

Operation Mode of Supply Chain Financial Ecosphere in Pilot Free Trade Zone under the Background of “Double Cycle”

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Abstract: In 2020, China proposed a new pattern of development. The main body of the new pattern is the domestic big cycle, and the goal is to realize the mutual promotion of domestic and international double cycles. Under such circumstances, it is worth thinking about how to actively transform and upgrade the operation mode of the supply chain financial ecosystem of the pilot free trade zone into the “double cycle”. This paper studies the operation mode of the supply chain financial ecosystem of the pilot free trade zone under the background of “double cycle”. After understanding the supply chain financial operation mode of the pilot Free Trade Zone, this paper analyzes the impact of the double cycle on the supply chain financial mode of the pilot free trade zone. In order to further understand the relevant actual situation, a questionnaire survey was conducted on the operation mode of the supply chain financial ecosystem in the pilot free trade zone under the background of “double cycle” at this stage. Through the questionnaire results, it is concluded that the main problems of the operation mode of the supply chain financial ecosystem in the pilot free trade zone under the background of “double cycle” are financing difficulties and incomplete business mode.

1. Introduction

Affected by the new crown epidemic in 2020, under the complex international political and economic background, the international economic and trade situation is turbulent [1-2]. Xi Jinping looked at the problem from the perspective of the future in the “two sessions” throughout the country, and revealed that new development should be gradually promoted [3-4]. In view of the fact that the main body of the model is a circular circle, the goal is to realize the mutual promotion of domestic and international cycles, leading to the “new normal” of real economic growth [5-6]. The proportion of bank loans is gradually increasing, and the financial industry generally faces the dilemma of “asset shortage”. In this case, the bank provides a wide range of supply chain financial services. With the rapid development of Internet technology, supply chain finance has gradually moved from offline to online. As the current core business of enterprises, supply chain finance can effectively provide enterprises with expanding customer channels, reducing loan risks, and increasing capital gains[7-8].

Regarding the research on the operation mode of the supply chain financial ecosystem, some researchers have found that in the context of the global credit crunch, fundraising is an arduous task [9]. From the perspective of commercial credit, some researchers have proposed new supply chain financial solutions for factoring and anti-factoring according to the content and key indicators of bank supply chain financial services [10]. Some scholars pointed out that the financing problems of small and medium-sized enterprises in the operation of the supply chain financial ecosystem are mainly due to the lack of transparency of their own financial information, high operating risks, and relatively limited operating costs. On the other hand, because financial institutions and banks are concerned about loan risks, financial institutions are concerned about the financing of small and medium-sized enterprises and whether there are guarantees for assets such as collateral. These conditions have led to difficulties for small and medium-sized enterprises to raise funds [11]. Some scholars also pointed out that the domestic supply chain's lending model mainly includes three types: warehouse lending model confirmation, warehouse lending model lending, and credit lending model. Among them, the confirmation warehouse financing model developed late in our country

and is still in its infancy. The business process operation is not well standardized, risk identification and prevention measures are relatively few, and relatively simple, and there is no standardized [12]. To sum up, there are still many research results on the operation mode of the supply chain financial ecosystem, but the operation mode of the supply chain financial ecosystem in the pilot free trade zone under the background of the “dual cycle” is still in the preliminary research stage.

This article studies the operation mode of the supply chain finance ecosystem in the pilot free trade zone under the background of “dual cycles”. It provides a general understanding of the operation mode of supply chain finance on the basis of relevant documents, and then analyzes the impact of dual cycles on free trade. The influence of the supply chain in the pilot zone was investigated through questionnaire surveys on the operation mode of the supply chain financial ecosystem in the pilot free trade zone under the background of the “double cycle”, and relevant conclusions were drawn from the results.

2. Research on the Operation Mode of the Supply Chain Financial Ecosystem in the Pilot Free Trade Zone

2.1 The Operation Mode of Supply Chain Finance in the Pilot Free Trade Zone

(1) Accounts receivable model

The accounts receivable model is mainly based on how upstream suppliers sell goods to downstream companies through credit and other methods, and obtain current cash flows by depositing future accounts receivable or transferring other liquidity to banks. The account receivable financing method can only be simply understood as a cash replacement for the company’s on-site accounts receivable financing to meet the needs of the company’s sales and production operations. The reason for its occurrence is mainly based on the progress of modern trade. The core business is in the entire the supply chain still occupies a relatively strong position to prevent emerging suppliers from using cash and core business for settlement arrangements. The use of credit for sales is not only increasingly common in domestic trade, but also gradually replacing payment methods such as credit cards in domestic trade. One of the main reasons for this trend is that our country’s modern business credit continues to grow rapidly.

