

# Research on Identification and Prevention of Financial Risks of China CRRC

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## Abstract

**In recent years, China's market diversity and economic development have accelerated, and all industries are facing increasing competitive pressure. In the current market environment, enterprises are more prone to financial crisis, however, the main cause of financial crisis is financial risk. This paper takes China CRRC as the research object, and after combing a large number of related literature, it adopts the literature research method and data analysis method to analyze the financial data and related risk indicators from 2018 to 2022, and finds that the enterprise is facing a large financing risk and operational risk, and puts forward corresponding preventive measures according to different risks. Only by fundamentally preventing and controlling financial risks can financial risks be minimized, and it is hoped that this paper can provide some help for the future development of China CRRC, and then provide some reference for the identification and prevention of financial risks in related industries.**

## Keywords

**Financial Risk; Financial Risk Ratio Analysis; Risk Identification and Prevention.**

## 1. Introduction

### 1.1. Background of the Study

Since the 18th CPC National Congress, General Secretary Xi Jinping has repeatedly mentioned adhering to bottom-line thinking and preventing and resolving major risks. The report of the 19th CPC National Congress placed the prevention and resolution of major risks at the top of the three major battles. The report of the 20th Party Congress emphasized enhancing the sense of worry and adhering to bottom-line thinking. In order to conscientiously implement the decision-making and deployment of the CPC Central Committee and the State Council on preventing and resolving major risks and promoting high-quality development, the State Council State-owned Assets Supervision and Administration Commission (SASAC) has further issued a relevant document on enhancing the ability of central enterprises to prevent and resolve major risks. (Chen Zhenhan, 2024) mentioned that preventing and resolving major risks is an inherent requirement for state-owned enterprises to realize high-quality development and an important guarantee for creating world-class enterprises [1]. For this reason, China CRRC accelerates the modernization of risk management system and management capacity, strives to effectively prevent and resolve all kinds of risks, holds the bottom line of no systematic risk, and provides strong guarantee for the group to realize quality change, efficiency change and power change. In the enterprise management system, finance is one of the main content, financial risk management is the core composition of enterprise business risk management. Do a good job of enterprise financial risk management, can improve the enterprise's business risk resistance, to ensure that the normal operation and management activities of the enterprise is carried out in an orderly manner.

## 1.2. Purpose and Significance of the Study

As a major supplier of urban rail transit technology and equipment with leading scale, complete product varieties and first-class technical capability in the world, CRRC Group has always insisted on relying on its independent research and innovation capability and open and collaborative technological innovation mechanism, and has continued to search for and improve the development mechanism of technological innovation capability, constantly strived to improve its technological capability, and has gradually built up the world's leading technology and production base for manufacturing modern urban rapid transit equipment. platform system and manufacturing base. (Wu Hongrui, 2022) believes that in the face of the "Belt and Road" initiative and the global development of the rail transportation equipment industry, China CRRC enterprises are faced with an increasingly complex industry and market environment, and competition is becoming increasingly fierce. The sense of crisis gradually penetrates into the transportation equipment supplier enterprises, and financial risk has become the key core of the development of China CRRC [2]. The study of financial risk identification and prevention of China's heavy vehicles has become urgent, hoping to enhance the decision-making level of China's car management on the one hand, for other enterprises of the same type, can be used as a reference and reference. On the other hand, it helps investors to assess the investment value and risk-bearing ability, and make reasonable decisions.

## 1.3. Research Methodology

This paper adopts the literature research method and data analysis method to understand the theoretical knowledge of financial risk by combing the relevant literature in this field at home and abroad, providing theoretical ideas and theoretical support for this paper's research on the identification and prevention of financial risk. The risk capacity index analysis is conducted through the financial data of China CRRC 2018-2022 to derive the risks faced by the enterprise, summarize the value and shortcomings on the previous research, and then inspire the research of this paper, aiming to make up for the gaps in the research of certain aspects in this field.

## 1.4. Current Status of Domestic and International Research

Xu Kun (2022) With the rapid development of China's economy, enterprises have good opportunities for development at the same time, but also face more challenges, in which the enterprise's investment risk is becoming more and more diversified, is the current enterprise should focus on the problem [3]. Wu Hongrui (2022) the financial risk level of Chinese car enterprises has increased in recent years, and the possibility of risk has increased [2]. Zhou Ying (2019) according to the current situation of China CRRC's operation, the performance model is used to analyze the existing risks and give corresponding measures [4]. Ślusarczyk et al. (2019) mainly focuses on the financial and operational risks of Chinese small and medium-sized enterprises (SMEs), and the results of the research show that the international management level of the enterprise and the strength of risk management have a great impact on the operational status of Chinese SMEs [5]. For banks, the main financial risk is the investment and operation risk, due to the increase in operating costs caused by the gradual increase in the scale of operations, the profitability will appear more difficult, which will also cause the difficulty of enterprise financing and repayment of loans.

