

Original Paper

Research on the Innovative Development of Financing Model of Pledge of Title to Goods under Commercial Banks' Supply Chain Finance

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Abstract

As an important part of China's commercial Banks' supply chain finance, pledge of goods and rights financing is an important channel for financing small and medium-sized enterprises after years of development and improvement, providing an important force for the stable and sustainable development of the national economy. Due to macroeconomic factors and the independence of each participant, the business reflects certain risks in the practice process. Starting from the analysis of business content, this paper conducts in-depth research on the problems exposed by different subjects and puts forward Suggestions for future development.

Keywords

Financing by Pledge of Title to goods, Supply Chain Finance, Commercial Banks, Financing

1. Introduction

As a professional innovation field of commercial Banks' credit business, the development of supply chain finance not only brings new markets and profit models to commercial Banks, but also effectively reduces the cost of supply chain management. Among them, the pledge of title to goods and credits refers to the on and off-balance-sheet credit business issued by banks based on the creditor's free movable property or title to goods as pledges and issued in the form of working capital loans, bank acceptance bills, trade financing, etc., to meet the specific liquidity needs of applicants business. The core of the credit right business for pledge of goods is the control of the right to goods, which mainly solves the problems of capital occupied by the company's inventory and prepayment of accounts. In order to further promote the supply chain financial business of Chinese commercial banks, this article

combines theoretical analysis with empirical research of enterprises, analyzes the current basic situation of commercial banks' supply chain financial title to goods pledge business, and provides certain suggestions for the future development of related businesses.

2. Literature Review

After reading a lot of literature on China's supply chain finance development, the following conclusions are made:

2.1 China's Supply Chain Finance Started Late

Compared with developed countries in the West, China is limited by the influence of the closed-door policy in the Qing Dynasty. The emergence of unit products of domestic supply chain financial services is significantly later than developed countries in the West. According to well-documented data, the earliest inventory mortgage business in China dates back to the Shanghai Bank of the 1920s. It can be seen that compared with western countries, China's awareness of the concept of supply chain and corresponding financing products are lagging behind. This also paved the way for the difference between the development trends of modern supply chain finance in China and the West.

2.2 There are Differences in Domestic and Foreign Supply Chain Financial Models

The biggest difference from the international supply chain finance business model is that the breakthrough in domestic supply chain finance is "N" and not "1", that is, through the bank's tripartite agreement with "1" and "N", with the "1" reputation and the actual transaction to guarantee the financing of credit "N". This supply chain financial model is clearly based on new customer orientation, a new credit technology and profit model for developing the SME market.

2.3 There are Some Problems with the Existing Supply Chain Finance Business

Inventory financing business is currently characterized by the difficulty of operation and the unclear borders of responsibilities of the supervisory enterprise. As a result, financial institutions are currently cautious about providing inventory pledge business. At the same time, due to the lack of bargaining power of commercial banks in the face of core companies and the lack of market legal supervision in the factoring field in China, commercial banks face risks in developing factoring business.

3. Analysis of the Business Model of Pledge of Title to Goods

3.1 Business Overview

The financing of pledge of title to goods is an important channel of financing for small and medium-sized enterprises. The financing needs of small and medium-sized enterprises are urgent; however, the financing institutions have strict requirements for the financing of small and medium-sized enterprises. Due to the imperfect financial system, opaque information, unstable operation and other reasons, the credit rating of small and medium-sized enterprises is generally low. In order to avoid risks, banks will require small and medium-sized enterprises to use real estate as collateral guarantee when they apply for financing. However, small and medium-sized enterprises are

weak in strength and are complicit to provide real estate for mortgage financing. Therefore, the financing problem has become a major obstacle to the development of small and medium-sized enterprises. In response to this problem, the financing mode of hypothecation business of title to goods has been innovated. And the inventory movable property or future title to goods of small and medium-sized enterprises has become the mortgage guarantee of financing.