(2) Form of order financing

The transaction between start-ups and small businesses is usually to buy goods first and then pay. When emerging SMEs reach an order with a core company, upstream SMEs may face financial constraints in the ordering process with the company. Today, the core company can provide customized financial services. First, the upstream lender (SME) applies for a loan from the core company based on the core company’s order and related vouchers. The core company audits the upstream financial companies and makes quotations based on the audit results to find loan providers for some guarantees and lenders. The fund provider rents out the financial business after confirming important business information and passing the assessment. After submitting the loan application, the upstream loan company purchases, produces, and ships raw materials according to the order. In this process, the parent company supervises the capital flow and logistics of upstream financial companies during the supply, production and delivery of raw materials. When the new lender's order is completed, the company deducts each loan fee and loan fee and directly refunds it to the fund provider, and pays the purchase price to the upstream SME.

(3) Prepayment mode

The prepaid loan model mainly refers to the upstream manufacturers' commitment to repurchase their own products and services, and the third-party logistics companies entrusted by financial institutions to supervise their products. This means that it can use the inventory warehouse receipt or the delivery warehouse receipt designated by the financial institution as a pledge to apply for a loan, thereby alleviating the pressure of loan payment. Prepaid loans can generally be simply understood as “future stock loans”. The guarantee standard for prepaid borrowers is the inventory formed by the customer through delivery, transfer or other links, and the customer has the right to directly receive the delivery from the supplier and execute the right of delivery.

2.2 The Impact of the Dual Cycle on the Supply Chain of the Pilot Free Trade Zone

Today, the international situation is becoming increasingly complex. The main body of the new model proposed by the Party Central Committee is the domestic cycle. It is of great significance to promote the mutual development of the domestic and international sectors, and to promote our country's huge interests and domestic demand opportunities. This represents the gradual transition from the traditional international transportation mode dominated by European and American countries to the more balanced and growing global mode of developing countries. In this regard, in addition to the three new free trade zones established in the new round, the 18 free trade zones established in the past have also been established one after another, and now 21 free trade zones have been established, which reflects our country's determination and demonstrates even more high level of openness. Within the framework of the 21 policy measures issued by the State Council and the domestic pilot free trade zone, accelerating system innovation and promoting the development of supply chain financial models are the only ways for pilot free trade zones.

3. Investigation on the Status Quo of the Operation Mode of the Supply Chain Financial Ecosystem in the Pilot Free Trade Zone under the Background of "Dual Cycle"

3.1 Purpose of the Investigation

This paper conducts a questionnaire survey on the operation mode of the supply chain financial ecosystem in the pilot free trade zone under the background of "dual cycle", mainly to investigate the problems in the operation mode of the supply chain financial ecosystem in the pilot free trade zone under the background of dual cycles, and carry out relevant suggestions.

3.2 Questionnaire Survey Process

(1) Method of questionnaire survey

There are two main types of questionnaire surveys: one is online questionnaire survey, and the other is offline questionnaire survey. Online questionnaire survey cannot guarantee the accuracy of survey subjects, so this questionnaire survey adopts offline questionnaire survey. In order to ensure the accuracy of the questionnaire survey subjects, this article launched a questionnaire survey in the pilot free trade zone, and selected three companies of different sizes in the pilot free trade zone.

(2) Determination of the number of questionnaires

The number of questionnaires is an important factor that affects the results of the questionnaire. Therefore, this article determines that the number of questionnaires this time is 130 on the basis of consulting relevant literature materials and the actual conditions of this article. The number of invalid questionnaires received was 123 valid questionnaires.

3.3 Data Processing

This article uses the Petri net model for data processing. The Petri net model is represented in the system because it usually takes a certain amount of time for an event to occur. This method can also be used to quantify data performance. In Petri net, it is any temporary correlation realization rate λ , λ follows a specific probability distribution, so a Petri random net is constructed.

In the continuous-time Petri probabilistic network, the transition time t from runnable time to its realization time is regarded as a continuous random variable X and obeys a distribution function:

$$F_t(x) = P\{x_t \leq x\} \quad (1)$$

In the continuous Petri probability network (SPN) proposed by Molloy, the distribution function of each transition can be defined as an exponential distribution function:

$$\forall t \in T : F_t = 1 - e^{-\lambda_t x} \quad (2)$$

Among them, the real parameter $\lambda_t > 0$ is the average implementation rate of the transition t , and the variable $x \geq 0$. It can be proved:

(1) The probability of two transitions occurring at the same time is zero.

