The Application of Data Mining in Financial Risk Control

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Abstract

In recent years, with the continuous development of Chinese financial market, "supply chain finance mode" has expanded a brand new business within Chinese financial market, but "supply chain finance mode" in the process of business management development, there are still some risk factors. Data mining is a new business information processing technology, which is characterized by the extraction, transformation, analysis and other modeling of a large number of business data in the commercial database, and the extraction of key information to assist business decision. This paper mainly analyzes and studies the repayment risk factors in the operation process of dealers, and uses data mining technology to control the risk factors in the operation process of financial enterprises, so as to avoid a series of risk problems in the operation period of financial enterprises.

Keywords

data mining; Financial risk control; application.

1. Introduction

Supply chain finance is a kind of financial business based on supply chain, formerly known as logistics finance or trade finance. The emergence of supply chain finance can be traced back to the 1980s. With the continuous deepening of trade globalization and the trend of international division of labor, the management of product chain becomes more complicated, and the concept of supply chain management is put forward, which makes the market competition gradually shift from enterprise competition to supply chain competition. After that, the development of science and technology has effectively improved the production efficiency and cost. However, in the supply chain, the capital problems existing in some nodes will affect the cost of the whole product chain, which is bound to reduce the competitive advantage of the supply chain. Supply chain finance is formed to solve this problem. When Chinese researchers explain the concept of supply chain finance, they mostly start from the perspective of bank financial products. Supply chain finance refers to the trade background built by financial institutions based on the supply chain. After considering the credit level of core enterprises, the cash flow that may be generated by future trade behaviors of enterprises is taken as the direct repayment source. Single or limit credit financing in conjunction with the bank's short-term financial products and closed loan operations.[1]

It can be seen that supply chain finance refers to the banking financial institutions providing comprehensive financial services such as financing, insurance and settlement for customers in the supply chain. The business mainly focuses on core enterprises and provides financing services for small and medium-sized enterprises with capital shortage in the supply chain based on their trade relations to make up for the weak links in the supply chain. Lay a solid foundation for the normal operation of supply chain.[2]

2. Identify the characteristics and attributes of dealers with high repayment risk

There are two kinds of data mining techniques, namely predictive mining and descriptive mining. Predictive mining is based on the database content information to predict; Descriptive mining is an overview of the analysis based on the general properties of the database. Since this paper mainly analyzes and studies the repayment risks existing in financial enterprise dealers, the following is mainly collected and sorted out the basic information database contents of dealers. The main analysis attributes are shown in Table 1 below:[3]

Table 1 Dealer basic information database field table

Field name	The values
Place of Sale	Name of province/city
Registered capital	Less than 500,000, more than 500,000, less than 1 million, more than 1 million
Scale of distributor Enterprise	Large, medium and small
Mode of sale	Regional sales, pre-sales, online sales
Season of sale	Spring, summer, autumn, winter
Bank credit rating	A、B、C
Sales Performance	At the contract price
Risk of repayment	High and low

After investigating the basic situation of dealers, managers of financial enterprises will consider whether dealers have risk factors. By generalizing the attribute value of a certain factor that can affect dealers' risk control in the data, they can directly obtain all the sales information of dealers. For example, managers of financial enterprises analyze and study the sales situation of dealers in different regions, as shown in Table 2 below:

Table 2 Dealer basic information table

Place of Sale	Scale of distributor Enterprise	Bank credit rating	Sales Performance	Registered capital	Risk of repayment
fujian	medium	A	200	70	low
jiangxi	large	A	20	100	high
Shanghai	medium	C	30	20	low
nanjing	small	B	150	40	high
hubei	medium	C	10	20	low

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3. Research on Supply chain financial risk control

In supply chain finance, repayment risk owned by upstream and downstream dealers is a major component of financial risks. To effectively prevent and control these risks, banks and other financial institutions should take active and effective measures when providing financial services. First of all, the dynamic monitoring and evaluation of the market operation conditions of major dealers are carried out to eliminate dealers with poor development prospects and weak competitive advantages, and cooperate with other dealers with competitive advantages in the industry. Second, when providing financial services, financial institutions should set different market interest rates according to the repayment risk that dealers have. Data mining technology can be used to determine the level of repayment risk dealers have from the perspective of field attributes, so that financial institutions can make corresponding decisions according to different results. Under normal circumstances, the higher the repayment risk of dealers, the higher the loan interest should be set. In addition, an organization platform supporting business operation and risk management can also be built. Under the premise of innovation of supply chain finance business organization, the traditional bidirectional relationship of "bank -- loan enterprise" can be reshaped into a multi-party ecological chain relationship of "bank -- logistics enterprise -- loan enterprise -- core enterprise -- cloud business service platform" (see Figure 1 for the specific ecological chain relationship). In such an environment, the monitoring and review of logistics, capital flow, information flow and other aspects can be realized through technological innovation. At the same time, business marketing and operation departments should be set up, and scientific and reasonable assessment and incentive mechanisms should be formulated to realize independent assessment of supply chain finance business. On this basis, a comprehensive integrated technical support platform is built to comprehensively control risks in all aspects, and all relevant enterprises can jointly develop risk control technologies.[4]

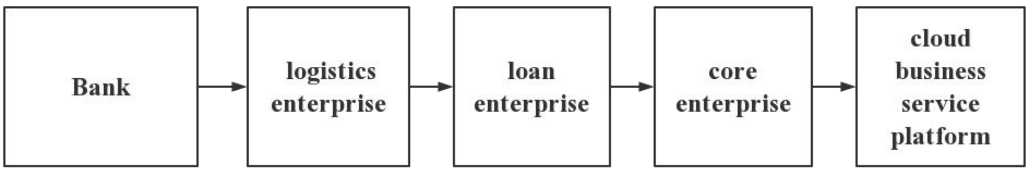

Figure 1 Multi-party ecological chain relationship

4. Closing Remarks

Risk control is a compulsory course for financial institutions. With the continuous development of supply chain finance, the research on risk control will be paid more attention. Identifying the characteristics of dealers with high repayment risk by descriptive data mining can overcome the uncertainty brought by human experience factors, and further improve the risk management level of financial institutions is of great practical significance.

To sum up, although the promotion of supply chain finance in our country has greatly promoted the development of supply chain economy, it is also faced with great financial risks. With the continuous development and innovation of supply chain finance, its risk program

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and control are being paid more attention. This paper starts with the repayment risk of the upstream and downstream dealers in the supply chain, uses the method of data mining to clarify the field attributes closely associated with their repayment risk, and realizes the effective identification of high-risk dealers, which can provide detailed and reliable basis for banks and other financial institutions to implement risk control.[5]

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