In the financing of pledge of title to goods, the self-compensation of financing makes banks and other financial institutions no longer strictly require the credit rating of small and medium-sized enterprises according to the traditional financing methods. Instead, they focus on the value of the pledge itself and the authenticity and reliability of transactions. It is of great significance that the business of pledge of property rights innovates the financing channels. From the perspective of small and medium-sized enterprises, inventory pledge financing enlivens their inventory assets and reduces the capital pressure of small and medium-sized enterprises when the real estate is insufficient for mortgage. What's more, prepayment product financing relies on the credit of the core enterprises in the supply chain and their distribution relationship with downstream suppliers, and carries out financing in the form of prepayment, which alleviates the financing difficulty of small and medium-sized enterprises to a certain extent. From banks and other financial institutions in terms of institutions, the inventory pledge financing business has expanded its business scope and increased new profits. In addition to the traditional logistics warehousing services, the third-party logistics warehousing enterprises have also obtained new profit points from the new services of pledge supervision.

After years of development, the business model of pledge of title to goods has become more and more perfect and mature. However, due to the different ways of mortgage guarantee for such business, it puts forward higher requirements for the risk control management and service level of the bank. In the actual business process, the bank needs to strengthen the credit management and clarify the legal points.

3.2 Industry Application

Since the "1 + N" model of Shenzhen Development Bank was put forward, commercial banks have been carrying out the business of pledge and credit of title to goods in full swing, but the application scope of the industry is relatively narrow. After more than ten years of development, it has formed three major financial networks, mainly focusing on the three industries of steel, automobile and home appliances.

3.2.1 Steel Financial Network

For a long time, the steel industry is the first choice for commercial banks to carry out the pledge business. As a basic industry of national economy, iron and steel industry mainly produces basic bulk commodities. Its products are characterized by large supply and demand, large inventory, stable nature and strong liquidity, which meet the basic conditions of being a good pledge. The upstream and downstream of the iron and steel industry are clear, the supply chain is relatively complete, and commercial banks are willing to carry out the pledge business in the iron and steel industry. Moreover,

as a bulk means of production, in the process of production and trading, the iron and steel industry have a huge demand for capital and outstanding problems such as the occupation of capital by inventory, strong demand for financing, and huge space for the development of cargo pledge business.

In addition to its own attributes, economic development and the industry environment have also become the main driving force for the pledge business of title to goods in the steel industry. The development of iron and steel industry is highly related to the economic cycle, which makes the situation of iron and steel industry closely related to the macro economy. Benefit from the promotion of industrialization and the “golden decade” of bulk commodities, the domestic steel industry market is booming, and the financing business of pledge of title to goods is developing rapidly. However, in recent years, the steel industry has been in a downturn due to the macroeconomic downturn. It can be seen from the figure that since 2013, the PMI of the steel industry has been lower than 50% in a row, the demand for steel has declined, the overcapacity has increased, the market price risk and liquidity risk have increased sharply, and the pledge business of such title to goods has shrunk.

As the first industry field to carry out the pledge business of title to goods, the management and control of the pledge business of iron and steel industry is relatively simple and extensive. In general, the third-party mode of the third-party logistics supervision company is selected for business development. However, because the industry is not standardized enough, the operational risk and moral risk are high, the problems of repeated pledge of goods and warehouse receipts are exposed after the change of economic environment, resulting in huge losses to commercial banks, further limiting the development of the pledge business of title to goods in the steel industry.

3.2.2 Auto Financial Network

In recent years, China’s automobile industry has a strong momentum of development. By 2009, China has surpassed the United States to become the world’s largest automobile sales market. In recent 10 years, the national automobile sales volume has continued to grow. In 2016, the automobile sales volume exceeded 28 million. The demand of the second and third tier cities is growing rapidly. The market competition is becoming increasingly fierce. The dealers’ inventory level is extremely high, which affects their liquidity. Automobile industry is one of the industries with strong sense of supply chain management and the most perfect supply chain in China. Upstream suppliers, core manufacturers and downstream distributors are closely related, and the industry order is relatively standardized. With a long investment cycle and a strong demand for capital, the automobile industry is capital intensive. China’s automobile industry has a high degree of concentration, and several leading advantages are obvious. It plays a leading role in the supply chain and holds the absolute right of discourse, which leads to the weak bargaining power of the upstream and downstream, resulting in the serious issue of occupying the upstream and downstream funds. But at the same time, the internal competition in the automobile industry is becoming increasingly fierce, and the status of member enterprises in the supply chain is highly related to the development of core enterprises. How to optimize the capital status of the whole supply chain, reduce costs and improve the competitiveness of the industry has become an