(2) Since the feasible graph of the petri probability network is isomorphic to the homogeneous

Markov chain, the Markov stochastic process is used to solve the exponential distribution in it. This is also the only distributed continuous random variable that satisfies the Markov characteristics. Therefore, when using Markov random fields in the spn accessibility graph, the delay of each conversion should follow the distribution of the composite exponential.

4. Analysis of Survey Results

4.1 Problems in the Operation Mode of the Supply Chain Financial Ecosystem under the Background of “Dual Cycles”

This article investigates the current situation of the supply chain financial ecosystem operation mode in the pilot free trade zone under the background of “dual cycle”. The results of the problems existing in the operation mode of the supply chain financial ecosystem under the background of “dual cycle” are obtained by collating the data, as shown in Table 1.

Table 1 Problems in The Operation Mode of the Supply Chain Financial Ecosystem under the Background of “Dual Cycle”

	A company	B company	C company
Difficulties in financing for SMEs	45%	47%	44%
Lack of business model	32%	33%	36%
Incomplete industry chain	23%	20%	20%

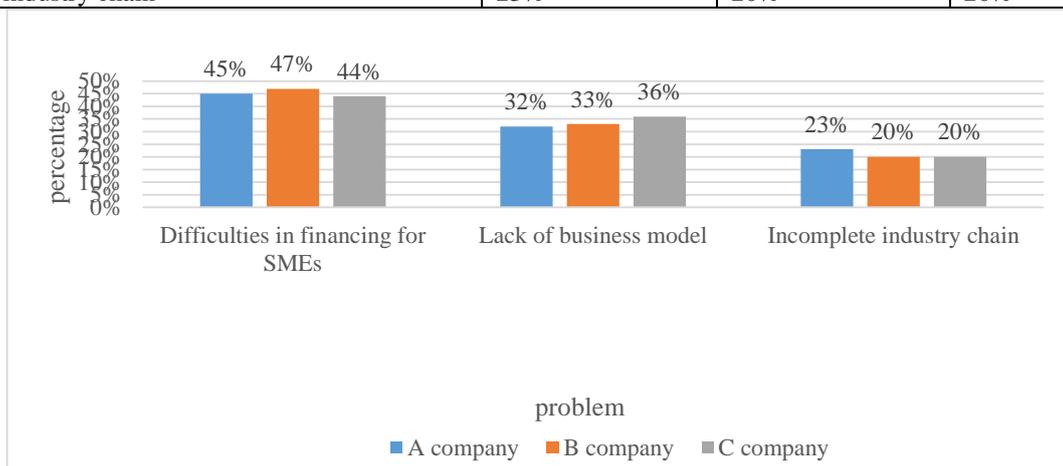


Fig.1 Problems in the Operation Mode of the Supply Chain Financial Ecosystem under the Background of “Dual Cycle”

It can be seen from Figure 1 that the main problem of the supply chain financial ecosystem operation mode under the background of “dual cycle” is financing difficulties, especially small and medium-sized enterprises, facing more severe financing difficulties, followed by incomplete business models, accounting for 32% above. The financing difficulties faced by SMEs are mainly due to insufficient guarantee financing capabilities.

4.2 Suggestions on the Operation of the Supply Chain Financial Ecosystem under the Background of “Dual Cycle”

This paper investigates the current situation of the operation mode of the supply chain financial ecosystem in the pilot free trade zone under the background of “dual cycle”, and the results of the recommendations on the operation of the supply chain financial ecosystem under the background of “dual cycle” are shown in Table 2:

Table 2 Suggestions on The Operation of Supply Chain Financial Ecosystem under the Background of “Dual Cycle”

	A company	B company	C company
Chain completion and reinforcement path	20%	19%	17%
Target positioning and overall layout	36%	36%	37%

