Analysis on the Optimization of Pledge Loan for Stock Portfolio Based on Liquidity Risk

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ABSTRACT

The stock portfolio pledge loan is an innovation of the stock pledge loan business, which can better solve the financing difficulties of SMEs in China. Portfolio pledge business is a continuation of the stock pledge business and will encounter a series of problems related to liquidity. This paper takes the liquidity risk as an entry point to analyze the optimization of the portfolio loan pledge. The obstacle factors include the difficulty in choosing a reasonable portfolio of pledges, liquidity risk increases business difficulty and the difficulty in determining the pledge rate. Based on the above problems, this paper gives the corresponding solution at the end.¹

INTRODUCTION

China's SMEs (small and medium enterprises) account for the vast majority of enterprises in the country, and SMEs occupy a significant position in China's economy and are an important force in promoting China's development. However, in the credit market, they are in a difficult position of financing and do not match their important position in the development of China. The stock portfolio pledge loan is a kind of financing method that can effectively meet the needs of SMEs in the innovation of logistics and supply chain finance business. In this type of financing business, the logistics company participates as an intermediary, and the capital supply and demand sides use the services provided by the intermediary to

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conduct financing activities. In the inventory pledge loan business, as most SMEs have a variety of inventory, liquidity of different inventories are different, which promotes the innovation of the business, that is, stocks are combined in a certain proportion and then the loan is pledged. Banks provides loans to the demand side of the funds in full consideration of liquidity, and the third-party logistics companies assist in the management of inventory in accordance with the contractual agreement.

Many scholars have researched on the stock pledge business. Most of the studies focus on risk control and pledge rate studies, focus little on liquidity risk, or ignoring liquidity risk of inventory combinations. This paper takes the liquidity risk as an entry point to analyze the optimization of the portfolio loan pledge.

ANALYSIS ON OBSTACLE FACTOR

Combination Pledges are Difficult to Choose

A prerequisite for the success of the inventories portfolio pledge financing business is to choose an effective combination of pledges, while also taking the liquidity of the inventory portfolio into account. However, there are certain difficulties in choosing the inventory combination that both the bank and the borrowing company are satisfied with. The diversity of inventory and liquidity has made the selection more difficult. In order to pursue interests, enterprises often produce a wide range of products to meet the needs of today's personalized consumers. There are certain difficulties in selecting the best quality deposits among a large number of inventory stocks. And different kinds of products have different liquidity, it is more difficult to choose the inventory combination scheme with the optimal liquidity.

The combination design of pledges and the choice of liquidity between different combinations are more difficult. First, the combination of pledges is difficult. The inventory of the same company usually has similar attributes, that is, a change in some factors will cause the inventory price to fluctuate in the same direction, and it is necessary to find the negatively correlated categories to combine and match, so as to effectively stabilize the price risk. Second, The combined design of inventory should take into account the interests of banks and borrowing companies. Banks also need to consider the issue of liquidity of inventory portfolios, and it is equally difficult to improve the returns of both parties.
Liquidity Increases Difficulty in Carrying Out Stock Portfolio Pledge Operations

In the inventories portfolio pledge business, the trading ability of inventories will change due to market fluctuations, affecting the expectation of the income of borrowing companies and banks. For the borrowing company, changes in liquidity will affect its repayment of the combined pledged loan. The sales price of a commodity will change due to changes in the liquidity of the inventory market, thus affecting the company’s income. When the real income is lower than the expected income before the loan, the company will choose to default. If companies cannot repay bank loans during the agreed repayment period, their credibility will be impaired, further creating a refinancing predicament. For commercial banks, liquidity will cause the bank's expectation change in the value of the combined inventory, which will increase the difficulty of establishing the combined pledge rate and make the bank endure higher risk of the pledge business.

It is Difficult to Establish an Effective Portfolio Pledge Rate

In the stock portfolio pledge business, banks usually set a pledge rate based on the balance of loan proceeds and risks. Risks mainly include market risk caused by price fluctuations and liquidity risk caused by uncertainty in liquidity. There are a number of factors that need to be considered in developing an effective portfolio pledge rate. The combined pledge rate is generally unilaterally set by the bank. Banks usually choose the following important indicators for the analysis of the combined pledge rate: The reputation of the enterprise, the interest rate of the bank's loan, the degree of bank's risk preference, the market demand of the portfolio pledge, and the supervision level of the third-party logistics company. The bank can use the 9C method (borrower's character, capability, condition, continuity, credit history, capital, mortgage, control and corelated document) to examine the reputation of the company, but these nine aspects are measured according to the standards set by the bank itself. In the process of establishing the entire pledge rate, the borrower only can passively accept or reject the combined pledge rate.