urgent problem for core enterprises. Meanwhile, the downstream dealers' prepayment problem seriously affects their development as well, but due to lack of qualification, the financing problem is difficult to solve. Under the premise of strong demand for financing from downstream dealers and high willingness of core enterprises to cooperate, the pledge business of automobile title to goods of commercial banks has developed rapidly.

Compared with the iron and steel industry, the pledge business of title to goods has been innovated in the automobile industry, and the management mode is more refined. Because cars can be classified and identified according to different models, the industry is highly standardized. Therefore, the identification and supervision of goods by banks is easier than steel, and the risk of repeated pledge is less. In view of the financing problems of downstream dealers and the characteristics of one vehicle one certificate, commercial banks have created the operation mode of vehicle and vehicle certificate pledge when they carry out the pledge business of title to goods. In the process of vehicle pledge, the vehicle certificate shall be kept by the bank itself simultaneously. Dealers need to return funds to exchange for the corresponding vehicle certificate. The characteristics of small risk, large demand, high industry standardization and high degree of standardization urge commercial banks to have a high willingness to carry out the pledge business of title to goods in the automobile industry. And the automobile industry financial network has become the most mature industry field.

3.2.3 Home Appliance Financial Network

Home appliance industry is a new application field of pledge business of title to goods. Home appliance industry is in the mature period of the industry life cycle. Some industry leaders occupy most of the market share, and actively open up foreign markets to participate in international competition. In order to cope with international competition, it is urgent for them to stabilize upstream and downstream, reduce financial costs and improve the overall competitiveness of the supply chain. The sales end of home appliance industry is particularly important, and there are many levels of regional distribution and sales. In addition, the management of the sales end is complex. The key enterprises are in the core leading position in the industry supply chain as well, with strong control over the downstream distributors. Therefore, the problem of prepayment occupying dealers' funds is widespread.

Compared with steel and automobile, home appliance industry has obviously different industry characteristics. The production and sales cycle of home appliances is shorter, the product volume is smaller, and the replacement is faster than steel cars. Due to the characteristics of small amount and high frequency, the operation cost of goods pledge credit business is too high, which is difficult to carry out for a time. At the same time, as a weak cyclical industry, household appliances industry is less affected in the period of macroeconomic downturn, and the market risk of the industry is relatively small. In recent years, under the background of macro-economic downturn, steel and other bulk commodities slump, relying on the development of information technology, the application of the Internet of things technology and the improvement of the degree of data-based automation of storage management. Banks have started to set foot in household appliances, a small and high-frequency

industry, and need to adjust and innovate the traditional mode as well when carrying out the cargo right pledge business. In the development of goods pledge business in home appliance industry, the credit enhancement role of core enterprises is more obvious. Personalized service and cooperation mode break through the original operation mode, providing a new development idea for the industry goods pledge business financing. Many home appliance enterprises have started to build their own logistics warehouses and integrate their sales ends as well.

4. Main Problems in Pledge of Title to Goods

4.1 Macroeconomic Analysis

At present, the domestic macro-economic situation is declining. The problem of overcapacity is serious, and the sales of goods are facing the problem of sluggish market. In this case, the solvency of the pledge business is facing enormous challenges. First of all, the sales channels of dealers are obviously blocked by the market impact, and the risk of failure to repay the loan on schedule is high. Secondly, under the condition of overcapacity, the price of pledged goods is under great downward pressure, and the bank's second source of repayment faces the prospect of devaluation. Thirdly, because of the macro-economic downturn and the lack of incentives for enterprises in the supply chain to serve the real economy and normal operation, it is easy to transfer funds to real estate, futures and other high-risk areas, which further increased the pressure on bank risk management and control.

