Supply Chain Financing Model: Based on China's Agricultural Products Supply Chain

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Abstract. Difficulty in financing is a general problem faced by farmers and small and medium-sized agricultural enterprises for a long time because of the lack of guarantees in china. Supply Chain Finance (SCF) is generating much attention as a means of substituting for lower credit availability. For the purpose of promoting china's rural financing products and service innovation by using SCF, this article studies agri-supply chain financing model and financing products. The result showed that agri-supply chain can extend credit to the upstream and downstream enterprise through order financing, accounts receivable financing, financing warehouse, accounts payable financing, prepaid accounts financing and inventory financing etc.

Introduction

In the past few years, Supply Chain Finance (SCF) was of great concern in the world. SCF is a major area of commercial bank's credit business; it is also a financing placing for enterprises, especially for small and medium-sized enterprises. The biggest feature of SCF is to find out a core enterprise in the supply chain, and providing financial support basing on the core enterprise, which extents the good credit of core enterprise to the upstream and downstream enterprises and lifts the lid on lending without taking on unacceptable risk. Companies are now turning to financing techniques to improve their supply chain efficiency without damaging essential suppliers in the chain (k. Phillip, 2010) [1].

In china, SCF can provide an effective approach to solve farmer's financing problems. The core problem of farmers' financing difficulty is the shortage of mortgaged guarantee, credit information asymmetry and the weaker of anti-risk capability, but by using SCF, banks can extend their secured credit through the corporative relationship with core enterprises, the trade background, the order in transaction process and the robust asset such as invoice debt and inventory.

Literature review

Supply Chain Management (SCM) is an interdisciplinary management concept which is based on global optimization of various flows composing supply chain. Previously, academic research concerned mainly about the design and optimization of the flows of goods and information in the supply chain. But nowadays the cash flows of the supply chain gained greater attention in the academic literature. Along with the global tightening credit, SCF is generating much enthusiasm amongst enterprise and academic research.

Firstly, academic literature reveals the necessity of SCF in improving supply chain efficiency. W.S. Randall et al. [2] found that Supply Chain Financing can strengthen the supply chain by collaborative management of cash-to-cash cycles and sharing weighted average cost of capital. H.C. pfohl [3] discussed a conceptual framework and a mathematical model of supply chain finance and draw a conclusion that SCF turns the actors within the supply chain into intermediaries who can partly overcome the problem of asymmetric information between capital makers and the parties seeking capital. Bob Dyckman [4] stated receivables strategies and risk mitigation could leverage their

position to grow revenue and market share by SCF. Ying Chen [5] pointed out fundamental mode of supply chain finance, and explored the risk of supply chain finance. M. L. Gomm [6] suggested that SCF has the potential to improve the capital cost rate.

Another research focus is to solve the financing problems of small and medium-size enterprises by using SCF. Petersen and Rajan [7] thought SCF is an important funding source for large enterprises and small enterprises around the world. Junhong Yan and Xiangqin Xu talked about SME'S financing models basing on SCM, such as accounts receivable financing, confirming storehouse financing. Literature research involves automobile, steelmakers and so on. But few studies discuss how to use SCF to solve financing problems in china's agriculture. The ensuing paragraphs analyze the financing needs of agri-supply chain and put forward financing models and financing products design of agri-supply chain financing.

Agri-supply chain structure and financing needs

We speak of a "supply chain" when different actors are linked from "farm to fork" to achieve a more effective and consumer-oriented flow of products. Agri-supply chain contains many facilities, such as purchasing before agricultural production, cultivation and breeding of agricultural products, farm produce processing, distribution and final consumption.

Structure of the agri-supply chain. According to the common character of supply process of china's main agricultural products, the simplified model of agri-supply chain structure is shown in figure 1. The core enterprise in the supply chain such as agricultural products processing enterprises, large wholesales center, hypermarkets or large distribution centers play an important organizational, managing, and controlling roles in supply chain. The processed agricultural products enter into circulation.

