

Research on the Risks and Countermeasures of Rare Earth Industry from the Perspective of Supply Chain Finance——Taking Northern Rare Earth as an Example

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Abstract: Since 2021, the price of rare earth raw materials has risen sharply, and the upstream and downstream enterprises in the supply chain in the rare earth industry are facing a serious shortage of funds. In view of the current development status of the rare earth industry in the Inner Mongolia Autonomous Region, Baotou City, Inner Mongolia Autonomous Region, has begun to vigorously promote the effective combination of supply chain finance and local characteristic industries. This paper takes the upstream and downstream enterprises in the supply chain with the core of China Northern Rare Earth (Group) High-Tech Co., Ltd. as the research object, and analyzes the risks that may occur in each link of each subject in the supply chain finance and explores the reasons. And then put forward corresponding risk control suggestions for the government, core enterprises, financial institutions and related upstream and downstream small and medium-sized enterprises, and provide reference opinions for each enterprise whether to choose supply chain finance for financing.

Keywords: Supply Chain Finance; Rare Earth; Risk Control

1. Introduction

According to a report from Tencent.com, from the beginning of 2020 to the beginning of December 2020, the number of enterprises that have been cancelled nationwide has reached 800,000, of which more than 90% are small and medium-sized enterprises, and the depletion of cash flow of small and medium-sized enterprises due to the epidemic is an important factor for the closure of these enterprises. reason. With the proposal of the two-carbon goal of "peak carbon and carbon neutrality" in 2020, the status of rare earth as a key material in the field of new energy has become increasingly prominent^[1], which has greatly increased the market demand for rare earth industry and the price of rare earth raw materials continues to rise. The rise has also caused a serious shortage of liquidity for upstream and downstream enterprises in the rare earth industry. For example, as of December 7, 2021, the prices of rare earth raw materials praseodymium oxide and neodymium oxide have risen by 144% and 70% respectively within one year^[2].

Inner Mongolia is known as the "treasure house of rare earths in the world", and its reserves of rare earth resources rank first in the world. Baotou Bayan Obo Mine is the largest rare earth mine in the world, and its rare earth reserves account for more than 80% of the country's total reserves^[1]. Therefore, at the end of May 2021, Huang Zhiqiang, then vice chairman of the Inner Mongolia Autonomous Region and member of the government's party group, pointed out when he went deep into some rare earth high-tech enterprises in Baotou: "High-tech enterprises, financial institutions, scientific research institutions and relevant government departments at all levels should further improve their political standing. It is closely linked to the construction of an important national strategic resource base, and the promotion of high-quality development of rare earth and other high-tech industries is a compulsory course for implementing the new development concept." After that, the Baotou Municipal Government began to vigorously promote the integration of supply chain finance into the development of the rare earth industry, and promote supply chain finance to solve the problems of expensive and difficult financing for the core enterprises and upstream and downstream enterprises in the rare earth industry.

In April 2022, Industrial Bank Baotou Branch acted quickly after learning about the relevant

financing needs of upstream and downstream rare earth enterprises, and established a rare earth industry agile promotion team to integrate credit resources, take Northern Rare Earth as a core enterprise, and carry out a series of supply chain around it. Chain finance business plan ^[3]. As an emerging investment and financing model that connects commercial banks, core companies, and downstream enterprises, supply chain financial services have brought financial service guarantees to supply chain enterprises, but what risks will emerge after supply chain finance is gradually integrated into the rare earth industry? How should we deal with these risks? This paper selects the supply chain financial chain with China Northern Rare Earth (Group) High-Tech Co., Ltd. as the core enterprise, analyzes the risks it may encounter and put forward corresponding suggestions to provide a reference for other companies in the rare earth industry whether to choose financing through supply chain finance.

2. Research significance

Since the price of rare earth raw materials has continued to rise sharply since May 2020, companies in the middle and upper reaches of the supply chain have begun to experience capital shortages, and due to the low credibility of SMEs' financial disclosure, the information asymmetry between the borrowers and lenders, And lack of mortgaged fixed assets and suitable financing guarantors ^[4], it is difficult for small and medium-sized enterprises to obtain financial support through traditional financing methods. However, obtaining loans through supply chain finance is a brand-new financing method. Although it can solve the problems of expensive and difficult financing for enterprises, for most enterprises, the risks they will face are unknown. At the same time, as a large number of enterprises have obtained financial support, the negative impact of the increase in the price of rare earth raw materials on the company's own economy has been alleviated in the short term, but it has actually increased the difficulty of risk management and control for small and medium-sized enterprises^[5]. Therefore, this paper is of great significance to point out risks and propose countermeasures for each subject in the supply chain.

