

# Research on the Influence of Supply Chain Finance on Enterprise Operation Performance Under the Background of Digital Transformation

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**Abstract:** In the economic market, small and medium-sized enterprises are the most solid, the most active and the largest entity for promoting economic development, stimulating the demand for innovation, improving people's lives and increasing employment. However, the problem of financing constraint is always the shackle that restricts the development of small and medium-sized enterprises. As a strong support for national development, the integration of the real economy and the financial supply side has been in constant friction. Efforts should be made to create a sound financing ecology, and further promote the solution of the financing difficulties of the real economy, especially for micro, small and medium-sized enterprises. In reality, the shortage of operating capital is always the main factor restricting the improvement of enterprise operation performance. In view of this situation, supply chain finance is regarded as an effective way to solve the financing problems of small and medium-sized enterprises by the theoretical circle and the industrial circle. Supply chain finance, as a new financing solution, helps to optimize the allocation of resources and funds between the upstream and downstream organizations of the supply chain, and gradually becomes an important way to alleviate the shortage of operating funds for small and medium-sized enterprises. This paper systematically reviews the relationships among supply chain finance, supply chain integration, enterprise digital transformation and enterprise operation performance, and reviews the information asymmetry theory and transaction cost theory.

**Keywords:** Supply Chain Finance, Business Performance, Supply Chain Integration, Enterprise Digital Transformation.

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## 1. Introduction

Faced with the double pressure of increasing global competition and economic downturn, China is in an important stage to optimize capital structure and improve growth drivers. As a strong support for national development, the integration of the real economy and the financial supply side has been in constant friction. As a force that cannot be ignored in our economic construction, small and medium-sized enterprises (smes) make up 60% of our GDP in the value of final products and services, and pay 50% of the total tax revenue. By the first quarter of 2022, more than 90 percent of the business types in our market are small and medium-sized enterprises, which are the strongest, most active and largest players in promoting economic growth, stimulating the demand for innovation, improving people's lives and increasing employment.

However, the difficulty of financing constraints is always the key to limit the development of smes. Small and medium-sized enterprises are affected by small scale, short operating term, immature business development, incomplete disclosure of financial statements and other factors, so it is difficult to quantify the information, so it is difficult to obtain funds through traditional bank lending. In practical work, the shortage of operating funds is always the main reason that restricts the improvement of enterprise operation performance. Supply chain finance, as a financing solution based on real transactions, is considered to be an effective means to solve the financing dilemma of small and medium-sized enterprises. In recent years, the country attaches great importance to supply chain finance. In order to encourage the development of supply chain finance, the Chinese government has promulgated a series of policies, such as "promoting the development of supply chain finance

services" in the 14th Five-Year Plan and the 2035 Vision Target Outline. In 2020, the People's Bank of China will take the lead. In the Opinions on Standardizing and Developing Supply chain Finance, Supporting Stable circulation and Optimization and Upgrading of Supply chain industrial Chain jointly issued by eight ministries and commissions, including the Ministry of Industry and Information Technology, SASAC and China Banking and Insurance Regulatory Commission, it is mentioned that supply chain finance is one of the main battlefields to implement the decisions and deployment of the CPC Central Committee and The State Council on the solid implementation of the "Six stability" work and the comprehensive implementation of the "six guarantees" task. As an innovative financing solution, supply chain finance can help optimize the allocation of resources and funds among the upstream and downstream organizations of the supply chain and help enterprises effectively meet their financing needs. At the same time, with the capital flow into the field of logistics management, supply chain integration came into being. Supply chain integration can not only promote communication and cooperation among organizations, help enterprises obtain external information, resources and advanced experience in a timely manner, so as to reduce transaction costs and improve operation efficiency, but also provide real transaction information to the outside, improve the commercial credit evaluation of smes in the capital supplier, so as to solve the financing dilemma of smes. Therefore, supply chain integration is an important intermediary variable in the way that supply chain finance affects the operational performance of smes. China's 14th Five-Year Plan and 2035 vision goal outline emphasize that enhancing core competitiveness is a key step for China's manufacturing industry. Making full use of digital technology to enable enterprises will not only help reduce costs and

increase efficiency, but also ensure the security and stability of industrial chain and supply chain. Therefore, under the digital background, how to develop supply chain finance, promote supply chain integration, and improve enterprise operation performance has become the focus of the industry and academia