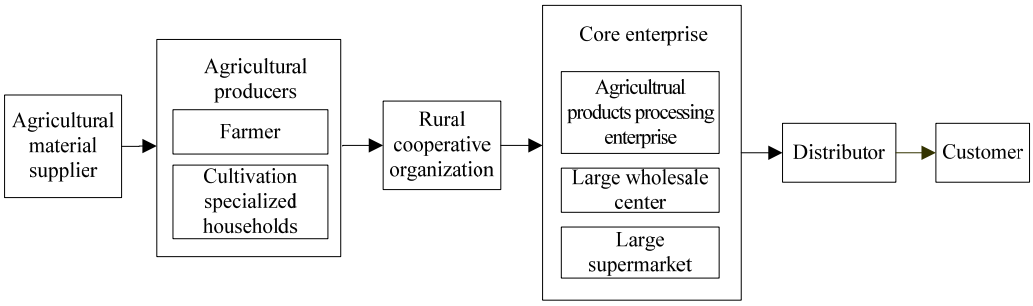

Fig. 1: structural of agri-supply chain

The financing needs of agri-supply chain. The characteristics of agri-supply chain are of long production period, seasonally strong, high risk, high ratio of inventory accounting for working capital and slow capital recovery. So many commercial banks are unwilling to provide funding for agricultural enterprises in china. Agricultural enterprises face financing problems generally. The working capital storage of agri-supply chain lies in different facilities such as production, processing and sale. Production is the weakest part of agri-supply chain and also the highest risk. Farmers' economic power is weak, and at the beginning of production they have financing gap in the cultivation, and purchasing equipment, etc. In the processing segment, the agribusiness must pay for the suppliers in a short time, and that require significant liquidity. In the stage of sales, goods in stock carry sales enterprise a large number of funds.

Agri-supply chain financing model

Agri-supply chain financing is a kind of financing mode, which investigates the agri-supply chain firstly, taking core enterprise as the starting point and providing flexible use of financial products and services for many upstream and downstream agricultural enterprises according to the real transaction background and core enterprise's credit level.

In this paper, the agri-supply chain financing model is designed. It selects agribusiness as the core enterprise, taking the agricultural material suppliers and the agricultural production enterprise at the

intermediate stage as the upstream agricultural enterprise, and taking the dealers at the terminal as downstream agricultural enterprises. From the three steps of upstream production, purchasing of agricultural products processing enterprise and downstream sale, the SCF injects working capital into member enterprise in time, and relieves the capital shortage of the whole supply chain. Agri-supply chain financing model is shown in figure2.

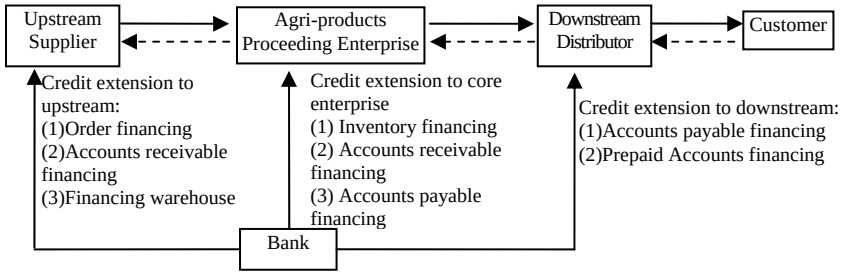

Fig.2: Agri-supply chain financing model

Agri-supply chain financing products designing

Financing products for upstream supplier. The focus problem in the upstream of agri-supply chain is funds shortage of farmers; we can use the following kinds of supply chain financing products.

- **Order financing.** Order financing process is as follows. After upstream agricultural enterprises gain the order of core enterprise, they can put forward the financing application to the banks with the order. Banks audit fund demand (on the basis of purchasing contract, VAT invoice, transport documents etc.), maintain the capital uses conforming to the contract, and then pay the corresponding amount. The funds must be used as ear-marked. After agricultural enterprises complete the order, and deliver the goods to buyers, buyers will pay the goods to the banks, and the suppler money will be transferred to upstream agricultural enterprises.
- **Accounts receivable/Notes receivable financing.** It is a service mode that upstream enterprises in supply chain apply for financing from financial institutions with Unexpired accounts receivable. It contains factoring business and commercial ticket discount business etc. The model does not increase core enterprise of any cost and risk, and make the upstream enterprise obtain sales funds in advance.
- **Financing warehouse.** It is a kind of creative service integrating logistics and finance. Through financing storehouse mode the upstream enterprise pledges agricultural products to logistics when market price is low at harvest time, and gains bank loan after Storage Company's value evaluation. The loan funds may be put into subsequent production activities, and when market price rebounds, upstream enterprise sell the grain, then repay principal and interest.

Financing products for downstream agricultural products distributor. Downstream agricultural enterprises are usually small and medium-sized enterprises, they can Use the following supply chain financing products.

