Literature review

2.1. Connotation of supply chain financing

Pengying et al. (2022) pointed out that since the middle of the 20th century, with the rise and development of globalization, the Internet and modern communication technology, the supply chain has changed its previous appearance of mainly factoring business and less accounts receivable financing, forming a diversified and mature financing method [2]. Songhua (2019) pointed out that supply chain finance is a new type of industrial integration mode, which closely combines enterprise, logistics, information flow and capital flow [5]. Yuhaijing et al. (2017) believe that supply chain finance is a kind of financial service, which regards the entire supply chain as a whole and provides financial support for the company based on actual transactions in the chain [6]. Fuweiqiong (2020) believes that supply chain finance is based on the reputation of core enterprises and their own advantages to help upstream and downstream enterprises obtain financing [7]. Wang Jian (2019) believes that supply chain financing is a financial product that combines the supply chain management concept with the credit system. Its goal is to help companies in need of funds through credit institutions and improve the efficiency of the entire industrial chain [8].

2.2. Improvement of supply chain financing mode

Domestic supply chain finance has experienced a rapid evolution from 1.0 mode to 3.0 mode. The application of network technology makes the supply chain financial model online, greatly reduces the business operation cost and risk control cost, and further improves the ability of supply chain finance to serve the real economy. At present, there are mainly the following researches on the improvement of supply chain financing mode. Hejuan et al. (2012) extended the traditional supply chain finance business to the spot e-commerce platform by comparing the traditional supply chain finance and transactional e-commerce platforms, and believed that the latter could better solve the financing problems of small and medium-sized enterprises and reduce financing risks [9]. Zhan Yongzhi (2022) pointed out that the development of supply chain finance has experienced four development patterns: bank led, logistics led, core enterprise led and platform led. It has developed from "M+1+N" to networking, platform and intelligence [10], and the platform-based supply chain financing model has become a hot topic.

In addition, in addition to these four main development patterns, some scholars have proposed to improve the supply chain financing model in the direction of financial technology for individual industries of small and medium-sized enterprises. Xiang Peng (2022) pointed out that with the continuous development of big data, Internet of things, artificial intelligence, blockchain and other technologies, financial technology has gradually penetrated into the field of supply chain finance to prevent its potential risks [11].

2.3. Blockchain technology development

Blockchain comes from the underlying technology of bitcoin. It is a decentralized, tamper proof, traceable, highly trusted and multi-party distributed database. Blockchain technology is an integrated utilization of original technologies such as point-to-point communication and encryption algorithm. With the advent of the big data era, blockchain, Internet of things and other concepts are prominent. Because of its decentralization, openness, independence, security, anonymity and other characteristics, blockchain has great application potential in international settlement, letter of credit, equity registration, stock trading and other aspects. Zhou Lei et al. (2021) believe that the use of blockchain technology in the financial industry can eliminate intermediate links and directly

connect point-to-point, so as to quickly complete transactions and payments and greatly reduce costs [12]. Wanghaiquan et al. (2022) pointed out that the supply chain financial trading platform combined with blockchain is more efficient in processing information, and can process thousands of businesses per second. At present, the development companies of blockchain technology have established strategic partnership with many banks, small loan companies, trust companies, insurance companies, etc., and established an alliance on this basis, Make its application in the field of supply chain finance smoother [13].

The essence of blockchain technology is to help small and medium-sized enterprises with risk management. In the whole supply chain financial system, financial technology is not only the manufacturer of industry credit, but also the transmitter of industry credit, and the enterprises in the supply chain are the real credit manufacturers. Financial technology can make information more transparent, and enable investors to better understand and predict risks, so as to realize the benign circulation of funds and the development of supply chain finance digitalization.

Comment: To sum up, at present, Chinese scholars' research on supply chain finance mostly focuses on the connotation of supply chain financing, and a few scholars have deeply studied the innovation of supply chain financing mode and conducted case analysis of small and medium-sized enterprises, and there is no lack of relevant research on blockchain. However, there is still a lack of research on the introduction of blockchain technology to improve the supply chain financing mode of small and medium-sized enterprises. Therefore, this paper makes an in-depth analysis of blockchain technology to help improve the supply chain financing performance of small and medium-sized enterprises.

3. Financing dilemma of small and medium-sized enterprises

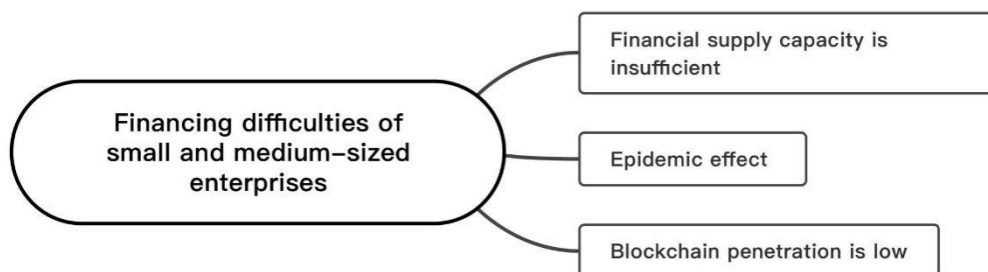


Figure 2: Financing difficulties of small and medium-sized enterprises

First, the lack of financial supply capacity restricts the supply of information. In practice, the capital flow of small and micro enterprises and other small and medium-sized business entities is unstable, the information collection of loan entities is difficult, the financial statements are not standardized, there is a lack of collateral, and there is great pressure on risk prevention and control. Zhutaihui et al. (2022) pointed out that the main problem is that the information collection of loan objects is difficult, the second is that the loan products do not match the needs of the borrower, and the second is that the borrower's capital flow is unstable. To some extent, the difficulty in collecting information is a major factor leading to other problems [14].

