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Technology Innovation, Financing Risk and Control in Small and Medium-Sized Enterprises Supply Chain

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Abstract: With the development of supply chain finance, micro and small enterprises can effectively solve their financing difficulties and improve the flow of funds in the supply chain. This paper reviews the work done by past research in solving the financing problems of MSMEs, credit risk assessment and control, and the development of new technologies in supply chain finance. It discusses how technology affects the efficiency and security of supply chain finance and takes small and medium-sized enterprises as carriers to carry out a broader theoretical analysis of risk control and assessment. At the same time, the paper analyses the application of currently popular and advanced technologies, such as blockchain, artificial intelligence, and the Internet of Things, in solving the financing challenges of SMEs. In addition, the paper discusses and compares the risk assessment and control of micro and small enterprise financing and supply chain finance risk control and proposes corresponding solutions and models.

Keywords: Technology Innovation, Financing Risk, SMEs

1. Introduction

Nowadays, supply chain finance helps small and medium-sized enterprises effectively solve financing difficulties and help improve the fund flow of the supply chain effectively. For example, from 2015 to 2019, the size of China's supply chain finance market grew year by year. By the end of 2019, the size of China's supply chain finance market had reached 22 trillion yuan, ushering in rapid development. As financial institutions and enterprises paid more and more attention to the financial process of the whole supply chain in the late 20th century, the design of the accounts payable model and supply chain financing system was first proposed by Hartley. He believes supply chain participants work with financial institutions to achieve supply chain objectives. However, the concept of supply chain finance is different today. Foreign researchers mainly have two views. One is the "financial view" from the finance perspective, and the other is the "supply chain view" from the supply chain perspective. While in China, although there is relatively less research on SCF, it connects relevant corporations and reduces costs, and increases the efficiency and sustainability of the business through the cooperation of companies. This tends to be more and more important in China.

The current research focuses on the digitalization and network supply chain of supply chain finance and the risk assessment of Financing risk assessment and control. In contrast, research about internet supply chain finance and relevant quantitative analysis are rare. This review mainly adopts

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the literature review method. It summarizes the previous studies on supply chain finance in solving the financing problems of small and medium-sized enterprises, evaluating, and controlling credit risk, and developing SCF's new technology.

2. Financing Difficulties of SEMs and Current Solutions

2.1. Reasonable Choice of Supply Chain Finance Financing Technology

Improving efficiency is essential for the operation of small and medium-sized enterprises. However, small and medium-sized enterprises face financing difficulties because they cannot carry out investment activities to achieve greater returns and better operations. Many scholars have proposed solutions to the financing problems of small and medium-sized enterprises or designed and invented new technologies to make their supply chain finance run better.

In this respect, Industry 4.0 technology is an excellent technological upgrade, which may have four basic technologies: cloud computing, the Internet of Things, big data, and analysis. Through the adoption of Industry 4.0 technology, the working capital of SMEs has been improved, and the competitiveness of supply chain finance has been enhanced with opportunities for sustainable development. In the study of Gunjan Soni and Satish Kumar et al., they proposed using the technology selection model to help enterprises make decisions in Sri Lanka, providing 14 criteria for supply chain finance and combining it with the MADM framework [1]. It covers the previous research blank about Industry 4.0 and supply chain finance. In detail, the digital economy, especially digital inclusive finance, has become a critical factor in national economic and social development. Research by Udullage and Wei plays a role and influence in combining digital financing and inclusive finance [2]. They also study the technology acceptance model's effect on SMEs' efficiency. Both studies have closely linked SME performance with technology choice, built models, and conducted detailed quantitative analysis and sufficient case and sample analysis. Modern small and medium-sized enterprises want to solve the problem of financing difficulties, the correct choice and application of necessary technology, and keep up with the pace of innovation in the digital information age. However, the latter is a specific elaboration of one of the aspects involved in the former, which has more outstanding results in innovation research. In contrast, the former is more applicable and geographically broad in the reality of the industries it mainly mentions.

2.2. Popular and Efficient Technical Discussion

At present, scholars from various countries have made a lot of studies on the advanced technologies that contribute to SME financing. This section will summarize and analyze the current popular and advanced technologies. First, solving SME financing problems depends to some extent on blockchain technology. Blockchain is a distributed ledger of stored transactions linked by cryptographic mechanisms in a peer-to-peer network [3]. This technology has many practical applications in business and finance. For example, the application of digital currency is developed, which has similar characteristics to real currency circulation. Bitcoin is a good example. Blockchain applications can result in reduced costs, improved security, and increased intelligentization of productivity in small and medium-sized enterprises. In Y.Idel Mahjoub, he gave a detailed explanation of the technology [4]. He proposed that cost reduction is the most significant impact on small and medium-sized enterprises and expounded the method from many aspects. For example, improving the risk control model through big data can also improve enterprise efficiency. Blockchain is a more secure technology option, where all prospective participants can track personal assets and thus know its outcome, with greater transparency and plasticity.