## 2. Relevant Concepts and Theoretical Foundations

### 2.1. Financial Risk

Financial risk refers to the process of various financial activities, due to a variety of factors that are difficult to predict or control the impact of the financial situation with uncertainty, so that the enterprise has the possibility of suffering losses. According to the main aspects of financial activities, can be divided into liquidity risk, operational risk, financing risk, investment risk.

According to the degree of controllable classification, can be divided into controllable risk and uncontrollable risk. Financial risk is mainly characterized by objectivity, comprehensiveness, uncertainty, gain or loss, and incentive. Among them, financing risk and operational risk are particularly important.

## 2.2. Risk Assessment Theory

From a financial perspective, risk leads to uncertainty in financial returns. In theory, risk is directly proportional to return; therefore, aggressive investors favor higher risk in order to obtain higher profits, while prudent investors focus on safety considerations. In practice, risk is ever-present and ubiquitous. Investment, financing and operational activities are all subject to risk and require risk assessment. The sensitivity analysis used in the project investment decision-making process and the measurement of operational and financial risks in capital structure decisions fall under the category of risk assessment.

## 3. Financial Risk Identification Analysis of China CRRC

### 3.1. Overview of China CRRC

China North Locomotive & Rolling Stock Corporation ("CRRC") and China Southern Locomotive & Rolling Stock Corporation ("CSR") merged to form China CRRC Corporation ("CSR"), a listed A+H stock enterprise approved by the State Council and established under the principle of equality. "(CSR), a listed A+H stock enterprise approved by the State Council and established under the principle of equality, was successfully listed on June 8, 2015 in Hong Kong and Shanghai. Headquartered in Beijing, CSR has 46 wholly-owned and holding subsidiaries and more than 170,000 employees. As a leading global supplier of rail transportation equipment, CSR has taken over all the businesses and assets of CSR Northern Enterprise and CSR Southern Enterprise. It provides design, production, maintenance, sales, leasing and technical services for a wide range of rail transportation equipment. The enterprise is also engaged in asset management, industrial investment and management, information consulting and import and export business.

### 3.2. Financial Risk Identification Analysis of China CRRC

#### 3.2.1. Analysis of Financing Risk Identification

**Table 1.** Balance sheet of China CRRC

Unit: million dollars

Repot period	2022	2021	2020	2019	2018
subjects					
Asset-based accounts	-	-	-	-	-
money funds	5486183.9	4858511.5	3349235.9	4490476.4	3817100.8
current asset	29045505	27988263	24972722.5	25121511.5	22751212.8
non-current asset	15168509.6	14694386.9	14265314.3	13235737	13001092.2
total assets	44214014.6	42682649.9	39238036.8	38357248.5	35752305
Asset-based accounts	-	-	-	-	-
Current liability	22740375.1	21555631.7	19749291.1	20016451.1	18835143.6
Long term loan	609612.20	745427.6	420260.2	258964.4	88001.1
non-current asset	2375047.90	2897867.6	2574589.3	2457949.2	1948698.7
total liability	25115423.0	24453499.3	22323880.4	22474400.3	20783842.3

Data source: Oriental Wealth Network China CRRC Balance Sheet 2018-2022.

**Table 2.** Debt service capacity analysis

Repot period	2022	2021	2020	2019	2018
Solvency indicators					
current ratio	1.28	1.3	1.26	1.25	1.21
quick ratio	1	1.01	0.95	0.92	0.95
cash flow ratio	0.105	0.096	-0.01	0.113	0.101
gearing	56.8	57.29	56.89	58.59	58.13
equity multiplier	2.315	2.341	2.32	2.415	2.389

Unit: %

Data source: Oriental Wealth Network China CRRC Balance Sheet 2018-2022.

In this study, the financing risk of China CRRC is analyzed mainly through solvency. The solvency analysis of enterprises is mainly conducted through both short-term solvency analysis and long-term solvency analysis, and the following is the financial statement of China CRRC from 2018 to 2022 and the analysis of solvency.

