

Research on Financial Risk Management of Cross-border Supply Chain

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Abstract—In the historical background of market economic globalization, cross-border supply chain has expanded to Asia, South America and other areas from the developed countries, and has formed a new type of supply chain market gradually. As a result, the supply chain logistics service is changed. On the basis of that, the financial risk management of cross-border supply chain is taken as the study object in this paper, to analyze the financial risk management measures for cross-border supply chain according to relevant studies with Xiamen area of Fujian free trade zone as an example, so as to construct a scientific and reasonable financial risk management mode.

Keywords—*cross-border supply chain; financial risk; management mode*

I. INTRODUCTION

Traditionally, supply chain finance is to regard the core enterprises and relevant upper and lower enterprises of the supply chain as a whole, and to supply comprehensive products and services to upper and lower enterprises of the cross-border supply chain by relying on core enterprises. The business structure of cross-border supply chain itself is mainly to safeguard closure, and requires the main part of cross-border supply chain system to be complete in place with clear and reasonable process. The main part can be made clear no matter for cross-border supply chain design or organization operation, to play an important role.

II. RELEVANT STUDIES OF FINANCIAL RISK MANAGEMENT OF CROSS-BORDER SUPPLY CHAIN

A. Existing Research Results

Researchers have conducted in-depth studies on “financial risk management” and “cross-border supply chain” and other aspects. They analyze the financial risk management mechanism of banks, enterprises and related institutions with respect to “financial risk management”; and they pay attention to the research results of cross-border e-commerce and cross-border supply chain finance with respect to “cross-border supply chain”. The existing results of financial risk management of cross-border supply chain are analyzed as follows:

First of all, Li Meiwen points out in *Research on Enterprise Financial Risk and Its Control* that, the financial risk in enterprise operation activities is particularly crucial. It can be known from capital chain running sequence that, financial risk

of an enterprise includes the risks in financing, investment, operation and income distribution.

Second, Lu Zhigang shows his opinion in *Research on Cross-border Supply Chain Competitiveness in Free Trade Zone* that, “inside the territory while outside the customs”, “beyond the borders” and “inside the territory while outside the area” together constitute the cross-border supply chain of free trade zone, and form a complete system in the transaction process of an enterprise through capital flow and information flow. All enterprises in the supply chain give play to their competitive advantages for a common goal.

Last, Ma Jinyan expresses her views in *Discussion on Financial Risk Problems in Supply Chain Environment* that, in supply chain environment, the financial risk faced by an enterprise is related to the pricing of suppliers, manufacturers and distributors, and is influenced by financing and payment. If the above financial decisions are not scientific enough, financial condition of cross-border supply chain will be worse, bringing serious economic loss to the enterprise, which prejudices the sustainable development of an enterprise. Obviously, financial risk is the dilemma and financial crisis of the whole supply chain resulted by serious deviation of overall value expectation of cross-border supply chain from its value realization.

In this paper, in-depth research of financial risk of cross-border supply chain enterprises will be continuously made, the way to construct financial management mode of cross-border supply chain will be analyzed through case studies, thus to apply this management mode in practice successfully [1].

B. Related Theoretical Basis

1) *Financial risk of supply chain*: Financial risk mainly refers to the uncertain risk of actual business activities of enterprise brought by debt capital ratio changes of this enterprise. Under the supply chain mode, financial risk comes from various links including suppliers, manufacturers, distributors, sales market, financing and payment, and it may worsen the financial condition of enterprises in the whole supply chain. The risk can be divided into internal risk and external risk if divided by the source of financial risk of supply chain. Internal risk includes the enterprise’s funding liquidity risk, financing risk, investment risk and profit distribution risk. For instance, excessive debt capital ratio of supply chain enterprise may result in funding liquidity risk,

payment difficulty, thus it may make the enterprise face the financial crisis of bankruptcy. In addition, it may have negative influence on the follow-up financing and investment activities of the enterprise, and finally lead to profit reduction due to its incapability of conducting business operation properly. External financial risk mainly refers to the uncertain risk brought by changes in policies, finance, industry and market environment, which is uncontrollable [2].

2) *Financial risk of cross-border supply chain*: Under the globalization trend of supply chain, the financial risk of supply chain is increasingly expressed as financial risk of cross-border supply chain. In the course of an enterprise's involvement in cross-border supply chain, more complicated financial risks will appear due to influences from the aspects of business flow, logistics and information flow. Moreover, financial risk of cross-border supply chain is easier to have an impact on the whole supply chain. It is difficult for an enterprise to find the effective prevention measures in the course of its participation in cross-border supply chain because it is short of knowledge of cross-border supply chain. This is particularly obvious in the enterprises in China's free trade zone, which brings about new opportunity for the enterprises to enter the international market. Particularly, its combination with cross-border supply chain enhances the industrial chain construction level of enterprises in free trade zone rapidly. Nevertheless, the enterprises also face more severe financial risk of cross-border supply chain. This relates to not only the enterprise's own benefit, but also the overall competitiveness of cross-border supply chain of the free trade zone [3].

