

# A Research on The Basic Theories of Systematic Risk Transmission in Enterprise Value Chain

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**Abstract** This paper sets forth the connotation of enterprise value chain and constructs the system map of enterprise value chain. Then it defines the systematic risk of enterprise value chain and its transmission and presents the orientation theory, intensity theory and time theory of systematic risk transmission in enterprise value chain. Eventually, it puts forward the viewpoint of controlling systematic risk transmission in enterprise value chain by means of the scientific concept of development which has the guiding significance in the prevention and control of systematic risk and its transmission in enterprise value chain.

**Key words** enterprise value chain system, systematic risk transmission in enterprise value chain, orientation theory, intensity theory, time theory

## 1 Introduction

Michael Porter (1985) presents the term of value chain firstly and assumes that, according to the independence of economy and technology, every operating activities of an enterprise is the process of creating value, and then all the different but interacting operating activities form a dynamic process of value creation that is called as value chain. According to the viewpoints of Michael Porter, every operating activities of an enterprise is the process of creating value, and then all the different but interacting operating activities form a dynamic process of value creation that is called as value chain.

The value chain of an enterprise has the indiscerptible relationship with outside world, which is connected with suppliers upward and customers downward. Meanwhile, it is also influenced by the market value chain as well as competitor's value chain and then constructs an enterprise value chain system as Figure 1.

## 2 Systematic Risk Transmission in Enterprise Value Chain

Operating activities in enterprise value chain system is a complicated and interacted dynamic process which is based on value creation and has the characteristics of mutual limitation and promotion. From Figure 1, enterprise A is connected with supplier A upward and customer A downward and forms an enterprise value chain system. At the same time, it is affected by market and competitors from different aspects in different styles and to different extents. For supplier A, enterprise A is its customer in backward position and has business with supplier A-A in upriver position, which is also affected by the relevant market and competitors. For customer A, enterprise A is its supplier in upriver position and has business with customerer A-A in backward position, which is also affected by the relevant market and competitors. For a competitor, it is just in the same position like enterprise A, so it should connect with suppliers upward and customers downward and forms an competitor value chain system. Besides, it is also influenced by market, which is a place designed for transaction and comprised of some complicated elements with particular functions. Enterprise value chain system is made up of enterprise value chain, supplier value chain, customer value chain, market value chain and competitor value chain. It is very huge and complicated, but only a subsystem in the system of national economy and then is changed with the whole system of national economy, which is the root of uncertainties in enterprise value chain system. These uncertainties will evolve with time and environments and further lead to the deviation of actual targets of enterprise value chain system from anticipated targets, or the operating risk. This risk will transmit and overspread along a certain of pathes by means of some carriers in enterprise value chain system, which is called as the systematic risk transmission in enterprise value chain.

## 3 Basic Theories of Systematic Risk Transmission in Enterprise Value Chain

### 3.1 Orientation theory of systematic risk transmission in enterprise value chain

Orientation theory means that the transmission of enterprise value chain's systematic risk has a certain of orientation and exists among related enterprises with direct or indirect value creation relationship with enterprise value chain system. It includes the single-orientation, dual-orientation and

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multi-orientation.

(1) The theory of single-orientation of systematic risk transmission in enterprise value chain

Single-orientation of systematic risk transmission in enterprise value chain represents that, if an enterprise is influenced by the risks transmitted from upriver suppliers, market or competitors, it has no choice of preventing, controlling and transferring these risks but to pass these risks to downward customers. Single-orientation is characterized by single direction, limited scope and direct transmission. For example, if the price of raw material offered by the upriver suppliers of an enterprise goes up, this enterprise can not absorb the pressure of price by cutting off the consumption of raw material, but pass this risk to downward customers.