From a micro perspective, understanding risks and risk control will help enterprises choose financing through supply chain finance, so as to solve their own problems of insufficient liquidity and financing difficulties, and enhance their ability to prevent and control risks. Its own competitiveness seeks its own development in such a highly competitive industry.

From a macro perspective, after an enterprise understands risks and risk control and conducts financing, while meeting the overall financial needs of the rare earth industry, it can also drive the simultaneous development of other related industries in the industry, and promote national economic development to a certain extent.

Therefore, for this complete supply chain with northern rare earth as the core enterprise, combined with the current development status of supply chain finance in the rare earth industry, understanding the potential risks of supply chain finance, and taking preventive measures in time can help supply Create beneficial conditions for the realization of multi-win among the various entities in the chain. At the same time, it can also provide reference for whether other industries should integrate into supply chain finance as a way of capital integration.

3. Research purpose

This paper studies the complete supply chain with northern rare earth as the core enterprise, organizes and summarizes the relevant literature on supply chain finance, and refers to the risk and control research of the steel industry ^[6], and then analyzes the possible risks in the rare earth industry, and expounds How to effectively control it and put forward corresponding suggestions, so that small and medium-sized enterprises in the supply chain understand and attach importance to risks, and refer to the risk control suggestions in this article to make risk control plans for themselves to avoid such risks as much as possible.

4. Supply chain finance

With the proposal of "carbon neutrality" and "carbon peaking" in my country in September 2020, the demand of my country's rare earth market will increase significantly in the future. According to the demand theorem, the increase in demand will lead to a shortage of commodities, so rare earth Prices of raw materials are also likely to rise further. By integrating a large number of supply chain finance related literatures, this paper takes the risk and risk control of the rare earth industry from the perspective of

supply chain finance as the starting point, analyzes the risks that may occur in each main body of the supply chain, and elaborates on it.

After the problems of expensive and difficult financing for small and medium-sized enterprises, how to carry out financing has become a widely concerned issue for scholars. On this basis, the term "supply chain finance" is derived. How to solve the risk has gradually become the focus of discussion among scholars.

Li Jialong (2022)^[7] gave an overview of the concept of supply chain finance and four development paths in the research of the paper; Huang Yanlin (2022)^[8] analyzed the global development of supply chain finance while giving an overview of supply chain finance Huang Qingyuan (2022)^[4] gave a detailed introduction to each subject in supply chain finance and three commonly used financing models.

Xue Ruoyu, Bian Qiurui (2021)^[6] pointed out the risks faced by the steel trade industry from the perspectives of credit risk, moral risk, financing model risk, etc., and analyzed the causes of these types of risks, and finally discussed the blockchain technology. The application in supply chain financial risk control puts forward corresponding suggestions to the government, financial institutions and steel trading enterprises themselves.

Gao Xuan, Guan Ziqi (2021)^[9] pointed out the possible risks from the perspective of the external environment of the supply chain and various internal entities, and put forward suggestions such as strengthening the review of financial institutions, focusing on small and medium-sized enterprises and cultivating professional talents; Wang Jia (2021)^[10] pointed out the corresponding risks and causes in the report with several financing modes as the starting point, and gave suggestions on risk control from the perspectives of government, innovation, talent training, etc.; Zhao Hailin (2022)^[11] analyzed the financing status of SMEs in my country, and introduced the impact of supply chain finance on SME financing and corresponding strategies from the perspectives of cost, information symmetry, and credit risk.

Wu Peiyun and Li Haoran (2019)^[12] conducted an investigation on Baotou Rare Earth Exchange and several financial institutions in Baotou City, and found that due to rare earth products being non-pledgeable collateral, the quality of rare earth exchanges is uneven, and the corresponding business is difficult to carry out, financing still exists. Then, through the analysis of the demands of both banks and enterprises, suggestions are put forward to strengthen financial innovation, establish standard inspection procedures, and increase credit support.

Xi Qiang and Xiao Lifang (2022)^[13] combined the development status of the rare earth industry chain in Ganzhou, Jiangxi Province, analyzed the current situation of its financial support and the challenges faced by enterprises at the front, middle and back ends of the supply chain, and proposed scientific customization, classified policies, industry and finance. combined with other suggestions.