3) *Transmission mechanism of financial risk of supply chain enterprises*: Financial risk of supply chain is transmittable, and enterprises at different nodes of the supply chain will be influenced in terms of the operation of its financial system due to changes in the financial condition of upper and lower enterprises. When one enterprise at a certain node is in serious financial crisis, other enterprises will be affected at the same time. The transmission mechanism of financial risk of supply chain enterprises is mainly classified into the following types. First, agglomerate transmission mechanism, namely the energy agglomerate effect determined by the characteristics of supply chain; the financial risk factors of an enterprise will transmit down layer by layer, and eventually to the whole supply chain. Second, amplification transmission mechanism, namely amplification effect will appear to the financial risk of an enterprise at certain node in the transmission process of supply chain, and eventually result in serious financial crisis of the enterprise at another node. Third, booster transmission process, for example, Company A is the supplier of Company B, if Company B has capital problems, and fails to pay for the materials on time, yet Company A does not solve the problem of Company B, then other enterprises in the supply chain will take the hint, and behave similarly to Company A, making its capital recovery difficult [4].

III. CASE ANALYSIS OF FINANCIAL RISK MANAGEMENT OF CROSS-BORDER SUPPLY CHAIN

A. Object of Study

In order to analyze the characteristics of financial risk management of cross-border supply chain and construct the effective financial risk management system of cross-border supply chain, the cross-border supply chain enterprises in Xiamen area of Fujian free trade zone is taken as the object of study, to analyze the financial risk problems encountered by different enterprises in cross-border business, and to assess the financial management mode in combination with existing theoretical research basis. On that basis, effective solutions of financial risk of cross-border supply chain will be designed according to differences of enterprises' actual business, to help the enterprise enhance its capability of financial risk management of cross-border supply chain. The surveyed companies include Alphalog (Xiamen) Supply Chain Management Corp., Trans-China Logistics Co., Ltd, Xiamen Branch of Sinotrans Air Transportation Development Co., Ltd and Xiamen Huangge IMP. & EXP. Co., Ltd. After the cooperation intention of investigation and research is determined, rich research materials have been collected from the above companies, and their business status and financial status are understood.

B. Basic Business Status of the Enterprise

Xiamen Free Trade Zone was officially established in March 2015. Afterwards, it expands the pilot policy scope continuously according to the needs of industrial development and radiation effect, and it has formed the cooperative demonstration area with cross-strait new industries and modern service industry. As the largest area of Fujian free trade zone, Xiamen Area covers an area of 43.78 km², and mainly engages in the port-vicinity industry, including shipping logistics, service outsourcing, import and export, bonded logistics and value-added by manufacture. The enterprises in Xiamen free trade zone including the investigated enterprises have formed the typical cross-border supply chain system. In the whole supply chain, there are trade subjects belonging to different customs, and they deliver the products through cross-border logistics channels. Generally, the cross-border supply chain of free trade zone can be divided into three parts, namely "inside the territory while outside the area", "inside the territory while outside the customs" and "beyond the borders", and they form a complete system based on same logistics, information flow and capital flow. The economic policies of free trade zone, which includes the policy of comprehensively opening up financial services, policy of promoting trade facilitation and customs control policy, have provided basic guarantee of supply chain development and competitiveness. However, viewing from the actual operation of cross-border supply chain enterprises in free trade zone, these enterprises still face high financial risk of supply chain, which has formed certain obstruction effect on the enhancement of supply chain competitiveness [5].

C. Main Financial Risk Problems Faced by the Enterprise

It can be known from the results of this investigation that, the financial risk problems faced by cross-border supply chain enterprises in Xiamen free trade zone mainly include: (1) the

risk of financial leasing, the state has introduced favorable policies relating to financial leasing of enterprises in free trade zone, but domestic financial leasing industry starts late, and domestic channels are still the main channel of financial leasing of enterprises in free trade zone. Moreover, many preferential policies are put into trial use and are instable, resulting in high financial leasing risk. For instance, aviation enterprises face the risk of aircraft financial leasing, port enterprises face the risk of ship chartering, etc.; (2) enterprises' insufficient understanding of financial risk of cross-border supply chain, particularly the lack of recognition of transmission mechanism of supply chain financial risk, makes it difficult to develop effective preventive measures, and the supply chain is also short of coordination capability; (3) scientific management mechanism of supply chain financial risk is not established, and in the supply chain containing multiple nodes, the overall operating efficiency of supply chain financial management is low due to lack of total cost minimization concept and credit mechanism, making it difficult to control various risk problems effectively; (4) it is lack of financial information sharing mechanism with low quality of financial information, and in the construction process of supply chain of enterprises in free trade zone, no unified financial information sharing platform has been formed, yet individual enterprise is unable to notice the changes in financial information of the whole supply chain, so the whole supply chain may be at risk due to wrong decision of individual companies.

