Financial Supply Chain: the Optimal Model for Industry Integration

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Abstract: This paper discusses the conditions of the evolution from traditional supply chain to financial supply chain. Financial supply chain is a milestone for industry integration: reallocating the capital resources efficiently; improving the total productivity of entire supply chain; reducing the systematic risk. By analyzing the purposes of providing financial support to participants in the supply chain from four different aspects, this paper further illuminates a new researching direction of financial supply chain model. Blockchain and 5G will be the new weapons to accelerate and secure the practices of supply chain in various industries.

1. Introduction

Supply chain is a network which contains all the upstream and downstream firms in the same industry. For example, in the textile industry, supply chain starts from the raw material, such as polypropylene and polyethylene, to wiredrawing phase, to machine weaving phase, to sewing phase, to wholesale and retail phase and to the final users. Each phase might involve more than one firms. Beamon (1999) analyzed that the total productivity was improved by specialization in supply chain model [1]. However, because of this assembly line, each firm has its own capital turnover period, the total amount of cash flow occupied to produce a final good is leveraged by the number of phases in the supply chain compared to the whole processes in a large company without specialization. Wilson (2004) indicated the information revolution fundamentally alters not only the way we live, but also enhances the correlation between firms in the same supply chain [2]. Another remarkable milestone of business industry is the boom of logistics firms, such as UPS, DHL and SF-express. Customers can shop online and onsite from worldwide, and the product also can be delivered globally. Based on the three pre-requirements: lack of abundant cash-flow, information revolution and the support of mature logistics, the concept of financial supply chain arises and grows up at a furious speed. Financial supply chain is a spontaneous outcome of modern economics, and it is the generation of traditional supply chain.

Financial supply chain is an updated version of supply chain, and it improves the productivity from specialization as well as financial operation. Financial supply chain solves a crucial problem in the trade, which is working capital optimization (Gelsomino, 2016) [3]. Since the directions of cash flow and good flow are opposite, which causes cash flow gap. In other words, manufacturing firms must use their cash flow to pay the variable costs, such as labor wage, machines' maintenance cost, during the producing phases to obtain final goods. Until the final good are delivery to final users, and those goods are confirmed well-qualified, firms now can collect the payback. The longer the period takes, the large amount of cost occurs. Jiangjun He (2012) indicated there are three periods of supply chain will cause cash flow gap: during the periods of generating account receivable; during the period of paying payment; during the period of stock warehouse [4]. Additionally, since the relationship of supply and demand fluctuates, and the prices of raw materials are also up and down, the cash flow gap could be extended. Moreover, Obstfeld mentioned (2003) economic globalization accelerated the development of international market, and the manufacture firms competed with firms from domestic as well as international [5]. Surrounding the core enterprise, the financial supply chain use information flow, capital flow, logistics, business flow, to stabilize the relationships among the whole chain, and to form a community of shared interests.

Current researches about financial supply chain mainly focused on the benefits for individual firms which participated in the financial supply chain, not core enterprise. For instance, the core firm of the financial supply chain lends money to those firms involved in the financial supply chain. Wuttke (2016) analyzed financial supply chain can help individual firms shrink the payment extension [6]. Due to financial support from the core firm, individual firms can expand the size of capital. Firms can buy more producing factors such land, machine, raw materials and labor. However, the purpose of this paper is going back to the core enterprise of financial supply chain, introducing and emphasizing the benefits generated from funds providers. First, this paper will shed light on the condition of three different aspects: business itself, information level and financial fields. From business aspect, expanding primary business and taking market share are two directions. From information level, obtaining collateral easily and collecting transaction information efficiently are conditions for core companies to lending money with lower risk. From financial field, core company accepts financial supply chain to keep a stable growth on holding cash. Finally, the conclusion is about the future direction of financial supply chain.

2. Purposes of Financial Supply Chain

Normally, financial supply chain researchers focus on the benefits obtained by the fund acquiring party, such as buying more machines, hiring more labor or improving the labor skills. However, the following parts are discussing the purposes of financial supply chain from funds supporters’ aspects. The funding party also has considerable benefits by participating in the financial supply chain.

2.1 Expending the Primary Business

For most cases of financial supply chain, the core company is one of the important components of the supply chain. The main purpose of providing funds for other companies is to increase the output of the whole supply chain. Firstly, the core company provides the funds to downstream firms. After getting the financial support, the downstream firms can prepare more resources, such as machines and labor, to sign more manufacturing orders with their customers. Finally, since the downstream firms have more orders to produce, they will increase the demands for materials which produced by the core company.

Since core company is also on the supply chain, providing funds to downstream firms will have the positive reflection on its own primary business.

For some large logistics companies, they provide fund for their firm-customers to buying more materials when the price is relatively lower. In additional, another primary business of logistics company is storage. Logistics company usually have high-quality and well-managed warehouses, which can temporarily provide storage service for manufacturing companies to manage the inventory.