Second, artificial intelligence technology plays a significant role in the production line. The manufacturing industry began to rage the practice of intelligent factories and workshops gradually

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intelligent. Human-computer interaction, 3D printing, sensors, industrial software, and other technologies are widely used to create better digital factories in advanced production processes. At the same time, the production process is monitored, data is collected, and then data is analyzed to build a distinctive, digital, and easily adjusted supply chain. For example, CCPS (cyber-physical production system) proposed by Aljosha Kocher et al. is an artificial intelligence method to solve the problem that manufacturing enterprises need to be more flexible in production [5]. They planned the algorithm based on the ML planning method and built a production model that could be applied. Although the research is still immature and only reflected in a relatively simple model, further exploration will extend the research innovation until it can greatly help flexible production. It is worth noting that Istvan Mesgar et al. adopted the approach of "design ethics" and proposed various difficulties and potential risks encountered by moral AI in applying CCPS, emphasizing the importance of customer trust in the system and AI [6]. The key is that human beings can guarantee their own safety and autonomous agent unity in the industrial production of the operating system. Otherwise, it will have a negative impact on human beings and the relationship between humans and artificial intelligence. The role of artificial intelligence in the system (CCPS) in the production efficiency of the supply chain can improve the flexibility and stability of the enterprise capital flow, but more model analysis, public acceptance investigation, security and transparency information inspection and so on need to be invested in the system opening to ensure the most basic CCPS requirements.

Internet of Vehicles: The Internet of Vehicles, a branch of the Internet of Things, is an essential guide for developing our future transportation tools. At the same time, in this direction, the development of Internet of Vehicles technology is closely related to the innovation of Internet technology, which also promotes business and economic development. with

More advances in wireless sensor networks, where we now view traditional cars as objects in a network of intelligent cars interacting with other connected vehicles and other connected vehicles; It's called the Internet of Vehicles (IoV). They combined intelligent logistics vehicles and the Internet of Vehicles to generate a management system, an excellent example of the practical application of the Internet of Vehicles in logistics [7]. The system consists of three sensors on the logistics vehicle, RFID, and a bar code for real-time data feedback. The data is collected by the logistics data center and transmitted to the logistics vehicle, thus forming a stable logistics system.

3. Risk Analysis and Control

As enterprises begin to have a deeper understanding and wider application of supply chain finance, they can obtain more funds for financing to ensure the normal distribution of the company's capital flow. However, the generation of potential risks is still irreversible. Where there is difficulty, there will be a way. Scholars have put forward many technologies to solve the problems of venture capital and risk control of small and medium-sized enterprises. This section will discuss and compare the nature and solutions of these problems from the perspective of SME financing risk assessment and control, as well as from the perspective of risk control in supply chain finance.

3.1. Financial Constraints, Financing Methods, and Risk Control in Supply Chains

Xie et al. have made an all-round and multi-angle analysis on supply chain enterprise financing based on Starkelberg game theory and reached the relevant conclusion [8]. Due to limited funds, credit risks of small and medium-sized enterprises are transmitted from core enterprises to core enterprises. Therefore, the credit risks of core enterprises, namely suppliers, are largely affected by retailers. Solving the financing problem of retailers is a problem of systematic improvement. They comprehensively analyze the dual-channel financing mechanism. In building a simple model, this

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mechanism has effectively alleviated the problem of some capital constraints for recognition and assessing its risks.

What is valuable is that this study quantifies the assessment of risk intensity and other contents, which is a relatively strong and powerful exposition and explanation. However, Huang et al. constructed a new financing mode to solve the financing difficulties of SMEs in the supply chain and its adverse effects [9]. Financing needs to bear risks. A supply chain financing framework based on a general supply chain contract is established. The equilibrium strategy under three financing modes and the financing mode decision-making under the overall financing framework are discussed. This model is more specific on the theoretical basis for the effective solution.

3.2. Combination of Risk Control and Technology and Prospects

Although there are uncertainties and potential risks in the solution efficiency of various technologies in supply chain finance, many good combinations can help enterprises clearly understand the subsequent decision of financing and determine relatively accurately the level and type of risks. Wang et al. found that the Supply Chain Finance model (pledge) based on Internet of Things technology can effectively reduce the risk [10]. The specific technology used in this mode includes cloud computing big data and intelligent recognition mentioned earlier, which is one of the effective application situations combining the former and the latter. As for the inventory pledge financing mode, the author identifies five categories: internal fraud, external fraud, loss commitment damage, Internet of things system disruption, etc., and employee operation error, and makes a loss volume analysis combining multiple theories.

4. Conclusion

This paper reviews the literature on technology selection and innovation as well as financing risk and its control in the supply chain, compares and links the utility and risk between different technologies, and elaborates in detail and objectively on the examples and models that have a positive impact on financing from multiple perspectives, and makes a literal evaluation of various schemes and methods. To a large extent, supply chain finance needs efficient, flexible, and safe technical premises to help with the financing difficulties of small and medium-sized enterprises.

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