IV. CONSTRUCTION AND APPLICATION OF FINANCIAL RISK MANAGEMENT MODE OF CROSS-BORDER SUPPLY CHAIN

A. *Establishing New Understanding of Financial Risk Management of Cross-border Supply Chain*

First of all, the recognition of supply chain financial risk management should be deepened and the source and transmission mechanism of supply chain be made clear against the financial risk problems faced by cross-border supply chain enterprises in Xiamen free trade zone. All the enterprise members of the supply chain may reach a consensus on this basis to strengthen the financial risk management of supply chain. As for the supply chain enterprises, capital flow, information flow and logistics form the transfer and agglomeration processes of financial risk. The member enterprises within the supply chain are partners and competitors, so internal financial risk is mainly the result of competition among supply chain enterprises. If the member enterprises only attach importance to their own interests, pursue self-interest maximization, then in the financial information sharing and financial exchange activities, they will take corresponding control measures, and the small financial problem of an enterprise may evolve into large-scale financial risk threatening the whole supply chain under the financial risk amplification and booster transmission mechanisms. Therefore, the management personnel of cross-border supply chain must have profound understanding of the connotation of supply chain financial risk management, take initiative to construct the supply chain communication and coordination mechanism and enhance internal financial risk control ability.

B. *Improving the Financial Risk Control Mechanism of the Whole Supply Chain*

It is particularly important to establish scientific risk management mechanism in the process of building and applying financial risk management system of cross-border supply chain. The possible financial risk problems should be taken into full consideration at the beginning of the design of free trade zone supply chain, to have an early identification of financial risk by analyzing supply chain structure and internal and external operating environment. Partners should be selected in a rational manner and the possible financial risk that may appear while expanding the supply chain should be considered fully in the follow-up development process of supply chain. As a result, the financial risk control mechanism of cross-border supply chain need to be constantly adjusted and optimized. In general, financial risk management mechanism is an important means to maintain stable operation of supply chain member enterprises, including the analysis, recognition, evaluation and control of supply chain financial risk. In the process of establishing financial risk control mechanism of supply chain, first of all, the responsibilities of various member enterprises in the links of financial risk recognition and control should be determined based on risk control theory, to construct the effective monitoring and controlling process, and make sure to recognize financial risk timely. The financial risk management system should be formulated under the framework of relevant national laws and regulations on that basis, to take effective prevention and control countermeasures in a timely manner as per the analysis result of financial risk factors.

C. *Accelerating the Establishment of Financial Information Sharing Platform of Supply Chain in Free Trade Zone*

The establishment of unified financial information sharing platform should be accelerated on the basis of communication between enterprises in combination with the demand of financial risk management of cross-border supply chain against the operating characteristics of supply chain enterprises in free trade zone, to realize real-time exchange of financial information. Specific requirements for strengthening disclosure of enterprise information are also put forward in China's new accounting criterion. Particularly, with respect to the member enterprises of supply chain, enterprises at different nodes will have an impact on the business operation and financial operation of upper and lower enterprises, and only by disclosing enterprise financial information in strict accordance with new accounting criterion can the management demand of stakeholders be met and the rationality of financial decisions be ensured. In the supply chain enterprises in Xiamen free trade zone, there are many high and new technology industries with comparatively complete logistics network, providing strong foundation for the construction of financial information sharing platform. The government-led approach can be taken to give full play to the advantages of technology enterprises, build the convenient and efficient financial information sharing platform of supply chain enterprises and implement the financial information data linkage management using big data, cloud computing and other advanced technologies. Under such circumstances, the financial risk of supply chain due to

information asymmetry can be reduced, which is conducive to the realization of supply chain cost minimization.

D. Improving Financial Leasing Mechanism and Relevant Management System Within the Free Trade Zone

As for the development of supply chain enterprises in free trade zone, the financial risk problems of financing have been the principal factor affecting enterprise development and supply chain comprehensiveness enhancement. In the business operation process, financial leasing enterprises face high capital recovery risk, so the provided financial services are difficult to meet the actual development needs of supply chain enterprises. To solve this problem, the financial leasing enterprise can unite with other financial institutions, to spread capital recovery risk by way of cooperation, operate the financial leasing business together and build diversified business patterns. In addition, importance should be attached to the development of Internet financial business, to complete the matching of capital supply and demand more effectively using Internet technology, and satisfy the financial leasing needs of supply chain enterprises. The act of malicious competition may be avoided by improving internal financial leasing mechanism of the free trade zone and strengthening market supervision and administration, and then the financial difficulties faced by supply chain enterprises can be solved. In this way, the enterprises can develop better and the overall financial status of supply chain can be improved.

V. CONCLUSION

Generally speaking, as can be known from the current international economic pattern, it is particularly crucial for international trade enterprises and cross-border e-commerce services to improve the financial risk management theory of cross-border supply chain further and design the financial risk management mode suitable for cross-border supply chain enterprises. The enterprises should analyze the development advantages of cross-border supply chain from the perspective of financial risk, and apply the financial management mode of cross-border supply chain to the production and business activities of the enterprises in combination with economic development trend.

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