## **2. Literature Review**

### **2.1. Research on Supply Chain Finance**

#### **2.1.1. The Definition of Supply Chain Finance**

Since the 1990s, the academic circle has attached great importance to supply chain finance, a new financial business model. Scholars at home and abroad have defined supply chain finance from various perspectives, which makes our understanding of supply chain finance more comprehensive and in-depth. Timme et al. (2000) put forward the concept of financing for the first time in their commercial capital research report. They believed that supply chain finance was a new activity created by upstream and downstream enterprises in the supply chain and financial institutions in cooperation with the realization of the overall purpose of the supply chain [1]. Hofmann (2005) believes that supply chain finance can manipulate the flow of financial resources between and within supply chain organizations to create value for enterprises [2]. According to Michael Lamoureux (2007), supply chain finance helps to optimize resources and capital allocation among organizations in the chain, reorganize resources in the chain, analyze costs, and make full use of funds through dependence on different capital channels [3]. From the perspective of enterprise capital flow, Wuttke et al. (2013) concluded that supply chain finance can reduce the cost of enterprises on the chain. Meanwhile, supply chain finance provides financing services and other financial service activities to companies on the chain by optimizing the fund allocation mechanism and adopting timely supervision measures [4].

#### **2.1.2. Supply Chain Finance and Business Performance**

Gupta and Wang (2009) found the dynamic relationship among logistics, information flow and capital flow from the perspective of enterprise operation, proving that supply chain finance can improve the financial and operational performance of enterprises [5]. As one of the supply chain finance solutions with accounts receivable as the core, reverse factoring allows financial institutions to carry out factoring activities only by assessing the buyer's credit risk. Based on this, Lekakos and Serrano (2016) pointed out that reverse factoring can help enterprises release funds from the supply chain and recover cash flow faster. So as to improve enterprise performance [6]. Zhao and Huchzermeier (2018) said that supply chain finance is based on the real economy, and only when the transaction is actually generated can supply chain finance activities be triggered. Therefore, this financing method is helpful to promote the operation of enterprises [7]. Ali and Gongbing et al. (2018) regard supply chain finance as a special resource of enterprises, through which smes can promote the improvement of corporate performance. In addition, their research also verified the positive moderating effect of trade digitization on supply chain finance and enterprise operation performance [8]. Zhang et al. (2019) examined how working capital affects corporate performance with a financial orientation. In general, a close relationship with banks can improve the cash holdings of enterprises [9]. On the other hand, Pan and Xu et al. (2020)

believe that supply chain finance can significantly improve the cash holdings of enterprises, accelerate cash turnover, and improve the competitiveness of enterprises, and when the efficiency of enterprises is low, this effect will be further increased [10].

### **2.2. Supply Chain Integration and Business Performance**

Based on information processing theory, Li (2015) concluded that supply chain integration can improve the communication between employees and external partners, thus improving quality and making wiser decisions. This study shows that enterprises can improve their competitive advantage by implementing effective supply chain integration. In addition, supply chain integration can help enterprises get the necessary information about demand, technology and strategy in time. Therefore, enterprises should use supply chain management to improve production efficiency and reduce costs. This can help to better regulate and coordinate the activities of supply chain partners, reduce waste and deliver goods at higher prices. Their research found that the introduction of external integration in supply chain management is conducive to promoting a good cooperative relationship between enterprises, accelerating the speed of product update, and promoting the improvement of performance [11]. According to Swink et al. (2007), external integration promotes timely access to supply chain information, including supplier activities and customer demand information, facilitates the integration of coordination and cooperation among supply chain members, and avoids the low efficiency of the whole supply chain [12]. Kumar and Chibuzo (2017) found that supply chain integration has positive effects on supply chain performance, such as improving operation performance, strengthening production flexibility, and improving inventory turnover [13]. Othman et al. (2016) found that supply chain integration had a positive effect on logistics performance of enterprises, and found that supply chain integration had a positive impact on financial performance. In addition, it is found that internal integration has a positive impact on operational performance [14]. Fazli and Amin (2016) believe that supply chain integration has positive effects on enterprise operation and financial performance. By reviewing the literature, this paper discusses the influence mechanism of internal integration, customer integration and supply chain integration on supply chain performance and their action mechanism. Research shows that internal integration improves external integration, and internal and external integration has a direct or indirect promoting effect on the improvement of corporate performance. These results provide an important perspective for us to further analyze how internal integration and external integration work together on the whole supply chain [15]. Koufteros et al. (2007) collected data of 244 manufacturing industries in the United States and made an empirical analysis, and concluded that there is a positive correlation between internal or external integration and business performance indicators (including product innovation, quality, profitability, etc.) [16].

