

Construction of Financial Risk Assessment System for Online Supply Chain

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Abstract: This research analyzes the risk factors of the external environment and internal impact of Online Supply Chain Finance from the perspective of systems theory. Through the analysis of risk occurrence mechanism, this paper put forward E-bank Relationship Risk, which influences the risk of online supply chain finance together with Macroscopic and Industrial Risk, Credit Risk, Supply Chain Relationship Risk, Pledge Risk and Operational Risk. In the end this paper presents the risk assessment system for main risks.

1. Introduction

Recent years, E-commerce trading market is quite active, and the trading volume increases in a geometric ratio. [1] The combination of E-commerce technology and traditional supply chain finance produces a new model of financial operation of Online Supply Chain Finance--the B2B model, such as Alibaba and JD.[2] Therefore this paper will first discuss the risk assessment system that bases on B2B model and accords the financial characteristics of online supply chain, and then carry out a comprehensive evaluation of supply chain risk, and a risk identification and risk assessment to all participants of the online supply chain.

2. Online Supply Chain Finance Risk

2.1 Definition of Online Supply Chain Finance Risk

Online Supply Chain Finance Risk refers to the losses of participants caused by external conditions, breach of contract by participants, human error, system failure and imperfect internal control and so on during the whole process of financial operation and supervision of online supply chain, which includes E-commerce transaction, commercial bank financing, logistics management and online payment.

2.2 Characteristics of Online Supply Chain Finance Risk

The participants of Online Supply Chain Finance consist of the third-party B2B e-commerce platform, commercial banks, financing enterprises, core enterprises and third-party logistics enterprises. The constant delivery and collection of information flow, material flow and capital flow of participants determine the conductivity, complexity, dynamics, transition and vulnerability of the risks.

3. Main risks of Online Supply Chain Finance

3.1 Macroscopic and Industrial Risk

Macroscopic and Industrial Risk refers to the risk of Online Supply Chain Finance caused by uncertainties of external environment during the operational process. It consists of macroeconomic environmental risk, industry environmental risk, legal risk and policy risk.

3.2 Credit Risk

Credit risk is the risk of economic losses that the borrowers bring to the counter-party for various

reasons which make borrowers unable or unwilling to fulfil their obligations under contractual agreements. [3] Credit Risk is a main financial risk. However, due to its own particularity, the credit risk of Online Supply Chain Finance is different from that of traditional credit business, and there are differences in financing scale, financing model and repayment source.[4] Therefore, credit risk is extracted according to the risk factors existing in financing enterprises and core enterprises in Online Supply Chain Finance.

3.3 Supply Chain Relationship Risk

Supply Chain Relationship Risk refers to the risk that the financing loan can not be repaid due to the lack of close cooperation between core enterprises and financing enterprises in supply chain finance. Supply Chain Relationship Risk is the aggregation of risks caused by the relationship between financing enterprises and core enterprises in online supply chain finance.

3.4 Pledge Risk

Pledge Risk refers to the risk of loss caused by the financial participants in the Online Supply Chain during the pledge period due to price changes, liquidity, logistics warehousing supervision and so on. Pledge Risk is a collection of the risks of Online Supply Chain Finance caused by the pledge of the commodities traded in the supply chain as pledges in the financial operation.

3.5 Operational Risk

Operational Risk refers to the risk of indirect or direct loss of financial participants in online supply chain caused by imperfect or problematic operational processes, systems, personnel, technology or external events in the process of Online Supply Chain Finance services of commercial banks and e-commerce enterprises. Operational Risk is a collection of risk factors of e-commerce platform, commercial banks and third-party logistics enterprises.

3.6 E-bank Relationship Risk

E-bank Relationship Risk refers to the financing risk of Online Supply Chain Finance based on third-party e-commerce platform, which is caused by the incomplete transmission of transaction information caused by the game between third-party B2B e-commerce platform and commercial banks, resulting in the decline of financial synergy of online supply chain. E-bank Relationship Risk is a collection of the financial risks of online supply chain resulted by the relationship between e-commerce platform and commercial banks.