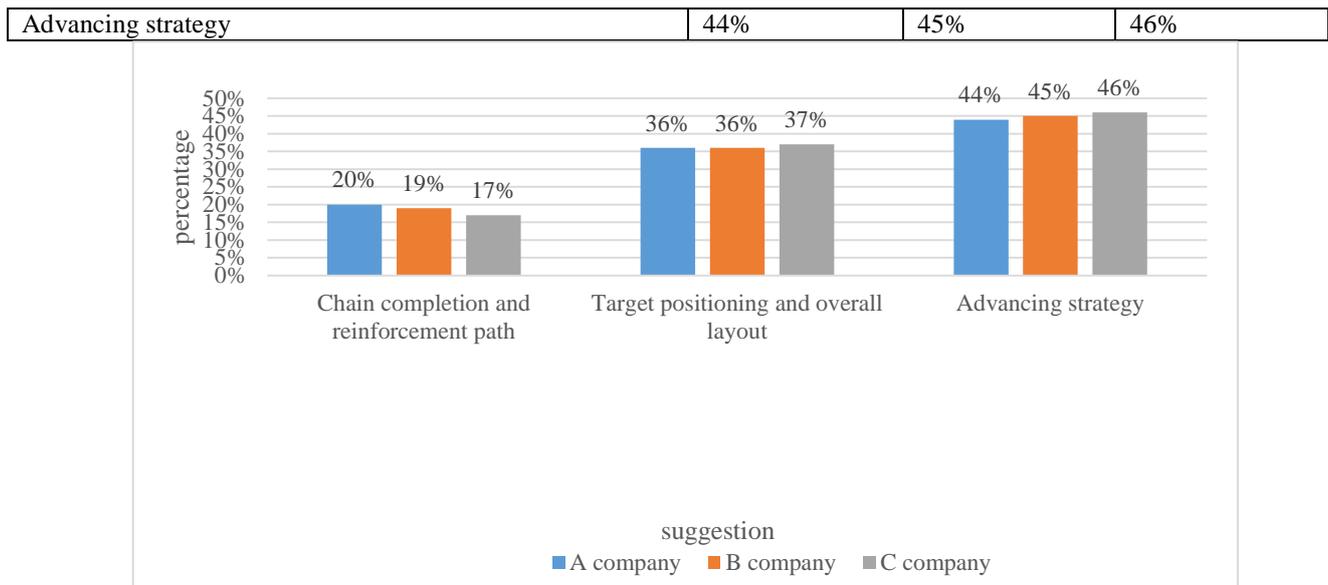


Fig.2 Suggestions on the Operation of Supply Chain Financial Ecosystem under the Background of “Dual Cycle”

It can be seen from Figure 2 that the recommendations for the operation of the supply chain financial ecosystem under the background of “dual cycles” are mainly to promote related strategies, accounting for more than 44%, and then the path of chain complementation and reinforcement.

4.3 Related Measures

(1) The chain supplements and strengthens the route. Scientifically define the division of labor and industrial sub-sectors, clarify the importance and scalability of the entire regional industrial chain, focus on the shortcomings of the industry, increase investment, upgrade technology, and optimize governance models to comprehensively promote the integration and growth of the industrial chain, and accelerate the formation of a complete and strong industrial chain, to provide an industrial foundation for opening up the entire industrial chain.

(2) Idea guiding strategy. As the highest-level national strategy in the field of opening up, the pilot free trade zone must fully appear in the system, be implemented in specific areas, and play an effective leading and exemplary role. At present, in the context of severe global economic recession, rising trade protectionism, and increased uncertainty under the influence of the new crown pneumonia epidemic, the stability of the industrial chain and supply chain is particularly important to the health of the national economy. Therefore, it is necessary to open up the entire industrial chain and serve as an important demonstration of a pilot free trade zone that supports industrial development. For this new open development model to take root quickly in the pilot free trade zone, some new ideas need to be created. The first is to establish the concept of the whole chain, subdivide the whole industry chain, shift the focus from individual enterprises, and take the promotion of open innovation of the whole industry chain as the basic task of high-quality development and free trade. The second is to introduce service concepts, follow the new dual-cycle model, pay close attention to the upgrade and transformation of the pilot free trade zone and new trends, expand internal service cycle operations, build an institutional innovation system, strengthen weak links in the industrial chain, and provide various support services.

(3) Financial supply chain management is based on the supply chain management model. In terms of capital flow, integration and optimization of industrial supply chain nodes, speeding up capital flow, increasing capital use, and reducing overall supply. The industrial supply chain is the integration, integration and optimization of the “three flows” of logistics, information flow, and capital flow.

(4) Combining the new business model of finance and logistics management, there are new risks in supply chain financing. With the emergence of new risks, commercial banks need to manage financing risks dynamically and systematically. Logistics and fund management in their business

activities should maintain information flow, manage credit restrictions flexibly, and avoid SME loan risks.

5. Conclusions

This paper studies the operation mode of Supply Chain Financial Ecosystem in the pilot free trade zone under the background of “double cycle”. After understanding the relevant theories, this paper makes a questionnaire survey on the operation mode of Supply Chain Financial Ecosystem in the pilot free trade zone under the background of “double cycle”. Through the questionnaire survey results, it is concluded that at this stage, the main problems of the operation mode of the supply chain financial ecosystem in the pilot free trade zone are financing difficulties and incomplete business model. Then, the first suggestion for the operation of the supply chain financial ecosystem in the pilot free trade zone under the background of “double circulation” is to promote the implementation of the strategy and the path of chain completion and reinforcement.

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