### **2.3. Enterprise Digital Transformation and Operation Performance**

Scholars at home and abroad continue to deepen the research on enterprise digital transformation, and gradually shift the focus to the impact mechanism of enterprise digital

transformation on enterprise performance. In their study, Bouwman and Nikou et al. (2019) pointed out that all enterprises take maximizing their own interests as their business goal. Different enterprises have different characteristics and different environments, so they often adopt different digital transformation methods to improve performance [17]. Li and Jia (2018) discuss the dual role of IT in management problems by analyzing the synergy of resources at different levels within and between enterprises. Their research puts forward a conceptual model and verifies its rationality with examples. They believe that establishing data-based organizational structure in enterprises can help enterprises improve productivity and competitiveness. They point out that companies can obtain knowledge through data analysis using data, thus improving business processes and thus promoting the continuous development of enterprises [18]. Mikalef (2017) found through research that the sensitivity of enterprises in production, operation, management, sales and other links is conducive to the optimization of operation process, and the use of digital technology can effectively improve the sensitivity of all links, so as to achieve the purpose of improving enterprise operation performance [19]. Louridas and Ebert (2016) pointed out in their research that the enhancement of digital computing capability can solve complex production and operation problems, achieve the purpose of capital optimization, and thus improve the operation efficiency of enterprises [20].

### **3. Theoretical Derivation**

#### **3.1. Supply Chain Finance and Business Performance**

The shortage of working capital has always been an important factor limiting enterprises to make decisions to improve performance. Therefore, improving the level of financing and obtaining sufficient operating funds can effectively improve the operation performance of enterprises. As a strategic asset of enterprises, supply chain finance can optimize the financing structure of small and medium-sized enterprises by relying on supply chain operation, and realize the rapid flow of capital flow, logistics, business flow and information flow among supply chain organizations. Based on information asymmetry theory and transaction cost theory, this paper analyzes the influence mechanism of supply chain finance on business performance.

Information asymmetry refers to the imbalance of information transmission. The party with sufficient information in the market can transmit the information to the outside so as to achieve the purpose of profit. In the traditional bank lending mode, banks and other financial institutions can only assess the solvency of enterprises by relying on their own credit. However, due to the problem of information asymmetry, banks and other financial institutions cannot effectively identify the operating conditions and debt repayment risks of small and medium-sized enterprises with less information disclosure, so they often adopt ways such as raising the lending threshold and raising the loan interest rate to prevent risks. This makes some small and medium-sized enterprises into financing difficulties, difficult to maintain healthy development. On the other hand, supply chain finance, as an emerging financing means, breaks the traditional credit relationship and enables banks and other financial institutions to identify the real situation of an enterprise's debt paying level, economic benefit and integrity from its real transaction

and capital flow from the perspective of supply chain, thus reducing the degree of information asymmetry between the two sides of the transaction.