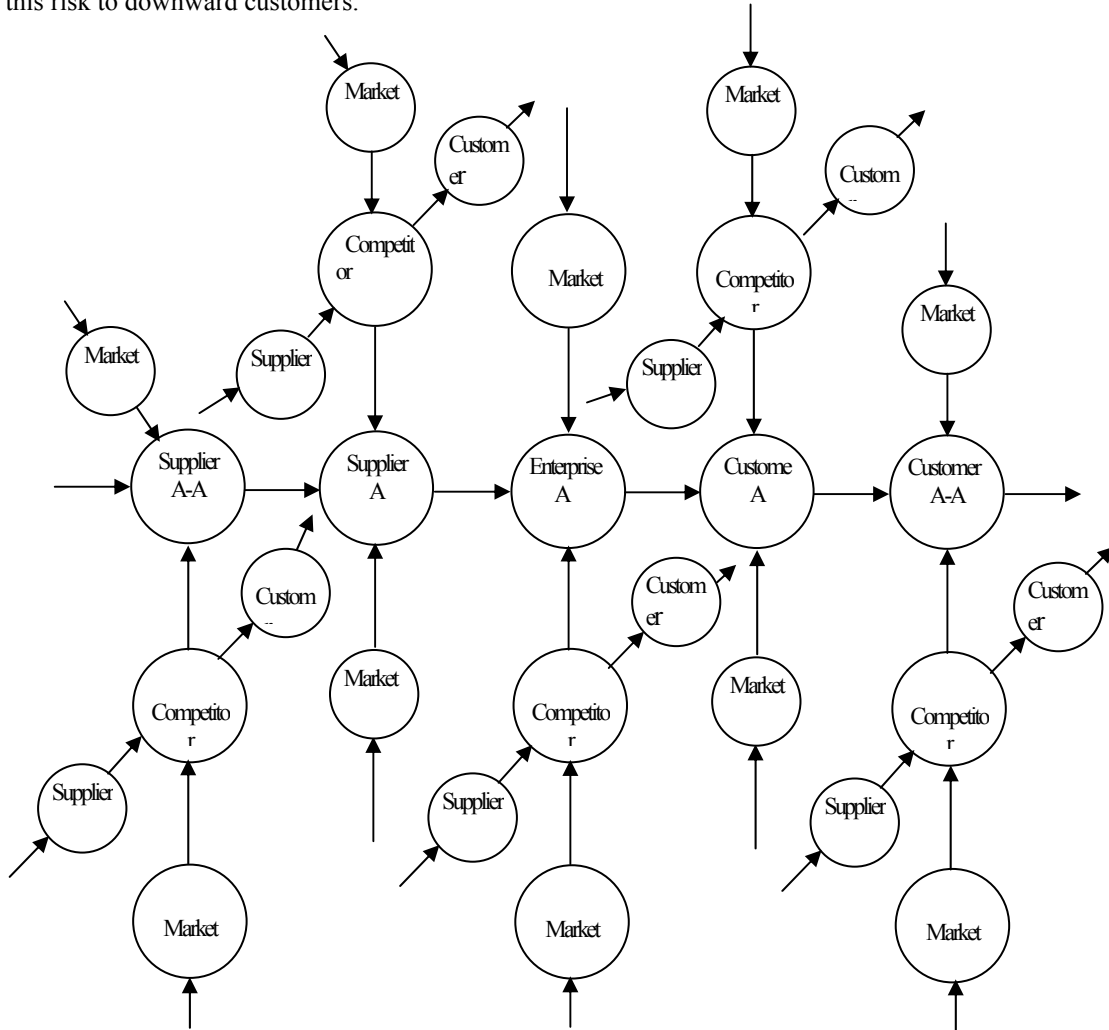


Figure 1 Enterprise value chain system

(2) The theory of dual-orientation of systematic risk transmission in enterprise value chain

Dual-orientation of systematic risk transmission in enterprise value chain means that, if an enterprise is influenced by the risks transmitted from upriver suppliers, market or competitors, it has the ability to pass the risks caused by the transmitted risks to downward customers reversely. It is characterized by reverse direction, limited scope and convective transmission. For example, if the price of raw material offered by the upriver suppliers of an enterprise goes up, this enterprise has to cut off production due to the shortage of funds. As a result, the decrease of purchased materials will diminish the demand for raw material offered by the upriver suppliers and the profit acquired by these suppliers will go down.

(3) The theory of multi-orientation of systematic risk transmission in enterprise value chain

Multi-orientation of systematic risk transmission in enterprise value chain represents that, if an enterprise is attacked by the risks transmitted from upriver suppliers, market or competitors, it will be at the huge loss and then conduct the related risks to enterprises in enterprise value chain such as upriver

suppliers, market, competitors and downward customers. Multi-orientation is characterized by multi-dimension, extended scope and interleaving transmission. For instance, the total profit of an enterprise in a given year may derive from the appreciation of raw materials, the depreciation of finished products, the upgrade of marketing expense or the decrease of demand caused by downward customers. Accordingly, this enterprise has to change its strategy and updates its products through technological innovation. Meanwhile, the development of new products will change the requirement mode of raw materials and then some new suppliers will take the place of old suppliers. The renewal market segmentation between this enterprise and competitors will update the percentage of customers and the varieties as well as contents of market services. All in all, there exist different levels and kinds of risks for upriver suppliers, downward customers, market and competitors.