4. Risk assessment system of Online Supply Chain Finance

4.1 Analysis process of Online Supply Chain Finance Risk

There are many risks in the operation of Online Supply Chain Finance on e-commerce platform, so the scientific and comprehensive analysis of online supply chain financial risks can effectively guide the risk assessment, control and treatment. [5] Since Online Supply Chain Finance is a relatively complex system with many participants, the connection of any member in the system, the completion of a step, and the transmission of information are all involved in it. Therefore, the risk analysis of Online Supply Chain Finance can comprehensively consider the complexity of risk from the height of the system. In order to analyze the financial risk of online supply chain clearly, this paper establishes the financial risk analysis process of online supply chain as shown in Figure 1.

From the perspective of systems theory, the system exists as a whole, and the whole of the system is composed of an organic combination of various elements. The system has the integrity, correlation and dynamics. Therefore, we should analyze the systematic characteristics of the Online Supply Chain Finance Risk first before analyzing the specific factors. Then we put forward the potential risks and analyze the risk occurrence mechanism. Last, we make a conclusion about Online Supply Chain Finance Risk and analyze it from the angle of system.

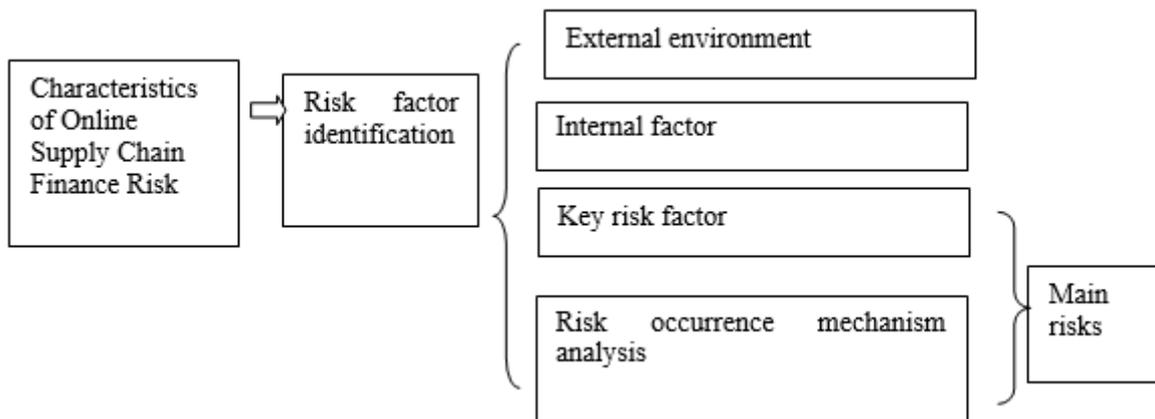


Figure 1. Online Supply Chain Financial Risk analysis process

4.2 Construction of financial risk assessment system for online supply chain

As a financing behavior based on supply chain, Online Supply Chain Finance needs integrate the assessment system into its risk assessment process. Therefore, the selection of financial risk factors in online supply chain can refer to the dimensions of supply chain risk management so as to select risk evaluation indicators. According to the theory of supply chain risk management, supply chain risk comes from its own complexity, hierarchy, dynamics, interaction and uncertainty. Supply chain risk can be divided into endogenous risk and external risk. Endogenous risks include moral risk, information transmission risk, production organization and procurement risk, risk of choosing distributors, risk of logistics operation, risk of corporate cultural differences, etc. And external risks include: legal risk, policy risk, market demand uncertainty risk, business cycle risk, accidental disaster risk, technical risk and so on. The Supply Chain Risk Management Guidelines of GB summarizes the sources of risk factors during the supply chain operation process. It believes that supply chain risks come from quality, environment and safety, working environment, geography, politics and ethics, finance, customer satisfaction, human resources, improvement activities, on-time delivery, manufacturing capability and potential, secondary supply chain control, design capability and potential, safety level, special processes involved, design complexity and manufacturing complexity. Meanwhile, these 12 dimensions together constitute the evaluation system of supply chain risk. In the construction of risk evaluation system of Online Supply Chain Finance, we can select appropriate dimensions from the supply chain risk evaluation system according to the characteristics of Online Supply Chain Finance, and we can also merge and reduce the different dimensions to reconstruct the new dimension. For example, design complexity dimension and manufacturing complexity dimension can be merged into product substitution dimension in Online Supply Chain Finance. Appropriate adjustment and reduction of supply chain risk dimension can effectively refine the design of online supply chain financial risk assessment system, and effectively improve the accuracy of risk assessment.