4.2 Analysis of Participants

4.2.1 Analysis of Core Enterprises

Many core enterprises' supply chain management level is not high, and some core enterprises' mastery of supply chain. Because of the complexity of supply chain finance, the core enterprises cannot follow the process in the process of operation, or do not establish a safe and effective process planning at all, resulting in damage to the interests of banks. Some core enterprises have not established the core position of positive control downstream in the supply chain, and cannot effectively control the small and medium-sized enterprises in the whole supply chain. When small and medium-sized enterprises have the risk of default, these core enterprises will not be able to guard against it in time.

At the same time, core enterprises have credit risk as well. On the one hand, it is a question whether the core enterprise can undertake the guarantee function for the whole supply chain finance. The core enterprise may cause the whole cashing crisis among the supply chain partners because the contingent liabilities accumulated by the credit bundling exceed its bearing limit. On the other hand, when the position of the core enterprise in the industry changes significantly and unfavorably, the core enterprise might disguise the experience of all parties to the transaction business information, or even planned collusion in financing. It could use its strong position to require and organize upstream and downstream cooperation to obtain financing credit from commercial banks, and then uses it for extracorporeal circulation, which causes banks to face huge malicious credit risk.

4.2.2 Logistics Supervisor Analysis

Under the supply chain finance mode, in order to give full play to the scale and professional advantages of the supervisor in logistics and reduce the cost of pledge loan, the bank will generally outsource the supervision of pledge to the logistics enterprise, which will supervise the title to goods on its behalf. However, after the outsourcing of this business, the bank may reduce the incentive for the dynamic understanding of the ownership information, quality information and transaction information of collateral, and thus introduce the risk of logistics regulators.

In the process of warehousing, a series of impossible risks are as follow. The source of warehousing information is unknown, and the information of goods is not transparent; people buy through internal employees to illegally operate and make false warehouse receipts; the vehicle information of warehousing personnel is unknown or there is replacement warehousing; people manually operate warehousing records, and the information has a high risk of tampering; internal and external personnel collude to issue duplicate warehouse receipts for goods in the warehouse to cheat the pledge; receipt certificate The certificate (general warehouse receipt) is not consistent with the physical information, and the manual operation is not implemented or interfered with other processes according to the standard operation process; the information flow of title to goods transfer has a time difference with the actual logistics, and there is a risk of repeated pledge; the implementation of warehouse transfer might cause internal employees to confuse other goods in the warehouse, cover up the loss of goods and exchange goods; the information sources of warehouse out are different, and the risk of picking up information error is bought by people Internal employees use false warehouse receipts to pick up goods; the vehicle information of the pick-up driver is unknown or there are risks of false delivery; the goods are picked up or exchanged for delivery; the node audit is relatively independent, and when the internal and external collusion exits the warehouse, the goods are smuggled out (for a small amount of goods); the operation cost is settled on site, and the storage cost is settled after the event, which is not standardized, and it is easy to cause disputes about the transfer of title to goods; the warehousing caused by goods transactions may lead the fact that the object of expense clearing is not clear; the operation efficiency of manual inventory and on-site inventory is low, and the electronic inventory is completely separated from the reality; the inventory personnel have moral hazard.

4.2.3 Dealer Analysis

At present, China's complete credit system has not yet been formed, and the financial and business management of small and medium-sized enterprises are not standardized. In addition, banks have many obstacles in collecting purchasing data, production data and sales data of small and medium-sized enterprises. Moreover, enterprises could provide false or untrue information to banks, making banks unable to obtain real data, so that they cannot take corresponding management measures to reduce enterprises' guarantee the risk of using the proceeds. Some managers of small and medium-sized enterprises even participate in gambling and other activities, which will greatly increase the risk of bank credit funds.