- **Accounts payable financing.** The model is referring to downstream agricultural enterprise's requirements, bank will pay the seller instead after it receives the goods and payable accounts. In the premise of retaining ownership of the goods, banks release delivery of document to downstream agricultural enterprises with trust receipt until the loan was recovered.
- **Prepaid Accounts financing.** It obtains confirming warehouse financing and inventory financing. Confirming warehouse is a classical application of prepaid accounts financing. It is a kind of financing service that the banks corporate with the core enterprises, and extend credit to the dealers of core enterprise. Specifically, after sales companies' paying security deposit to the banks, the banks issue acceptance bill. It is accepted by the cooperative bank and the payee is upstream manufacturer. Before receiving the bank's acceptance bill, the manufacturers send out goods to the warehouse of logistics or warehousing company. As soon as the goods arrive, the financing turns to inventory financing. If the financing enterprise unable to repay maturing debt, the upstream manufacturers are responsible for the repurchase pledge goods. Confirming warehouse financing procedure is shown in figure 3.

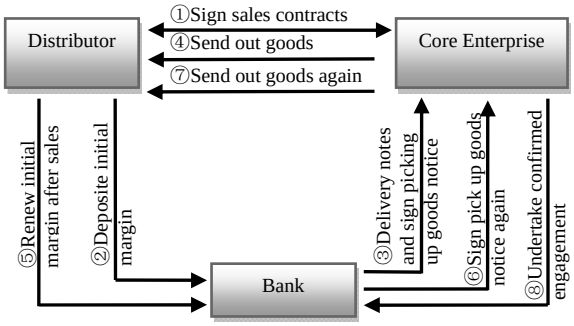

Fig.3: confirming warehouse financing procedure

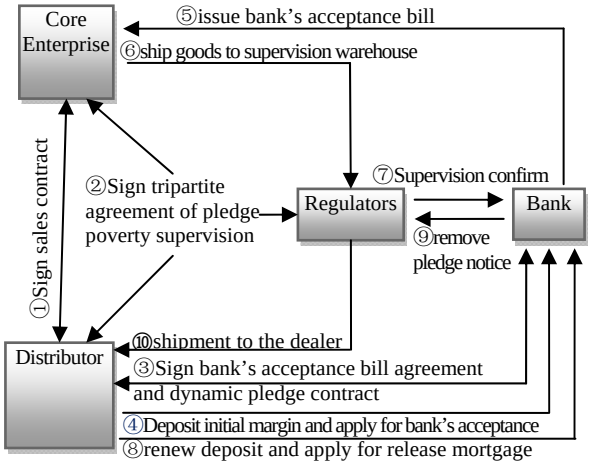

Fig.4: Inventory financing procedure

Compared with confirming warehouse, inventory financing introduces logistics supervision enterprise. Core enterprise delivers the goods to logistics supervision enterprise, and then it ships the goods the dealers according to bank's notice. (fig.4)

Financing products for agricuttrual products processing enterprises. Because of the seasonality of primary agricultural products, agricultural product processing enterprises must pay for the upstream farmers' goods in short term, and form a lot of material inventory. If their finished products can't be sold in time, it will generate finished inventory. So agricultural product processing enterprises can applicant account payable financing and inventory financing. The later can be divided into static pledge and dynamic pledge. The static pledge service is that the hostages are in a closed state during the pledge, until the funding guaranteed by the mortgage goods is paid off. Many primary agricultural products which are purchased by the agribusiness in harvest season aren't often circulating, so we can use static pledge. On the other hand, if the mortgagor can store or pick up parts of the pledged goods that exceed bank's specified minimum during the pledge, this kind of financing model is dynamic pledge.

Conclusions

The results of this research indicate the structure and the financing needs of agri-supply chain in china. The farmers and agri-supply chain have strongly funding needs, but the banks are unwilling to provide loan because of the problems of significant risk and the lack of guarantees etc. Agri-supply chain financing can provide a systematic financial solution. It takes the core enterprises as centre and bounding upstream and downstream small and medium-sized enterprises.

The main findings are the design of agri-supply chain financing model and financing products. Agri-supply chain financing can extend credit to the upstream and downstream enterprises through order financing, accounts receivable financing, financing warehouse, accounts payable financing, prepaid accounts financing and inventory financing. Particularly, the procedure of confirming warehouse financing and inventory financing is studied.

Now the agri-supply chain basing on leading company is formed primarily in china. Agri-supply chain financing can promote greatly china's rural financial products and service innovation. Further studies will be the risk control and the effects of different financing model to the agri-supply chain performance.

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