The single-orientation, dual-orientation and multi-orientation of systematic risk transmission in enterprise value chain all follows the law of minimum resistance, which means that, although the related risks exist the possibility of extending to various directions at the initial stage, they generally spread to the direction with the strongest relationship and weakest prevention ability. For example, under the same risk of soaring prices, some enterprises suffer a lot because they have poor risk prevention ability and lack of raw material reserves and options. But others keep the stable operation due to that they have strong risk prevention ability and can predict the rise of price exactly. As a result, they can evade this kind of risk by the huge reserve of raw materials before the price soars up and prevent the extension of this kind of risk.

### **3.2 Intensity theory of systematic risk transmission in enterprise value chain**

Intensity theory of systematic risk transmission in enterprise value chain presents the degree of deviation of actual targets of enterprise value chain system from anticipated targets in the unit time. It includes the transmission of high intensity, medium intensity and low intensity.

#### **(1)The theory of high intensity of systematic risk transmission in enterprise value chain**

High intensity of systematic risk transmission in enterprise value chain represents that, if an enterprise is influenced by the risks transmitted from upriver suppliers, market or competitors, the huge and dramatic change or deviation between actual targets and anticipated targets of an enterprise will appear in the short term. For instance, the Asian financial crisis put the destructive attack on some financial institutions and enterprises very quickly. SARS and bird flu exerted the huge impact on regional economy, society and the lives of people.

#### **(2)The theory of medium intensity of systematic risk transmission in enterprise value chain**

Medium intensity of systematic risk transmission in enterprise value chain stands for that, if an enterprise is influenced by the risks transmitted from upriver suppliers, market or competitors, the big change or deviation between actual targets and anticipated targets of an enterprise will appear in the short term. But this kind of change or deviation usually presents itself slowly with the characteristics of uniform contact, relative stability and predictability. For instance, the soaring price of raw material and the escalation of interest rate can pull down the profit level of an enterprise. However, both the soaring and the escalation are in the uniform and stable rhythm rather than continually or dramatically. So enterprises can adopt some positive and scientific measures to minimize the deviation between actual operation targets and anticipated operation targets.

#### **(3)The theory of low intensity of systematic risk transmission in enterprise value chain**

Low intensity of systematic risk transmission in enterprise value chain means that, if an enterprise is influenced by the risks transmitted from upriver suppliers, market or competitors, the small change or deviation between actual targets and anticipated targets of an enterprise will appear in the given time. This kind of change or deviation is usually characterized by small impact, little involvement and strong controllability. For instance, the job-hopping of general technician or management in an enterprise has an short-term impact on its technological and operating activities. But this enterprise can reorganize its business and diminish, even eliminate the fluctuation of operating activities.

The high intensity, medium intensity and low intensity of systematic risk transmission in enterprise value chain are related with enterprise value chain, supplier value chain, customer value chain, market value chain, competitor value chain and cooperation among them. The higher the cooperation among them is, the close the relationship among them is. Furthermore, enterprises will be influenced by changes caused by the transmission of risks greatly, or the intensity of the transmission of risks is higher. Otherwise, the intensity of the transmission of risks will be lowered.

### **3.3 Time theory of systematic risk transmission in enterprise value chain**

Time theory means that the transmission of enterprise value chain's systematic risk exists a continuous time series among enterprise value chain, supplier value chain, customer value chain, market

value chain. It has the classification of continuous transmission, interval transmission and periodical transmission.

(1) The theory of continuous transmission of systematic risk in enterprise value chain

The continuous transmission of systematic risk in enterprise value chain presnets that if an enterprise is influenced by the risks transmitted from upriver suppliers, market or competitors, the continuous and uninterrupted change or deviation between actual targets and anticipated targets of an enterprise will appear in the long run. For example, if the innovation ability of products, technology, management and ideas of an enterprise's competitors is very strong, competitors's product renewal, technological progress, management innovation and update of management ideas will rob the original customers of this enterprise one by one. Accordingly, this enterprise will suffer the shrink of production, the shortfall of employees' wages, the fluctuation of employees' sentiment, the breach of contracts with upriver suppliers, the drop of market share and the drain of customers. Furthermore, the invisible loss such as reputation loss and default compensation claim will last for a long term.

