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Credit risk contagion of Supply Chain Based on trade credit

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Abstract

There are two kinds of different credit risks in the two-echelon supply chain with typical capital constraints. One is the credit risk of the supplier to the bank loan, and the two is the credit risk which is formed by the supplier to the retailer with the commercial credit. Based on the newsboy model under the assumption of correlation and contagion between these two kinds of credit risk analysis. Research shows that: the two types of credit risk between the intensity of the infection and the supplier's production costs are positively correlated.

Key words: supply chain; commercial credit; Stackelberg game; transmission mechanism

1. Introduction

Supply chain refers to the acquisition of raw materials, processed into semi-finished products until the product, and the product to the customer in the hands of some of the enterprises or sectors of the network(Wu Jun, Li Jian,2006)[1]. In a capital constraint in the supply chain, at the same time, there are two different types of credit risk, one is the supplier to the bank credit loans of credit risk; the other is the suppliers Allow the retailer delayed payments and the credit risk of the trade credit risk. Trade credit risk is a common supply chain in a class of credit risk, (once the retailer's default or credit risk increases), if not timely take preventive

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measures, the credit risk of the retailer will impact the suppliers, thus increasing the supplier's Bank credit risk. In other words, in the supply chain, because of the relationship between the supplier and the retailer, the risk of trade credit and bank credit risk is contagious. There are two main reasons for the infection of these two kinds of credit risks: one is the trade credit given by the supplier to the retailer, and the other is the strategic dependence among the supply chain enterprises. Trade credit risk will seriously affect the credit risk of the supplier itself. Therefore, the bank should consider the risk of credit risk in the supply chain when evaluating the supplier's credit risk. The characterization between enterprises in supply chain decision interdependence, illustrates the supply chain enterprise credit risk contagion mechanism, and to supply chain between affiliated enterprise credit risk contagion metrics, which will help banks to control the credit risk of the supply chain enterprises.

At present, the research on the credit risk contagion of affiliated enterprises, mostly concentrated in the enterprise group. Such as Chen Lin(2009,2010) [2-3]respectively in the structural model and the simplified model of two kinds of mode of enterprise group has the option to contact the parent company's credit risk contagion and between the two sub companies affected by the common parent company under the control of credit risk contagion of problems. Li Li(2015)[4]between the group and subsidiary company credit risk contagion mechanism was discussed. Analysis has been among the parent company and subsidiary company credit risk contagion intensity is path dependent, and with the increase in the proportion of equity increases gradually. Yang(2014) [5]Based on cooperative game theory to build the enterprise group associated with the basic transaction model, using the survival copula function describes the different types of related party transactions of the credit risk of the enterprise group, expounds the optimum allocation of resources can make the credit risk of the enterprise group the lowest level. In the study of the supply chain constraints, it is more focused on the supply chain coordination and efficiency and other issues (Chen,2008,Kouvelis2012,Lai,2009,Bing Jing,2014,Fu Yonghua,2014)[6-10]. In the research of the credit risk in the supply chain, most scholars have focused on the evaluation of the credit risk of small and medium enterprises in the supply chain(Bai Shizhen,2013,XiongXiong,2009,Hu Haiqing,2011, Kong Yuanyuan,2010) [11-14]. As mentioned before, capital constraints in the supply chain in dominant suppliers in addition to its credit risk exists, there is also due to the retailer granted commercial credit to commercial credit risk, and credit risk will affect the supplier's own credit risk. At present, however, the commercial credit risk to the study on the supplier's own credit risk contagion is less, only Yang(Yang,2015) [15]Based on structural model by the commercial credit shock added to the diffusion process of jump of the commercial credit risk contagion. However the study not deterministic source is supplier asset value changes and ignore the influence of interaction between the supplier and the retailer of uncertainty. In conclusion, this paper analyzes the source of the supply chain between enterprises of the specific interaction and commercial credit supply chain credit risk contagion problem, trying to supply chain credit risk of enterprises to provide some ideas for commercial banks to control.