4.3 Business Model Analysis

4.3.1 Cargo Right Risk of Credit Applicant

In the specific operation process of the pledge business, there are some factors that will make the credit applicant's ownership of the goods defective, thus affecting the effective establishment of the pledge. Therefore, this kind of credit business which originally relies on the pledge security has risks.

(1) The ownership of the goods has not been transferred

As the chattel goods under the pledge cannot be identified by the ownership certificate issued by the competent authority of the state as the real estate, some credit applicants may pledge the goods in their own temporary possession and in fact have no transfer of ownership to the bank for financing. For example, in the risk event of Shanghai steel trade industry in early August 2012, the credit applicant used the steel without transfer ownership to pledge to the bank for financing.

(2) Conditional transfer of ownership of goods

In general, the ownership of goods is transferred with the transfer of the possession of goods. That is to say, in general, if the credit applicant (i.e., the Pledgor) takes possession of the goods, it can be presumed that he has ownership of the goods. However, there are exceptions. According to the contract law, if there are other provisions in the law or otherwise agreed by the parties, even if the credit applicant owns the goods, it may not have acquired the ownership of the goods. In practice, it is very common for trade circulation enterprises and upstream suppliers to agree that ownership has not been transferred even though the goods have been delivered due to payment settlement and other reasons. If the banks need to realize the creditor's rights through the pledge and disposal of the pledged goods before the formal transfer of the ownership of goods, the defects of the original title to goods will become a real risk.

(3) Ownership of goods has been transferred to downstream customers

The credit applicant has sold the goods to the downstream customers. According to the purchase and sale contract between the credit applicant and the downstream customers, although the credit applicant still owns the goods, the ownership of the goods has been transferred to the downstream customers. Once this happens, the bank will undoubtedly fall into the dispute between the credit applicant and the downstream supplier, forming a triangle dispute.

4.3.2 Risk of Bank's Pledge Establishment

In the actual operation of each bank's pledge business, there are many situations that affect the establishment and effectiveness of the pledge. Although all banks started their business with the goal of effective pledge from the approval link to the specific operation link, the actual result is often that there are problems in the effectiveness of pledge, so that the pledge business does not have the most core elements, resulting in risks and losses.

(1) Repeated pledge

In the pledge business, in order to obtain a larger credit line, the credit applicant may sometimes pledge the goods pledged to one bank to another bank to defraud financing. Repeated pledge often occurs

when the third party occupies the pledged goods, credit applicants and the third party collude.

(2) The bank can't realize the effective possession of the pledged property

Transferring possession of the pledged property is a core feature of the establishment of the pledge. But at present, in the business of pledge, there are often cases that the bank can not possess the pledged goods. Specifically, there are some situations in which the bank cannot effectively occupy the pledged property:

A. Under the operation mode of "ticket before delivery"

First, although the bank has not formally possessed the pledged property at the time of issuing the bank acceptance bill, the bank's payment liability to the holder has arisen because the bank has accepted it. Second, if the payee fails to fulfill the delivery obligation on time and completely after receiving the payment, the bank will not be able to possess the pledged property in time and the bank's pledge right will be lost.

B. In transit transportation

Some operation modes of goods pledge business (such as bill before goods) require a period of transportation before the bank takes possession of the pledged goods. And there are legal risks in this transportation process as well. The main performance is that although the credit applicant and the bank have agreed that the credit applicant will pledge the corresponding goods to the bank through the corresponding pledge contract, the bank does not actually possess the goods from the beginning of transportation to the delivery of the goods. And because there is generally no written agreement between the bank and the carrier to entrust the carrier to take possession of the goods. Therefore, in this period of time, if the goods are seized due to the reasons of credit applicants, the bank often faces difficulties in claiming the establishment of the pledge.

C. The impact of the place where the pledged goods are stored on the pledge right

At present, as the pledgee, the bank does not directly possess the pledged goods, but entrusts the third party to supervise the goods. That is to say, it generally realizes the possession of the pledged goods indirectly. However, it is this way of direct possession within the credit applicant's site that has a greater degree of adverse impact on the bank's pledge, especially under this way, the pledge obtained by the bank is difficult to achieve the effect of real right publicity, so it cannot effectively fight against the third party. If there is a dispute between the credit applicant and the third party, the third party applies to the court to seal up the pledged goods. And it can plead against the bank's claim of priority compensation on the grounds that the pledge right does not have publicity and credibility.