(2) The theory of interval transmission of systematic risk in enterprise value chain

The interval transmission of systematic risk in enterprise value chain stands for that if an enterprise is influenced by the risks transmitted from upriver suppliers, market or competitors, the uncontinuous and interval change or deviation between actual targets and anticipated targets of an enterprise will appear stage by stage. For example, for the sake of the healthy and sustainable development of national economy, some macro-economic policies such as the interest rate policy will be adjusted. Consequently, the investment efficiency, economic performance and operating decisions of enterprises will be affected. So enterprises should adopt efficient measures to deal with these problems and attain a new dynamic and balanced position.

(3) The theory of periodical transmission of systematic risk in enterprise value chain

The periodical transmission of systematic risk in enterprise value chain means that if an enterprise is influenced by the risks transmitted from upriver suppliers, market or competitors, the regular and periodical change or deviation between actual targets and anticipated targets of an enterprise will appear stage by stage. For example, enterprise value chain system is a subsystem in the whole system of national economy and then is changed with the economic rule of national economy following the periodical stages of recession, resuscitation, development and prosperity. Similarly, the periodical change of enterprise value chain system's operating targets will appear and it is possible for the periodical deviation between actual targets and anticipated targets of an enterprise and the periodical transmission of systematic risk in enterprise value chain.

## **4 Contorlling Systematic Risk Transmission in Enterprise Value Chain by Means of The Scientific Concept of Development**

Systematic risk transmission in enterprise value chain should follow the theories of orientation, intensity and time. According to the analysis of these theories, we can conclude clearly that the introduction of ideas and methods of the scientific concept of development into the control of systematic risk transmission in enterprise value chain is the optimum choice for enterprises.

### **4.1 Establishment of a fast and good development target**

Enterprises should focus on the idea of developing national economy and make great efforts to grasp the rules of economic development, to innovate the ideas of economic development, to transform the modes of economic development, to sovle the problems in economic development and to pimprove the quality and benefits of economic development. Accordingly, enterprises should innovate their property right system, technology, products, management. So they can realize the good and fast development, minimize their risks and enhance the ability to prevent risks and to control the systematic risk transmission in enterprise value chain.

### **4.2 Erection and persistence of the ideas of making overall plans and taking all factors into consideration as well as sustainable development**

In order to realize the fast and good development target, enterprises should reconcile with suppliers and customers correctly about the relationships between current interests and long-term interests, partial interests and the whole interests of value chain, as well as the competition and harmonious development.

Besides, nterprises should take the resource-effective and environment-friendly style and pay more attention to credit and harmony among enterprise value chain, supplier value chain, customer value chain, market value chain and competitors chain so as to control the systematic risk transmission in enterprise value chain.

#### **4.3 Adoption the core idea of people oriented and people foremost**

People is the number one factor in realizing the fast and good development target as well as sustainable development. So enterprises should maintain the basic interests of shareholders and employees, respect their contribution to enterprises, keep their interests safe, and stimulate them work hard and present their creativity, ability and wisdom comprehensively. Consequently, the systematic risk transmission in enterprise value chain can be prevented, controlled and eliminated efficiently and then enterprises can keep themselves healthy and maintain sustainable development.

#### **5 Conclusions**

This paper sets forth the connotation of enterprise value chain and constructs the system map of enterprise value chain. Then it defines the systematic risk of enterprise value chain and its transmission and presents the orientation theory, intensity theory and time theory of systematic risk transmission in enterprise value chain. Eventually, it puts forward the viewpoint of controlling systematic risk transmission in enterprise value chain by means of the scientific concept of development which has the guiding significance in the prevention and control of systematic risk and its transmission in enterprise value chain.

#### **References**

- [1] Ye Jianmu, Deng Mingran, Wang Hongyun. A Research on the Transmission Mechanism of Enterprise Risk. *Theoretical Monthly*, 2005(3): 156-158(in Chinese)
- [2] Xie Zhe, Deng Mingran. A Research on the Transmission Regularity of Enterprise Risk. *Finance and Accounting Monthly*, 2006(11):13-14(in Chinese)
- [3] Deng Mingran, Dai Shengli. A Study on the Formation and Transmission Mechanism of Information Risk in Enterprise Marketing. *Commercial Modernization*, 2007(8):3-11(in Chinese)
- [4] Hu Jintao. The Report to the Seventeenth National Congress of the Communist Party of China. 2007.10.15(in Chinese)