Second, the operation difficulties caused by the epidemic. In the past two years, affected by the epidemic and other factors, many companies are delaying payment, and the capital chain of upstream suppliers has been affected to varying degrees. According to the data released by the National Bureau of statistics, by the end of October last year, more than 60% of the companies'

accounting periods had exceeded 60 days, 9.4% of the companies' accounting periods had exceeded 6 months, and the accounting periods of small companies were longer [15].

Third, the popularity of blockchain and financial technology is slow. The survey results show that the digital transformation of SMEs' supply chain financing is usually to obtain customers from the market, and then to control the financial risk of the supply chain and price the products. This shows that many enterprises only begin to implement digital marketing, rather than deeper digitalization within the enterprise. At the same time, there are also many problems in the enterprise's risk management and product pricing, such as mismatching with the enterprise's own business, poor data quality, and no differentiated pricing research. At the same time, taking the managers of small and medium-sized rural banks as an example, in the process of digital transformation, they generally believe that more online outlets are their main advantage, but they do not fundamentally realize the key to the entry of financial technology into enterprises. In addition, the organizational form, technical ability, personnel quality and other factors of enterprises will have a great impact on the digital transformation of enterprises in figure 2.

4. Conclusions and recommendations

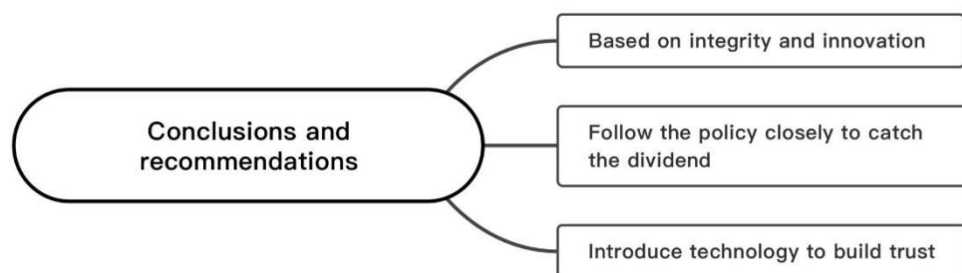


Figure 3: Conclusions and suggestions

4.1. Based on integrity and seeking new development

It is an old saying that small and medium-sized enterprises use supply chain finance for financing. As early as around 2010, there were studies, which are not new. According to the continuous bumps and amendments in the industry over the past decade, the supply chain financing mode of small and medium-sized enterprises has been relatively mature. However, due to the imperfect system and the impact of the epidemic, the supply chain financing has the problem of low efficiency. Therefore, supply chain financing should seek innovative development based on integrity [16]. On the basis of playing its primary function, it should actively introduce new and living knowledge and technology to achieve efficient financing.

4.2. Follow the policy guidance and seize the bonus opportunity

The China Banking and Insurance Regulatory Commission recently held a special meeting to discuss how to promote the supply chain financial reform of financial institutions. The meeting called for further deepening and improving China's supply chain financial system reform, strengthening risk management, coordinating relevant departments, strengthening credit system and supply chain financial support, and improving the financial supervision system.

It can be seen that at present, supply chain finance is deeply concerned by China's financial market, and supply chain finance is in urgent need of reform. Small and medium-sized enterprises should monitor the risks of the whole industry chain, effectively manage the credit of enterprises, and solve some risk problems. To meet the needs of the real economy, it is necessary to introduce financial technology to solve problems such as chattel pledge, product verification and risk monitoring on the basis of ensuring data security and independence of risk control, so as to prevent funds from falling out of reality to falsehood [17].

4.3. Introducing blockchain technology to build digital trust

As mentioned above, although supply chain finance has brought significant positive changes to the financing mode of small and medium-sized enterprises, due to its integration, it has also brought about the shortcomings of more complex enterprise risk management, unable to share information among various participants, and difficult to guarantee the authenticity of information. Therefore, it is urgent to establish digital trust for the improvement of the supply chain mode.

Digital trust is to digitize the behavior of enterprises, objectively, truly and comprehensively reflect the status of enterprises in the operation of the supply chain and the capabilities of each enterprise, so as to make corresponding financial loan decisions. To realize digital trust, information must be controlled at four levels: first, real-time information, from the operation of the supply chain to various financial activities, all data and information can be obtained without delay; Second, information transparency means that the data and information generated in the operation and financial activities of the supply chain can be obtained and understood by relevant stakeholders; Third, the information of each link and dimension of the supply chain can be mutually confirmed and mapped; Fourth, traceability, which can monitor, manage and track the whole life cycle of the supply chain. The demands of these four aspects are very consistent with the characteristics of blockchain technology. It is believed that the introduction of blockchain technology can greatly improve the financing effect of small and medium-sized enterprises using the supply chain [18] in figure 3.

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