To sum up, the current research on supply chain finance in my country is still in its infancy. The existing literature mainly studies the above-mentioned supply chain finance overview^{[4][7][8]}, the financing difficulties of small and medium-sized enterprises and the credit risk^{[6][9][10][11]}. Scholars analyze the financing model or each subject from multiple perspectives, point out its risks, and then put forward corresponding countermeasures and suggestions for the government and financial institutions. However, at present, there are few literatures on the problems of enterprises in the complete supply chain, and the research on the supply chain finance of the rare earth industry^{[12][13]} is even less. Based on this, this paper takes the leader in the rare earth industry, the complete supply chain of the core enterprise of Northern Rare Earth as an example, and points out the possible legal risks, credit risks, guarantee risks, etc. from the perspective of each subject, and puts forward corresponding suggestions. Through this research, this paper not only makes up for the current gap in the research on risks and countermeasures of rare earth industry in supply chain finance in theory, but also promotes the development of rare earth supply chain finance in Inner Mongolia Autonomous Region to a certain extent. Avoid risks in advance, respond to risks in a timely manner, and provide corresponding suggestions to play an active role in financial support.

5. Analysis of financing risks and reasons

Since supply chain finance connects financial institutions, core enterprises, upstream and downstream enterprises, etc. into a whole, any problem in any part of the chain will affect other subjects. Therefore, this article starts from the perspective of each subject, and analyzes financing. Risks are divided into four categories: legal risk, credit risk, guarantee risk, and debt risk.

(1) Legal risks

From the perspective of market demand, my country's goal of carbon neutrality and carbon peaking has greatly increased the demand for rare earths in the downstream market. Benefiting from the strong downstream demand, the price of rare earth raw materials will further rise, while upstream and downstream small and medium-sized enterprises need a lot of liquidity to support themselves to purchase raw materials, in order to obtain more financing, SMEs may cooperate with relevant personnel to fabricate non-existent mortgageable assets, or collude with business leaders in banks to defraud loans^[6]. For example, from 2018 to February 2020, Yongwei Holding Group Co., Ltd. defrauded a total of 220 million loans by forging contracts and fictitious accounts receivable, and the funds obtained were not used in supply chain finance. According to Article 193 of the "Criminal Law of the People's Republic of China": For the purpose of illegal possession, defrauding banks or other financial institutions of loans may be sentenced to fixed-term imprisonment, criminal detention and a fine, and if the circumstances are particularly serious, life imprisonment and confiscation of property may also be sentenced. Therefore, once this kind of behavior occurs in small and medium-sized enterprises, it will cause themselves to bear great legal risks, and also cause economic losses to other subjects in the supply chain.

(2) Credit risk

According to Tianyancha app data, Northern Rare Earth has guaranteed a total of 466 companies. Due to the large number of participants in supply chain finance, financial institutions may have insufficient loan approval, especially the information asymmetry between SMEs and banks due to the low reliability of financial disclosures makes it more difficult for banks to approve them. Then, once the small and medium-sized enterprises conduct false transactions and other behaviors, and there is a credit risk, it will affect the entire supply chain and bring high or low risks to the northern rare earths. On the contrary, since upstream and downstream enterprises are financing based on the guarantee of core enterprises, once there is a credit crisis in the northern rare earths, problems with integrity and qualifications, etc., it will inevitably affect the financing of upstream and downstream enterprises^{错误!未定义书签.}, and then affect the production of upstream and downstream enterprises, sales and other business activities are carried out normally. For example, in 2019, Zhangzidao Group inflated profits by whitewashing its financial statements, which seriously damaged the interests of small and medium investors.

(3) Guarantee risk

In terms of supply chain financing, third-party logistics companies provide logistics, credit guarantee and other services for small and medium-sized enterprises, which is to build a bridge between small and medium-sized enterprises and financial institutions^[4]. However, when selecting a third-party enterprise, the information and data may be inaccurate and not updated in time, resulting in financial institutions and small and medium-sized enterprises unable to effectively monitor the goods; It is not uncommon for the same goods to be repeatedly pledged for large interests. Behind this, the financing party is usually maliciously colluding with the logistics party, which invisibly amplifies the risks in supply chain finance. For example, at the end of May 2022, in the aluminum spot trade market, financiers bought out multiple delivery warehouses and repeatedly pledged aluminum ingots, resulting in companies unable to pick up the goods and facing greater losses.