4.3.3 Risk of Mortgaged and Pledged Assets

As the second repayment source of the corresponding loan in the supply chain financial business, the status of mortgage assets directly affects the cost of bank credit recovery and the willingness of enterprises to repay. On the one hand, the mortgaged and pledged assets are the important guarantee for the bank to make up the loss in case of breach of contract. On the other hand, the value of the mortgaged and pledged assets affects the repayment willingness of the fiduciary as well. When the

value of the mortgaged and pledged assets is lower than its credit exposure, the fiduciary's motivation for breach of contract will increase. The main risks of inventory financing lie in whether the collateral is missing, whether the price of the collateral fluctuates greatly, whether the quality of the collateral is easy to change and whether the collateral is easy to realize.

Due to the lack of a current assets evaluation system, the inconsistency of various evaluation methods and standards makes it difficult for the value of collateral to be consistent with the amount of financing, so that the hidden risk of financing recovery increases. At present, as the guarantee companies directly carry out the pledge business, banks should strive for market space under the premise of increasing the financing cost of enterprises, and make concessions on the discount rate of pledge. Although this is more effective in winning customers, but due to the loose discount rate, once the risk of bank loss increases.

As a non-production enterprise, there is no long-term potential customers for the disposal of pledged materials, and the information between the buyer and the seller is asymmetric. Even though the market price was not low at that time, the bank could only suffer losses because the channel for the collateral to return to the market was not opened or was monopolized by a few people. In extreme cases, the internal personnel of the bank collude with the external personnel in the disposal process, resulting in corruption, and even actively promoting the breach of delivery pledge business.

4.4 Analysis of Banking Service Capability

In the rising period of business, in order to improve performance, banks often neglect risk assessment, over lending and vicious competition. When the market goes down and the industry is in a recession, they are eager to tighten liquidity, and turn from credit expansion to credit contraction. Banks rush to recover debts from enterprises in advance, which leads to the rupture of the capital chain of enterprises and the outbreak of risks buried earlier. For example, the interconnection and mutual protection between steel trading enterprises is designed to keep the enterprises warm, increase their solvency, and give full play to their scale advantages. In the period of rising market, they did play a positive role. Moreover, the construction of banking system is not in place. For every financial service of pledge of title to goods, banks need to analyze its content and risk from scratch. Banks are used to focusing on credit risk and legal risk, and pay less attention to process risk. However, supply chain finance has significant process control links. Process risk covers risk migration, scheme design, Central Taiwan control, business early warning and other process links, such as collection management, goods circulation frequency monitoring, core enterprise information push, commodity price fluctuation mark to market system, etc. all belong to typical process management. In addition, in practice, due to the fact that the bank cannot fully grasp the situation of different industries, it is quite common that the relevant judgment ability of job requirements is insufficient.

5. Future Innovation Direction of Pledge Business of Title to Goods under Supply Chain Financial Mode

5.1 Overview

In the early stage of the development of bank supply chain finance, inventory financing business has become the core business of commercial banks. However, the occurrence of Shanghai steel trade event and Qingdao port fraud makes commercial banks cautious about providing inventory pledge business. In contrast, the occurrence of Shanghai steel trade incident is caused by loopholes in warehouse management, false warehouse receipts issued by warehouse enterprises, and repeated pledge by enterprises to obtain loans from different banks. Therefore, how to effectively improve the storage and freight link efficiency is the development and innovation direction of supply chain financial pledge business in the future. This chapter will discuss the future innovation direction of pledge business from four aspects, including supervision innovation, risk management innovation, service model innovation and business concept innovation.