Generally, the greater the net cash flow from operating activities of a business, then the higher the ratio. The business is better able to repay its debts within the stipulated period. As shown in Table 1, the value of current ratio fluctuates around 1.3, the normal value of current ratio should be around 1.5 to 2.0, so it can be seen that the current ratio of CSR is not in the normal range. In addition, Table 1 also shows that the proportion of current liabilities is very large, while the current assets of CMC do not exceed the current liabilities by much, which means that the short-term solvency of CMC is not strong, and CMC may be on the verge of bankruptcy due to the momentary delay in the liquidity of funds.

The normal range of quick ratio is around 1. From Table 2, it can be seen that the quick ratio of China CRRC is hovering in the critical point. Generally speaking, the lower quick ratio indicates that the enterprise's assets are illiquid and the short-term solvency is weak, and the quick ratio better reflects the strength of the enterprise's liquidity, which in turn reflects the enterprise's short-term solvency more directly than the current ratio, therefore, the data in Table 2 can clearly show that the short-term solvency is weak. Therefore, the data in Table 2 can clearly show that the short-term solvency of China CRRC is weak.

As shown in Table 2, by calculating the gearing ratio and equity multiplier of CMC, it can be learned that the long-term solvency level of CMC is very strong. The normal range of gearing ratio is between 40% and 60%, while the gearing ratio of CMC basically stays above 55%. The normal range of equity multiplier is between 2 and 3, and the equity multiplier of CMC is basically above 2.3, which indicates that the long-term solvency of CMC is maintained in a stable and middle-upper range, and thus it can be seen that CMC has a very strong long-term solvency.

**Table 3.** Statement of liabilities as a percentage

Repot period	2022	2021	2020	2019
Percentage of data				
Total liabilities (¥ million)	25115423	24453499.3	22323880.4	22474400.3
Gearing ratio (%)	56.8	57.29	56.89	58.59
Current liabilities (¥ million)	22740375.1	21555631.7	19749291.1	20016251.1
Current liabilities as a percentage (%)	90.54	88.15	88.47	89.07
Total liabilities (¥ million)	25115423	24453499.3	22323880.4	22474400.3

Data source: Oriental Wealth Network China CRRC Balance Sheet 2018-2022.

As can be seen from table 3, liabilities account for more than 50 per cent of total assets. Huge corporate debt leads to higher interest costs and also increases the risk of bankruptcy or insolvency due to reduced revenue. According to the analysis of asset and liability structure shows that the proportion of non-current liabilities of the firm is low, while current liabilities are gradually increasing in the total liabilities. Current liabilities take up a major part of the enterprise's assets, and a higher proportion means that the enterprise needs to repay more debts in the short term, and the operational risk and capital pressure will be greater. Once the enterprise faces a shortage of funds, it may lead to bankruptcy and closure. If because of capital turnover problems, in a short period of time can not repay the arrears due, there may also be credit problems, then it will not only this time the repayment is not able to pay back properly, may be because of credit problems in the future borrowing process has been hindered, for the normal operation of the enterprise in the future is also a greater challenge.

### 3.2.2. Identification and Analysis of Operational Risk

The operating capacity of an enterprise can be briefly described as the ability to utilize existing assets profitably. By studying and analyzing operating capacity, it can help managers to improve the business situation, assist investors to choose investment strategies rationally, and also play a key role for creditors to make correct credit decisions.

**Table 4.** Operational capacity analysis

	Unit: times				
Repot period	2022	2021	2020	2019	2018
Operational capacity indicators					
Accounts receivable turnover ratio	2.72	3.12	3.46	3.7	3.09
Inventory turnover	2.82	2.88	2.86	3.04	3.09
Current asset turnover ratio	0.78	0.85	0.91	0.96	0.91
Fixed asset turnover	3.72	3.86	3,89	3,93	3,82
Total asset turnover	0.51	0.55	0.59	0.62	0.60

Data source: Oriental Wealth Network China CRRC Balance Sheet 2018-2022.

China CRRC's indicators are stabilizing. The higher the accounts receivable turnover ratio is, the company can reduce bad debt losses and increase asset liquidity by collecting accounts receivable more quickly.