In the risk evaluation system of supply chain, except financial indicators, non-financial indicators, are also included such as manufacturing capacity, customer satisfaction, on-time delivery, safety level, design and manufacturing complexity. These are all evaluations of the cooperative relationship between enterprises involved in supply chain and lacking in the 5C factor analysis and evaluation method. The close cooperation and the sustainability of cooperation among supply chain participants are the premise to ensure the smooth operation of supply chain. Therefore, in Online Supply Chain Finance, the relationship between core enterprises and financing enterprises, and the risk factors existing in the relationship between e-commerce platform and commercial banks can be selected by referring to the risk indicators in supply chain risk management. Balanced scorecard is not only an evaluation method for organizational performance in supply chain management, but also often used in the selection of supply chain partners. As the main participants in the supply chain, the mutual choice between core enterprises and financing enterprises is, to some extent, based on their own strategic needs. While the mutual choice between commercial banks and B2B

e-commerce platform is also based on their respective future development strategies. Balanced scorecard, as the performance evaluation method of organizational strategy in supply chain management, evaluates the performance of organizational strategy from financial dimension, customer dimension, internal operation dimension and learning and growth dimension. Through the analysis of the driving factors between output and performance, the balanced scorecard measurement index can put the organization's strategy into specific operational matters, which need the insurance of effective implementation of enterprise strategy. Balanced scorecard includes the balances of financial and non-financial indicators, long-term and short-term objectives of enterprises, results and motivation indicators, internal and external groups of enterprises, leading indicators and backward indicators. The degree and sustainability of cooperation among supply chain participants are the premise to ensure the smooth operation of the supply chain. Therefore, in online supply chain finance, the relationship between core enterprises and financing enterprises, and the risk factors in the relationship between B2B e-commerce platform and commercial banks can be selected by referring to the risk indicators in supply chain risk management.

5. Conclusion

Online Supply Chain Finance combines the innovation of financing model with the development of Internet technology and e-commerce technology, providing a more convenient financing model for SMEs as well as realizing mutual benefit and win-win between enterprises and commercial banks. This paper makes a comprehensive study of the four main parties of Online Supply Chain Finance—financing enterprises, e-commerce platforms, commercial banks and logistics enterprises, as well as their relationships. The risk factors such as credit risk, market risk and operational risk are taken into account, and a risk evaluation system based on B2B model which conforms to the characteristics of online supply chain finance is discussed.

References

- [1] China corporate payment survey: the devil is in the detail. COFACE. <http://www.coface.com.cn/News-Publications-Events/Publications/China-corporate-payment-survey-the-devil-is-in-the-detail> . 2017
- [2] Supply-chain finance:the emergence of a new competitive landscape 2015. MCKINSEY COMPANY.<https://www.mckinsey.com/industries/financial-services/our-insights/supply-chain-finance-the-emergence-of-a-new-competitive-landscape>. 2016
- [3] Smart supply chain management: a review and implications for future research. WU L, YUE X, JIN A, YEN D C. *The International Journal of Logistics Management*. 2016
- [4] The new monetary and financial initiatives: finance regaining its position as servant of the economy [J]. Sandrine Ansart, Virginie Monvoisin. *Research in International Business and Finance*. 2015
- [5] Comparative advantage, demand for external finance, and financial development [J] . Quy-Toan Do, Andrei A. Levchenko. *Journal of Financial Economics*. 2007 (3)