

Construction of the Ecological Model for Supply Chain Finance Based on Ecosystem Theory

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Keywords: Supply Chain Finance; Ecosystem Theory; Model Construction

Abstract: As supply chain finance is a relatively new research field, there are few systematic researches and remarkable results on financial supply chain management worldwide. Many documents mainly focus on the descriptions of its concept and values. Firstly, the paper summarizes the basic meaning, and the research status and significance of supply chain finance. Secondly, based on the ecosystem theory, it constructs an ecological model for supply chain finance including ecological entities, eco-environment and a comprehensive service platform for supply chain finance.

1. Introduction

Centering on core enterprises and through the intervention of commercial banks, supply chain finance, as a new financing model, integrates the suppliers with financing needs on the chain. [1] that is how it unifies the flow of material, information and capital, balances the capital allocation and improves the competitiveness of the whole chain. [2][3] In foreign documents, this kind of management is generally called “Financial Supply Chain Management (FSCM)” so as to distinguish it from “Physical Supply Chain Management (PSCM)” highlighting physical flow. Scholars have elaborated the cause and values of FSCM from different perspectives. Researches on the model for supply chain finance are as follows: In terms of the business model for commercial banks, Yang Shaohui (2005) introduces the content and operational mode of the financial supply chain services, and points out that these services provide an exciting financing opportunity for small and medium-sized enterprises (SMEs).[4][5] Yan Junhong and Xu Xiangqin (2006) conduct a comparative study on the financing model of SMEs based on supply chain finance and analyze its potential advantages in solving the financing difficulties for SMEs. Yan Junhong (2007) puts forward three basic models for supply chain finance, namely, accounts receivable financing model, inventory financing model, and prepayment financing model.[6] [7] On top of that, he introduces how each model works. The practice of applying the ecosystem theory to the model for supply chain finance in this paper conforms to the development of supply chain finance. [8]

2. Ecosystem Theory and Ecosystem Theory in Supply Chain Finance

2.1. Ecosystem Theory

In natural ecosystem, each species is self-reliant. Meanwhile, each species assists and competes with each other in order to balance the competition and collaboration. [9] The functions of the ecosystem include three aspects: 1. Matter circulation; 2. Energy flow; 3. Information transmission; they are interrelated, representing the focus of the ecosystem. The environment gives energy to producers, the producers deliver the energy to consumers, and decomposers draw energy from the consumers. [10] After the decomposition, part of the energy is absorbed by the environment and another part by the producers, thus forming a cycle. Therefore, the natural ecosystem tends to be a steady state or equilibrium normal. The environment, producers, consumers, and decomposers in the ecosystem are interdependent through the transmission of energy.

2.2. Ecosystem Theory in Supply Chain Finance

Ecological theory is part of bionics. Organisms and the environment are closely related in natural ecology. The same is true for financial ecosystem. Financial entities, financial objects and the financial eco-environment that sustains them depend on and influence each other, and then develop side by side. Supply chain financial ecosystem is a dynamic and balanced system influenced by both the entities and the environment. As it allows for different industries, regions, and companies, it is a complete ecosystem. Specifically, it builds links among companies, companies and government, and integrates the Internet of Things and the Internet with hi-tech including big data and cloud computing.

3. Construction of the Ecological Model for Supply Chain Finance

Supported by a large amount of data and relying on the real trade and industrial chain, the supply chain financial ecology remains committed to combination of production and financing. All enterprises on the chain are interdependent and mutually beneficial. Built on the chain, core enterprises, upstream and downstream SMEs, and financial institutions rely on each other through cooperation, and optimize the organizational model for supply chain finance. The operation of closed-ended funds not only helps enhance the overall strength of core enterprises, but also helps SMEs to improve their business capabilities and obtain more liquidity. Aside from that, it can guarantee the capital return and interest income of commercial banks, thus achieving win-win outcomes. The paper will construct an ecological model for supply chain finance based on the ecosystem theory in supply chain finance, as shown in Figure 1.