An important cause of financing constraints is the high interest rate of bank loans, which is rooted in excessive transaction costs. From the perspective of transaction cost theory, first of all, banks and other financial institutions expand their eyes to the whole supply chain, and determine the transaction information and the enterprise's financial situation, commercial credit and repayment risk by relying on the transaction status of members on the chain, so as to reduce the costs of early search, evaluation, review and supervision, so as to reduce transaction costs. Secondly, members of the same supply chain maintain stable cooperation for a long time under the condition of mutual trust. In order to improve their own performance, they pursue the maximization of the benefits of the whole supply chain. Therefore, supply chain finance can promote the improvement of transaction frequency. Third, traditional transactions are easily affected by changes in internal and external environment, and the stability of transactions is weak. However, under the supply chain finance model, both sides of the transaction are constrained by the supply chain, which greatly reduces the degree of information asymmetry. At the same time, both sides form a situation of binding interests and sharing risks, which can effectively reduce the uncertainty of transactions and reach a sustainable and stable transaction. Reduce transaction costs; Finally, the cost of each loan issued by banks and other financial institutions is not different, and the income brought by different loan amounts is different. Small and medium-sized companies borrow small amounts of money and make less profit on loans than large companies, resulting in higher transaction costs for banks and other financial institutions. In this case, banks are reluctant to lend to small and medium-sized enterprises, leaving them in a financing predicament.

To sum up, supply chain finance is a kind of financial activity facing enterprise supply chain, which shifts from easing financing constraints of supply chain nodes to improving capital turnover efficiency of the whole supply chain and enhancing enterprise competitiveness. On the one hand, for banks and other financial institutions that provide financing, it greatly reduces the information asymmetry of financial institutions such as banks and effectively avoids financing risks; on the other hand, for small and medium-sized enterprises with financing needs, it expands financing channels for small and medium-sized enterprises, improves the efficiency of capital turnover, and reduces enterprise financing costs and supply chain operating costs. So as to improve the operation performance of the enterprise. Therefore, supply chain finance has a significant positive impact on enterprise operating performance.

#### **3.2. Supply Chain Finance and Supply Chain Integration**

Supply chain integration is a kind of strategic cooperation achieved by enterprises through information sharing and business interaction with members of the same supply chain. Supply chain integration can optimize the production, management, sales and other processes of enterprises, and promote the cross-organizational flow of logistics, information flow and capital flow in a supply chain. Thus, the goal of maximizing the value of the entire supply chain can be achieved with low cost and high efficiency. This paper

draws on the research of Frohlich and Westbrook (2001), that is, supply chain integration includes supplier integration and customer integration, because the degree of integration of these two aspects will directly affect enterprise operation performance. External integration means that manufacturers can work with upstream and downstream supply chain companies to simplify inter-organizational strategies and processes, with the ultimate goal of maximizing the value of the overall supply chain in practice. External integration emphasizes how to utilize external resources to obtain new advantages in competition. Supplier integration includes communication, coordination and information sharing between an enterprise and its upstream suppliers. In addition, enterprises should participate in the whole process of procurement and production, conduct deeper control over market demand, and make more reasonable planning for enterprise operation, so as to improve operation efficiency and transaction frequency. Customer integration includes communication and contact with downstream customers, sharing production, inventory and other information to customers, tracking customers, and timely getting feedback on products and services, so as to effectively match customer demand and increase customer satisfaction.

The realization of supply chain integration requires multi-dimensional cooperation of the whole chain. From demand forecasting, production planning, inventory design, operation management, product sales and other links, enterprises are required to complete the cooperation with the upstream and downstream enterprises of the supply chain. These links not only need the coordination and unification of logistics and information flow, but also need to rely on strong support of capital flow. However, for small and medium-sized enterprises with incomplete information disclosure, immature business development and unreliable commercial credit, traditional bank lending has been difficult to meet the capital consumption and financing needs generated by these activities, and the sustainable and healthy development of enterprises is bound to be limited. Therefore, it has become necessary for smes to expand their competitive advantages by participating in supply chain finance activities to meet their financing needs. Enterprises carry out supply chain finance activities, broaden financing channels, reduce financing costs, optimize the quality of funds, and help to achieve the purpose of stable enterprise supply chain integration relationship. To sum up, supply chain finance has a significant positive impact on supply chain integration.