(4) Debt risk

In 2012, because the borrowing steel trading enterprises shared risks through joint insurance, Shanghai Minsheng, Everbright and other banks brought these more than 20 steel trading enterprises to court collectively on the grounds that they could not repay the loans. The core enterprise is an important guarantor for SMEs to obtain financing, and the two are interrelated. If the core enterprise itself is at risk and can no longer undertake the guarantee for SMEs, it will affect the financing of SMEs and cause their funds to fail. Chain breakage will affect product quality due to the inability to carry out normal production, causing customer dissatisfaction and other losses, which will further aggravate the pressure of insufficient funds, making it impossible to repay loans to financial institutions on time, causing debt risks in the overall supply chain.

6. Risk prevention and control measures

As a new financing method, supply chain finance links financial institutions, core enterprises, upstream and downstream enterprises, and third-party logistics enterprises together to form a whole. Therefore, this article will focus on the above four types of risks, from the government and various

subjects. Suggestions for countermeasures are put forward respectively.

(1) The government strengthens supervision

In order to strictly control various processes in supply chain finance, business transactions between various entities, financing transactions, etc., and avoid fraudulent loans, commercial defaults, etc., the government should issue corresponding control policies or laws and regulations, and make clear provisions for each link. Strengthen the supervision of all links, gradually guide the supply chain finance to enter the rare earth industry, and promote the vigorous development of the rare earth industry.

(2) Financial institutions improve relevant mechanisms

From their own point of view, financial institutions should create new financing models based on the characteristics of the rare earth industry, try their best to meet the individual needs brought by rare earth products, and at the same time strengthen the training of professional talents from various aspects such as professional skills and professionalism, or recruit related Professionals can cooperate with first-class universities to offer corresponding courses, which can not only lay the foundation for future employment, but also reduce the training cost of enterprises^[10].

From the perspective of the external environment, financial institutions should establish a complete approval process. Before lending, professionals should strictly follow the approval process to approve the company's mortgage assets and credit ratings. During the loan, they should conduct irregular inspections and conduct risk assessments for the business, identify potential business problems as early as possible, and control risks in a timely manner; notify the borrower in a timely manner after the loan, require it to repay the loan within a certain period of time, and explain the consequences of not repaying the loan on time.

(3) Strengthening supervision of core enterprises

The core enterprise should require the upstream and downstream enterprises to provide more comprehensive and accurate financial data information, asset information, integrity records, etc., to ensure that the enterprise can be guaranteed, and there will be no credit risk, legal risk, etc., that affect their own interests. At the same time, core enterprises should also pay attention to improving their own competitiveness and lead other entities in the supply chain to make progress and develop together.

(4) Third-party logistics companies improve related services

In August 2012, Baotou Rare Earth Products Exchange Co., Ltd. was formally established, which not only provided a new trading platform for upstream and downstream rare earth enterprises, but also provided professional services such as rare earth transaction settlement and financial financing. With the continuous development of supply chain finance, Baotou Rare Earth Exchange and other third-party logistics companies should improve relevant services, try their best to meet the needs of different customers, retain customers, attract customers, standardize management, establish electronic files, and accelerate digitalization Transformation, in order to achieve effective supervision of goods by all parties, refuse repeated pledges, better coordinate the relationship between small and medium-sized enterprises and financial institutions, and try to promote the development of rare earth trade.

(5) SMEs strengthen their own development

For small and medium-sized enterprises, they are in a weak position in the supply chain. Therefore, small and medium-sized enterprises cannot blindly rely on core enterprises to obtain financing. The continuous increase in the market demand for rare earths will inevitably lead to a further increase in the price of raw materials. It can only solve short-term funding problems, not a long-term solution. Small and medium-sized enterprises should take this opportunity to cultivate outstanding talents, improve the resource utilization rate of internal rare earth raw materials, and expand their scale by formulating appropriate corporate strategies according to their own actual conditions. To meet the financial needs through their own efforts.

7. Summary

Small and medium-sized enterprises play an important role in my country's economic development and are an important part of the national economy. After solving the problems of expensive and difficult financing for small and medium-sized enterprises, the development of supply chain finance will promote the further increase in the market demand for rare earths, and then lead the further development of the rare earth industry. It is a decision to be able to effectively predict risks and make relevant solutions.

Important factors for companies to choose financing through supply chain finance.

Based on the integrated analysis of relevant literature, this paper takes the supply chain of northern rare earth as the core enterprise as the research object, and points out legal risks, credit risks, guarantee risks, and quality risks from the perspective of each subject. And put forward suggestions for the government and each subject. The government should strengthen the supervision of each link. While each subject strengthens its own development, it can prevent possible problems in the financing process. Through the active participation of various entities, the development of supply chain finance will be jointly promoted.

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