5.2 Supervision Innovation of Pledge

5.2.1 Internet of Things Technology

In the field of supply chain finance, Internet of things technology can improve the transparency of all parties' transactions, so as to reduce the risk of banks in providing supply chain goods pledge financing business and provide effective supervision. The combination of the Internet of things and the supply chain mainly controls the transaction process in the storage and freight links by means of sensing technology, navigation technology, positioning technology, etc. And it improves the authenticity of the terminal transaction by means of the "visual tracking" technology of the goods. After the combination of the Internet of things platform and the capital end, i.e. the commercial banks providing financing services, through the Internet of things platform, they can provide the real transaction data of logistics, information flow and capital flow between the upstream and downstream of the industrial chain. They can carry out data exchange, ensure the return of bank funds, and form a closed operation as well. This is a kind of platform through the Internet of things platform, satisfying financing and resource demand, to create a trading data, logistics services, inventory services as one platform. Therefore, it can achieve a high degree of integration of modern logistics and modern information, forming the real trading data information sharing of the industrial chain. Internet of things technology can reduce the risk of collateral financing in the supply chain of bank end goods without increasing the human cost, and avoid the recurrence of events similar to steel trade. This also provides the possibility for the bank to build a brilliant future in the supply chain pledge business.

5.2.2 Block Chain Technology

In the field of supply chain finance, block-chain technology helps improve the efficiency of supply chain management of core enterprises. Moreover, it helps banks effectively reduce the risk of bad financing and bad debts. As the data is open and transparent among all parties of the transaction, a complete and smooth information flow will be formed in the whole supply chain, which can ensure that

all parties involved find out the problems in the operation of the supply chain system in time, and find out the solutions to the problems in a targeted way. And this further could improve the overall efficiency of supply chain management. In addition, block-chain technology can avoid disputes. The characteristics of its data cannot be tampered with and the existence of time stamp can be well applied to the disputes among the participants in the supply chain system, so as to realize easy proof and accountability. The data cannot be tampered with and the transaction can be traced, which can eliminate the problem of counterfeit products in the process of product circulation in the supply chain. This will effectively help the bank to supervise the authenticity of the pledged goods warehouse receipts of its financing customers, and more effectively to pursue responsibility.

5.3 Risk Management Technology Innovation

5.3.1 Artificial Intelligence and Big Data

Banks can upgrade the management of risk control in the pledge business of supply chain financial rights by introducing quantitative technology that combines artificial intelligence and big data. Artificial intelligence and big data can strengthen the relationship between core enterprises and upstream and downstream enterprises, and provide an open supply chain financial platform. The essence of supply chain finance is to discover credit from the industrial chain and focus on core enterprises with high-level credit advantages. Through the core enterprise's injection of its supply chain management system, the integration of information data of business flow, capital flow, information flow and logistics is realized. Comprehensive analysis of upstream and downstream enterprises and true reflection of the company's operation and credit situation, from financial data to transaction data, to create a proprietary big data risk control model, so that banks can achieve credit innovation in the supply chain financial goods pledge business. On the one hand, it helps banks to transition and change from the original control of the goods themselves to the right to control the goods. On the other hand, in the artificial intelligence environment, based on the analysis of big data to review the qualifications of core enterprises and evaluate their repayment capabilities, intelligent systems can be used to determine the creditworthiness of users, so that they have automatic decision-making capabilities, eliminating the tedious step of manual review in the future. This helps banks increase the speed of lending and financing, and reach a balance of risks within the supply chain system. In the future, Internet of things technologies such as artificial intelligence, machine learning, deep analysis and loading sensors can be used to further enrich the dynamic database, regularly update customer portraits automatically, and proactively increase credit lines for high-quality customers.

5.4 Service Model and Business Idea Innovation

For the past decade, supply chain finance has been the exclusive game of banks. Restricted by financial strength, financial service licenses, and other restrictions, it is difficult for other institutions to become the mainstay of supply chain financial products and services. Therefore, in the past ten years, banks have sufficient space to develop innovative models of supply chain financial services. However, under the impact of the "Internet +" wave, more and more enterprises have transformed themselves into

supply chain financial products and service providers by using their own information advantages, transaction resource advantages, and customer resource advantages.

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