### **3.3. The Mediating Effect of Supply Chain Integration**

With the intensification of economic globalization, enterprises are facing increasingly fierce competition, and more and more enterprises realize that this is no longer an era of fighting alone. Enterprises pay more and more attention to the communication and coordination between partners in the supply chain, so as to achieve the diversification of product types and personalized customer needs. Therefore, supply chain integration comes into being. Supply chain integration is a strategic behavior of enterprise management, which can promote the high-speed flow of logistics, capital flow and information flow in the supply chain, so as to achieve the purpose of low cost and high efficiency to maximize customer value. It is generally believed that supply chain integration in a broad sense includes supplier integration, internal integration and customer integration. However, the

integration between enterprises and suppliers and customers can exchange information with the outside world and obtain various resources of other members of the supply chain, which has a direct impact on enterprise operation performance. Therefore, this paper measures the integration level of enterprise supply chain from two aspects: supplier integration and customer integration.

On the one hand, supply chain integration can promote communication and cooperation among organizations and help enterprises to obtain external information and resources in a timely manner, such as market demand, production plan and advantages needed to expand market scale. Such information sharing can help enterprises effectively identify risks, reduce transaction costs and improve operation efficiency. In addition to the flow of information and resources, supply chain integration can also promote the flow of advanced experience among organizations, improve the learning ability of enterprises, actively promote the innovation and development of enterprises, and achieve the purpose of improving operation performance. On the other hand, in the traditional bank lending, some real information of smes, such as purchasing planning, inventory management, production planning, sales revenue and other enterprise data, cannot be identified by banking and financial institutions. However, after the integration of the supply chain between smes and their partners, these transaction information can flow efficiently among organizations. With a high level of supply chain integration, business exchanges between supply chain partners are more frequent and stable. Banks and other financial institutions can identify the real information of smes and evaluate their business credit based on this. Supply chain integration can reduce the information asymmetry between banks and other financial institutions and smes to a certain extent. Banks judge the repayment ability of smes based on transaction information and commercial credit, lowering the financing threshold and loan interest rate, greatly reducing the capital cost of smes, and thus improving the operation performance of enterprises.

In conclusion, carrying out supply chain finance business can effectively improve the supply chain integration ability of small and medium-sized enterprises, thus promoting the efficient flow of information and resources in the supply chain, not only strengthening the cooperation between enterprises, but also reducing the financing cost of small and medium-sized enterprises, so as to achieve the purpose of improving the operation performance of enterprises. Therefore, supply chain integration plays an intermediary role between supply chain finance and business performance.

### **3.4. The Moderating Effect of Enterprise Digital Transformation**

Smes often need efficient financing processes to solve the problem of operating capital shortage. However, under the traditional supply chain finance model, banks and other financial institutions have not been fundamentally solved in the control of SME transaction information, commercial credit evaluation and repayment risk judgment. Digital technology, as an important means to alleviate information asymmetry and reduce transaction costs, is deeply integrated with supply chain finance and has a profound impact on the traditional lending market. In order to improve their competitive advantages in the rapidly expanding market, small and medium-sized enterprises have joined the ranks of supply chain finance, accelerating the process of digital

transformation of enterprises, in order to enable supply chain finance services with digital capabilities, to achieve the purpose of improving business performance.

With the development of digital economy, digitalization has become an inevitable trend in all walks of life. Enterprise digital transformation refers to the application of digital technology to all links of enterprise production, operation, sales, etc., in an all-round and multi-angle way to improve operation efficiency, reduce operating costs, and promote the improvement of enterprise operating performance. Nowadays, more and more enterprises realize the importance of communication and cooperation with the upstream and downstream of the supply chain, and the market competition is gradually upgraded from the competition between enterprises to the competition between supply chains. With the development of supply chain operation towards automation and intelligence, supply chain financial activities also gradually show a trend of deep integration with information and communication technology [11]. The integration of enterprise digitalization has a profound impact on the relationship between supply chain finance and enterprise operation performance, promotes the supply chain finance activities to be more efficient and intelligent, enables enterprises to innovate and develop, and helps enterprises to gain competitive advantages in the market.