Portfolio Pledges Have High Requirement for Third-Party Logistics Business Level

Third-party logistics has the characteristics of specialization and intensification, which can help the borrowing company to reduce logistics costs, help the bank concentrate on its core business, and enhance its core competitiveness. However, at present, the business capabilities of third-party
logistics companies are still difficult to meet the needs of portfolio stock pledge business. Third-party logistics companies still lack the professional competence to cooperate with the portfolio pledge business. Most third-party logistics lacks modern logistics concepts, relatively backward infrastructure construction, small-scale enterprises, lagging information construction, and lack of professional talents. As a result, they cannot evaluate the value and liquidity of the pledge portfolio and cannot meet the bank's assessment service requirements. The pledges required by the banks and the information on the operations of the financing companies cannot be communicated in a timely manner. The transaction costs of the banks are high, and the capital operation efficiency is low.

MEASURES TO IMPROVE PLEDGE LOAN FOR STOCK PROTFOLIO

Reasonable Choice of Pledged Inventory to Mitigate Liquidity Risk

When selecting a portfolio of pledges, the bank can first analyze the inventory price law by means of time series or other methods to predict the trend of changes in the inventory price of the borrowing company. Allows logistics companies use their expertise to forecast future trends in the inventory market, and analyze the direction of market liquidity changes. If the direction of the price fluctuation of the inventory is consistent with the direction of changes in market liquidity, it can be selected as a pledge, if it is the opposite, it cannot be selected as a pledge. Finally, in order to avoid the existence of liquidity interaction among stocks, the stocks with weak correlation may be selected to be combined, even if certain types of stocks lack liquidity afterwards, and the realization of other stocks will not be affected.

Rationally Design Stage Strategy to Control Liquidity Risk

The stage strategy includes the stage of the borrowing company's production enterprise inventory and the bank's stage loan strategy. In the staged production enterprise inventory strategy, the borrowing company obtains production funds through the pledge of raw material combinations, and redeems the raw materials in multiple stages after realizing the sales revenue. Among them, the borrowing company needs to determine the best production batch and the best repayment amount through the formulation of inventory strategy and production plan. In the staged loan strategy, the bank can issue the pledged loan applied by the enterprise in stages to control the risk. After the approval of the combined pledge loan application, the bank will issue a portion of the funds to the enterprise and entrust third-party logistics companies to supervise the portfolio pledges and monitor the production operations of the borrower. When the market liquidity fluctuations
cause the loan repayment risk to be too high, the bank will refuse to issue loans to the borrowing companies again. On the contrary, when the risk is low, the bank will continue to issue the remaining loans.

**Taking into Account the Interests of Banks and Borrowing Companies and Rationalizing the Pledge Rate**

The commonly used liquidity risk measurement is the LaVaR and the LVaR adjusted for liquidity risk. We need to formulate the best premium rate decision that coordinates the profits of banks and borrowing companies as far as possible, while taking into account the bank’s business goals, taking into account the interests of lending companies to ensure the sustainable development of the portfolio pledge business. Banks can select different combinations of pledge rate decision-making methods based on factors such as production costs and profitability of borrowing companies, taking into account the actual production and operation of the borrowing companies, and bringing benefits to the borrowing companies in the event of risk guarantees.

**Establish Stricter Third-party Logistics Evaluation System and Complete Incentive Mechanism**

Banks can eliminate information asymmetry by establishing more rigorous third-party logistics evaluations and complete incentive mechanisms. Before signing the contract, the bank can design different types of contracts for logistics companies to choose, to observe the results of the selection to determine the true capabilities of third-party logistics companies to avoid the emergence of adverse selection. During the execution of the contract, logistics companies must monitor the inventory and related information of the borrowing company, scientifically assess the liquidity of the pledge portfolio, and the bank judges the efforts of the logistics company through the evaluation of information to achieve effective supervision of the logistics company. In addition, banks need to increase their incentives for third-party logistics and encourage them to make decisions with banks and borrowing companies. The bank can also formulate business expectations for the logistics company based on past cooperation, compare it with the current performance, and reward or punish the logistics companies accordingly. Also, a differentiated incentive mechanism has been established to maximize the overall benefits of banks and logistics companies by implementing different incentives for logistics companies.
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