Manufacturing firms send orders to the logistics firms and pay the minimum portion amount of total transaction as deposit. The logistics combine all those orders from manufacturing companies to buy the material from oversea, and then store those material in standard warehouses, where provide professional inventory management. When the manufacturing firms need those materials, they can require the producing materials from logistics company, pay full payment at signed price on the contract, and pay the storage charge. What's more, the logistics firm also can provide customs clearance service, which is also saving time for manufacturing companies.

The advantage of this model is solving the financial shortage of small and middle-sized manufacturing companies as well as those manufacturing companies which don't have the capacious and high-quality warehouses. Since middle and small sized manufacturing firms have financial support and well-control of price of materials, their orders are stable and continuous. Therefore, logistics companies can have more business on their logistics and storage services.

2.2 Taking Market Share

More market share means more power on pricing and competitiveness. As a startup company, it rarely has the right of speech and it usually acts as a price taker, following the existing industry rules. However, when this company grows up, expands its scale of production and takes a large portion of market share, it becomes monopoly or oligopoly. The company can influence even change the industry rules to setup new rules, which can bring more benefits to itself. Recent decades, the logistics companies spring up like mushrooms, but remote areas still have large demand for efficient express delivery services. Especially in China, China has the largest consumer market in the world, but the express delivery services have quite difficulties in west of China. For example, if an individual in east area such as shanghai, Zhejiang, and Jiangsu province, buys a small gift, the buyer doesn't have to pay any delivery fee and usually can get the gift within two days. However, if the buyer wants to buy the same gift, which deliveries to west part of China such as Xinjiang and Xizang province, the buyer need afford extra delivery fee and the gift will take at least 3-4 business days to be delivered. Since the expensive transportation cost and longer delivery time, some of business cannot be achievable. Although the cost of expanding delivery service to those areas is initially high, the potential market is large, and the high profit is expected. By accepting financial supply chain model, logistics companies can provide funds to those firms whose business are in the remote regions. On the one hand, logistics companies provide opportunities for firms to start business activities in remote areas where the pressure of competition is relatively low. Meanwhile, the manufacture firms in the east part of China can buy the producing materials from west. One the other hand, since business trades between the east and the west are expected to explosively be increased. The logistics firms can allocate more capital and labor to expand logistics services in the west. After the significant increasing number of demands of delivery services, the logistics firms can lower their average cost, and get a positive cash inflow.

Another type of expanding market is the combination between private enterprises and state-owned enterprises. Steven Carnovale (2019) emphasized the importance of network power in supply chain [7]. Since state-owned enterprises usually are valued companies existing in the industry for long time, they are lock of energy, compared with emerging private enterprises. Emerging private enterprises usually are growing companies, which have more motivation to be strong but less capital and networks. In financial supply chain model, the private enterprises and state-owned enterprises form a new firm. The private enterprises operating the new firm independently with the help of state-owned enterprises' network and strong capital. On the one hand, the private firms can practice their ideas and promote the new business model. On the other hand, the state-owned enterprises can bring new energy to the old business model.

The typical example about this model is the new hospital which is the combination of medical care and pension. This new hospital is based on the traditional model of hospital and involved with function of pension. During the 90s last century, China has One Child policy. In other words, parents are only allowed to have one child. When the child grows up and gets married, one couple need take care four old generations, especially when their parents fall ill and need personal care. Meanwhile, the couple also must work hard for living and raising their own children. Since people usually do not have too much energy to take care all those things, there will be a conflict between taking care their parents and their own lives. Fortunately, the new type of hospitals solves this coming conflict. In China, medical care is usually monopolized by public hospitals, which have advanced medical conditions, such as more medical machines, and experienced doctors and nurses. Private hospitals have more energy and competition than public hospitals. However, the essence of this combination of medical care and pension is providing services. Service needs competition to be improved. The process of this model is quite simple. Private enterprises provide the main portion of funds to build up the new hospital, and then cooperate with public hospitals which provide medical services and reputation to attract customers. The private enterprises operate this new hospital independently and share the ownership with public enterprises.

The new type of hospital provides the old people a new stage where they can meet peers and get professional medical cares. This is combination of hotel and hospital regarded as a new community for the old people. For young people, they can spend more time working and educating their children without worry about their parents. For private enterprises, this is an industrial update, and this new model helps them open the medical market and start a new profitable attempt.

2.3 Obtaining Collateral Easily and Collecting Transaction Information Efficiently.

In this scenario, the core firms are usually logistics firms. Core firms provide funds for those firms who use their logistics service. Since most of wholesale companies cannot get payment until the products are delivered to final customers. Meanwhile, those wholesale companies can use account receivable as the collateral borrowing money from core companies. By doing this way, the logistics companies will have triple insurances: first, the account receivable provided by wholesale companies is one type of collateral; second, the transporting products also can be regards as collateral since wholesale companies use core companies to transport their products; Third, logistics companies have the dynamic information about transporting production.