On the one hand, the digital transformation of enterprises makes the information more transparent and secure, reduces the information asymmetry among the supply chain members, alleviates the financing constraints of smes, and thus improves the operation performance of enterprises. On the other hand, enterprise digital transformation can promote business processes, improve regulatory efficiency, reduce regulatory costs and reduce the possibility of risk occurrence, so as to improve enterprise operation performance. Therefore, enterprise digital transformation positively regulates the relationship between supply chain finance and enterprise operation performance.

#### **4. Countermeasures and Suggestions**

(1) Actively participate in supply chain finance activities. The research results show that supply chain finance can help alleviate the financing constraints of enterprises, not only can directly promote the improvement of enterprise operating performance, but also can improve the level of supply chain integration, so as to improve enterprise operating performance. First, smes should establish and improve their own operation mode of logistics, information flow and capital flow to realize the integration of the three flows. Second, actively maintain long-term and stable cooperative relations with core enterprises, financial institutions and upstream and downstream enterprises to improve their core competitiveness in the supply chain; Third, make full use of the advantages of the supply chain and enrich financing methods. Obtain credit funds timely and effectively through supply chain financing methods such as reverse factoring, bill transfer, supplier financing and inventory pledge to meet the production and operation needs of enterprises; Fourth, improve the enterprise financial system, standardize the rules of financial statement preparation and disclosure, ensure the accuracy and transparency of financial figures, improve their own credit level; Fifth, in the process of participating in supply chain financial activities, enterprises should pay attention to their own risk prevention and control, carefully choose partners and supply chain financial products, and

formulate specific plans to deal with risks, so as to ensure the steady progress of enterprise supply chain financial activities.

(2) Strengthen the cooperative relationship among supply chain members and improve the integration level of supply chain. In the era of global supply chain, an enterprise is no longer an independent individual, and its healthy and sustainable development cannot be separated from information exchange and resource sharing with upstream suppliers and downstream customers. Enterprises should attach importance to the mediating role of supply chain integration between supply chain finance and enterprise operation performance, and integrate suppliers and customers in a wider range based on their own conditions. In the process of integration with suppliers, enterprises should actively introduce suppliers with competitive relations, so as to avoid some strong suppliers gaining more bargaining power due to their information advantages, which will increase the procurement cost of enterprises. In the process of integration with customers, more attention should be paid to the overall stability and loyalty of target customers to improve the level of customer integration. In the environment of increasingly close relationship network, enterprise supply chain relationship management has become an important factor affecting enterprise operation performance, and competition between enterprises is evolving into competition between supply chains. Therefore, enterprises need to build a supply chain cooperation mechanism to promote the efficient flow of information and resources in the supply chain and improve the supply chain operation performance.

(3) Introduce digital technology to promote the digital transformation of enterprises. China is promoting the construction of digital economy, accelerating the realization of digital transformation of the whole industry and the whole society, which provides a solid foundation for the digital transformation of the supply chain of small and medium-sized enterprises. Especially for manufacturing enterprises, gradually realizing digital transformation is conducive to occupying first-mover advantage and achieving high-quality development. The above empirical research proves that digital transformation of enterprises can positively adjust the influence of supply chain finance on enterprise operating performance. Therefore, enterprises should not ignore digital transformation when carrying out supply chain finance business. On the one hand, enterprises should prioritize the introduction of emerging digital technologies such as big data, artificial intelligence, 5G technology, Internet of Things, blockchain, etc., comprehensively upgrade the organizational form, business process, business model, capability system, etc., empower the traditional manufacturing industry through digital means, and shift the operation management of enterprises to process-based and efficient. On the other hand, enterprises should pay attention to the uncertainty of external environment. The digital transformation of Chinese enterprises is faced with a complex and volatile environment due to social transformation, upgrading of consumption and intensifying global competition. In this case, enterprises should enhance their acuity, correctly grasp the opportunities of digital transformation in the face of threats, actively adjust their mentality and timely adjust their strategies in the face of challenges, and realize the same frequency matching with the environment.

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