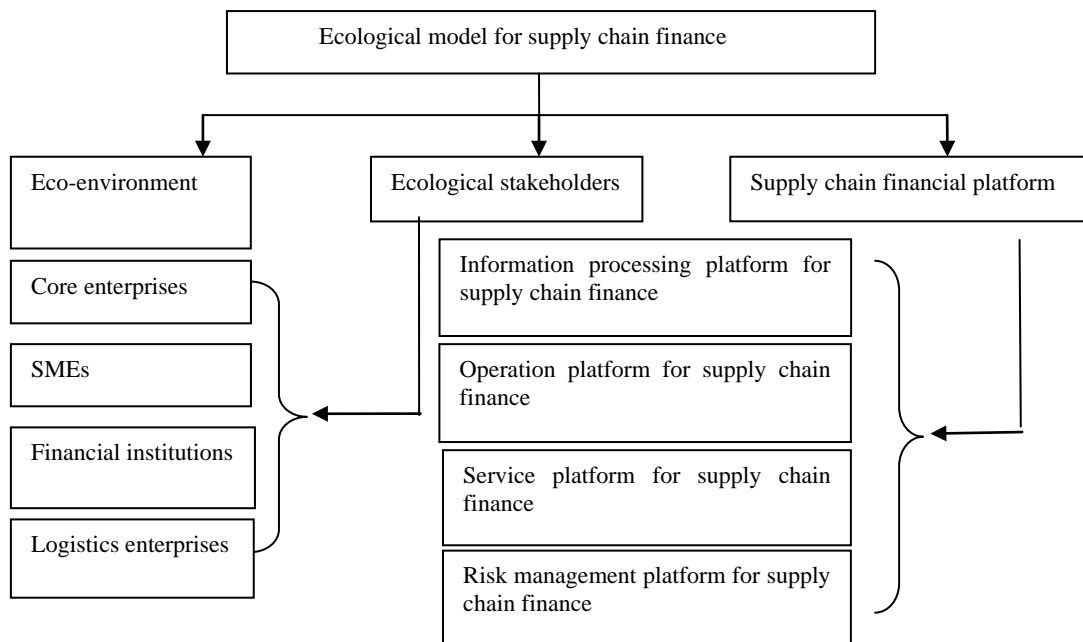


Figure 1 Ecological Model for Supply Chain Finance

3.1. Entities of Supply Chain Financial Ecosystem

3.1.1 Core enterprises

Core enterprises, as a central hub, play a crucial role in the supply chain financial ecosystem. First, they connect upstream and downstream SMEs, keep the supply chain stable, thus ensuring the orderly development of supply chain financial ecology and maximizing the benefits of the supply chain. Second, they can share information with the system so as to make possible the steady development for the supply chain. Additionally, the enterprises provide technology and funds for the entire system as well as the upstream and downstream SMEs in ways to maximize the benefits of the chain.

3.1.2. SMEs

SMEs are indispensable for both China's economy and the supply chain financial ecosystem. The ecosystem is an organic whole. As a node enterprise, upstream enterprises provide supply for the entire chain, while downstream enterprises offer sales channels to the chain. Once there is a problem in one of the links, the entire chain is likely to break and the ecosystem will also be unbalanced. SMEs draw energy from the stable living environment of supply chain ecology to improve their business capabilities.

3.1.3. Financial institutions

Financial institutions refer to the intermediaries specializing in financial services, including commercial banks, financial leasing companies, factoring companies, and securities companies. In the supply chain financial ecosystem, financial institutions serve as fund providers and hold the key to maintaining the capital chain. Also, logistics, and the flow of capital, information, and business are shared in the big data platform for supply chain. This ensures the real-time information sharing among financial institutions, thus avoiding information asymmetry.

3.1.4. Logistics enterprises

In the supply chain financial ecosystem, logistics enterprises are not producers or distributors, but the main coordinators of supply chain financial services. They provide logistics services for the supply chain and asset management services for financial institutions, building cooperation between banks and enterprises.

3.2. Eco-environment

Eco-environment is not only about the impact of laws and regulations on the ecosystem, but also includes factors such as the development of economy, culture, politics and industry. First, better policies and laws on industry and logistics are conducive to the stability and development of the supply chain financial ecology, and lay a solid foundation for the ecology. Second, the harmonious development of politics, economy, and culture can adapt to the economic development in different regions, enabling companies to make adjustments according to their needs in different fields, regions, and platforms. Finally, in the financial eco-environment, the government intervenes less in economic development and financial market in an attempt to adjust to an optimal state in accordance with the its development law and market demands.

3.3. Construction of the Comprehensive Service Platform for Supply Chain Finance

The strength of the supply chain financial ecology is to build an Internet-based big data platform so that core enterprises no longer provide credit guarantees for upstream and downstream SMEs. The real transaction data will be presented on the data platform, providing support for financial institutions and reducing credit risk. A complete and comprehensive service platform for supply chain finance combines logistics, risk system and the flow of information, capital and business. The paper divides the platform into four parts for analysis, such as information processing platform, operation platform, service platform and risk management platform for supply chain finance.

3.3.1. Information processing platform for supply chain finance

The information processing platform for supply chain finance solves the problem of information asymmetry. Apart from core enterprises, commercial banks have access to effective real-time information as well.

3.3.2 Operation platform for supply chain finance

Cloud computing provides convenient services. One of them is getting corresponding resources from the cloud at any time according to the needs of users. The operation platform helps banks and other financial institutions analyze customer credit, operating conditions and repayment ability and establish a sound risk prevention system by building models and simulating a large amount of data. Meanwhile, the Internet of Things uses information sensing equipment to network any item so as to

track and locate logistics in real time.

3.3.3. Service platform for supply chain finance

The service platform is mainly used for capital circulation. The reserve and circulation of funds sustains the stability and development of the entire ecosystem. With the data of users sifted and processed in the information processing platform and operation platform, the upstream and downstream suppliers and customers can enjoy financial products or financing services based on their needs.

3.3.4 Risk management platform for supply chain finance

With the continuous development of supply chain financial ecology and the construction of the comprehensive service platform for supply chain, banks are required to identify risks quickly and effectively, and make corresponding preventive measures to control risks. Risk management is essential to the sustainable development of the ecology. However, the previous solutions could not meet the demands of risk management across the board. Banks can easily acquire relevant data from the information platform and analyze customer and credit risks through the data, thus establishing a sound risk prevention system.

4. Conclusion

The paper constructs an ecological model for supply chain finance. In this model, the entities are interdependent and mutually beneficial, constituting the value chain or value network of the business ecosystem. First, the elements of the model must remain separate, and survival skills of enterprises must be different. Second, the constant changes of eco-environment lead to the transformation of ecological entities, thus driving the positive and stable development of the ecological model. Commercial banks are not the sole financial provider of the model. Financial leasing companies, factoring companies, insurance companies are also actively involved. The diversification of financial institutions, financial ecology, and big data platform will inevitably make the model more diverse. Consequently, in comparison with the traditional model, the higher cohesion of each entity in the ecological model will ensure a more sustainable development.

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