E-commerce platform is another party that will fund companies. The famous e-commerce platforms, such as Amazon, Alibaba and JD, provide financial support to those merchants who use their platforms to sell the products. Since those e-commerce platforms have their own databases which can accurately record and monitor each transaction information dynamically. Based on their database, the e-commerce platform firms can setup models to evaluate credit rating of each merchants. Antonella Moretto (2019) analyzed that it is possible to combine the credit rating model and supply chain model [8]. After estimating relatively stable and reliable predictions, such as future sales, e-commerce platform firms can provide the portion of estimated amount of money to merchants to help them circulate capital.

In general, those two situations are combined. For example, JD is the one of largest e-commerce platform in China, and it also has own logistics firm, called JD logistics. There are many suppliers in JD and sell their production from difference areas to difference areas in China. Since JD has all the trading information and tracking information, JD can control the information flow and logistics flow. As an ecommerce platform, all transactions need to first go through JD's account, and JD can take out the fee and capital interest before the sale income back to all sellers' accounts. Under those two conditions: obtaining collateral easily and collecting transaction information efficiently, JD can control a low level of risk of lending money to those merchants on JD platform.

2.4 Keeping a Stable Growth on Holding Cash

In recent years, insurance becomes one of important components of family asset allocation. It is no denying that pension insurance might appear deficit in next decades since the negative population growth occurs in many countries. Therefore, commercial insurance is booming. Low income people buy insurance as preparation for future living. High income people buy insurance as long-term investments to hedge the unexpected economic fluctuation. Insurance companies accumulate a large amount of cash. In order to earn a stable and healthy return on those money, insurance companies are willing to lend money to those companies who buy the insurance. The policy of insurance is also regarded as collateral. By doing this, insurance companies diversify their investment into different industries to lower the risk. What's more, the interest generated from the financial activities ensures the minimum revenue from the holding cash.

The cooperation between China Taiping and Sinopec is a practice of this model. China Taiping is an insurance company which has a stable and continuous cash inflow. Sinopec is one of largest petrochemical engineering public companies in China. In this combination, China Taiping bases on Sinopec's reputation providing financial support to those companies who cooperate with Sinopec, which including machine manufacturing companies, transportation companies and environmental protection companies. Taiping also give coupon for those companies to buy its insurance. By doing this, China Taiping receive the interest income from its financial services and diversifies its investment.

Another type of this model is commercial banks. Commercial bank recently becomes an important factor in financial supply chain. Kasavica Petar Bankarstvo (2014) indicated, Commercial banks now try to create a less risky but high profitable portfolio by anticipating the financial supply chain [9]. Continuously existing manufacture companies usually purchase production materials in two cases: when manufacture firms have predictable large orders from downstream company; when the price of material is relatively lower compared with historical price and people expect the price of material will continue increasing in the next producing period. When those two scenarios occur, manufacture companies will suffer temporary capital shortage. In financial supply chain model, commercial banks will contribute to solve this temporary issue.

When the manufacture firm gets commercial orders, firm will send the copy of order to the commercial bank and require a special loan to buy amount of material. This specific fund will directly credit into the upstream firm's account without going through the manufacture firm's account. After manufacture firm finishes and deliveries the order, it will obtain account receivable from the consignees. The firm mortgages its account receivable to get another loan to repay the pervious loan and the interest generated. After the manufacturing firm gets sale income, bank can immediately and automatically deduct the principal and interest. In this model, commercial banks provide two different types of loans to help manufacturing firm keep its cash flow smooth. By doing this way, commercial banks earn interest income low risk and makes the cash more liquidity.

Compared with the traditional model of loan. This financial supply chain model has less limitations on the type of collateral. For example, firm can use the commercial order, account receivable, a stable transaction information and even credit to borrow money without any tangible collateral. By doing this way, commercial banks can easily and efficiently provide financial support to firms without worrying about dead loan and default risk since the banks have more control on the flows of money. What's more, by lending money, commercial banks can active the holding money to earn interest.

3. Conclusion and Future Development

The developments of Blockchain and the fifth-generation wireless system (5G) provide a new sight for financial supply chain researchers to revise their directions. Firms and third part entities can more efficiently collect information from the whole society, no matter when and where. Especially when credit systems were connected globally, information asymmetry is no long a barrier. Since the cost of default will be expectedly high, financial supply chain will have a more stable and secure environment. Moreover, under the supercomputer and artificial intelligent, individuals can calculate all possible outcomes accurately and effectively within tiny period. Based on the results given by the high-tech, the risk of accepting financial supply chain is controllable. Managers can evaluate the business activities and made tradeoff between different business options before making strategies. Financial supply chain will help firms maximize the short-term profits in different periods, and finally achieve the long-time goal.

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