#### 1) Accounts Receivable Turnover Declined Year-on-Year

As can be seen from Table 4, the indicators of CSCL tend to stabilize, but the accounts receivable turnover ratio began to decline year by year, and from 2019 until 2022, the accounts receivable turnover ratio was 3.7, 3.46, 3.12 and 2.72, respectively, and the accounts receivable turnover ratio has been on a downward trend. It will lead to the tightness of the enterprise's capital chain, which in turn triggers the problem of cash flow interruption. The normal production and operation activities of the enterprise will be seriously affected by the inability of suppliers to provide goods in time due to the capital turnover problem. The previous analysis concludes that China CRRC has more current liabilities, liquidity is not abundant, if accounts receivable can not be recovered in a timely manner, in the need to repay short-term borrowing, there may be a failure to recover the funds in a timely manner resulting in the debt can not be repaid in a timely manner, the enterprise will fall into a difficult to survive in an embarrassing situation.

Since 2020, the accounts receivable turnover ratio has declined, and the reasons for this problem are summarized as follows: first, the sudden occurrence of the epidemic and other external factors in 2020, the deterioration of the operating conditions of many customers, the decline in their ability to pay, and their inability to recover funds in a timely manner, which led

to the uncollectible accounts receivable of CSCL and the emergence of bad debts; second, the lack of a complete and well-established accounts receivable recovery. Secondly, CMC lacked a complete and perfect system for the collection of accounts receivable and many of its customers failed to fulfill their repayment obligations in a timely manner. Thirdly, CMC did not conduct credit evaluation of its customers, which resulted in a lack of understanding of the credit status of its customers and led to the failure to collect accounts receivable on time or even the emergence of bad debts.

## 2) Year-on-Year Decline in Inventory Turnover Ratio

As can be seen from Table 4, the inventory turnover ratio has been decreasing year by year since 2020, from 3.04 in 2019 to 2.82 in 2022, and although there is a small increase in 2021, it is still below the normal range of the inventory turnover ratio. Inventory turnover rate decline leads to product stagnation, a large number of products backlog, the enterprise will not be able to quickly recover funds for subsequent production and operation activities, a large number of products backlog in the warehouse may also be scrapped and destroyed, even more unable to recover funds, exacerbating the tension in the flow of funds. If the product quality problems lead to product backlog, not only will cause the cash flow can not be recovered, but also due to product quality problems lead to loss of customers, will fundamentally lose the opportunity to turn losses into profits.

Since 2020, the reasons for the decline in inventory turnover are summarized as follows: first, the impact of the epidemic has led to a sharp decline in market demand, inventory stagnation, and backlog of products; second, poor inventory management and irrational placement of inventory can lead to damage to the inventory; and third, the quality of the product has led to the product can not be sold or was returned. Inventory turnover rate is too low to lead to the backlog of funds, can not quickly back to the capital, the enterprise will face the problem of difficult to turnover of funds, which will lead to the enterprise can not carry out normal production and operation activities. Fourth, the product is not timely innovation, the market product renewal abounds, if China CRRC is still using the old production methods and lack of novelty of the product into the market, will be in the fierce market competition at a disadvantage, customers are difficult to buy and choose alternative products, resulting in a large number of products can not be sold backlog, which led to the decline in inventory turnover rate of China CRRC.

## 4. Countermeasures to Prevent Financial Risks of China CRRC

### 4.1. Funding Risk Prevention Measures

As can be seen from Table 3, the high proportion of current liabilities indicates that the enterprise's short-term debt burden is very heavy and prone to financing risks, and the enterprise should strengthen the control of current liabilities. First, optimize the funding structure. Increase the proportion of long-term debt or equity financing and reduce the proportion of short-term debt to stabilize and extend the source of funds. Second, reduce the risk of liabilities. Choose borrowing institutions and borrowing methods prudently and avoid over-reliance on high-risk borrowing channels. Third, establish sound financial systems and processes. Ensure the accuracy and reliability of financial data to avoid the problem of excessive current liabilities as a result of poor financial management. Fourth, reduce the cost of borrowing. Enterprises should not limit their borrowing to borrowing from banks only, but can reduce the cost and pressure of borrowing by issuing stocks and bonds. Fifthly, control accounts payable. Get rid of the dependence on credit sales method, accounts payable is a form of current liabilities, reduce the generation of accounts payable can greatly reduce the generation of current liabilities. Sixth, reduce the accounts receivable in advance. Advance receipts, as an

expression of current liabilities, are common in enterprises, and in order to quickly recover funds, enterprises often sell goods through advance receipts.

## **4.2. Operational Risk Prevention Measures**

### **4.2.1. Enhanced Management of Accounts Receivable**

In response to the decline in accounts receivable turnover, one is to establish perfect sales rules. In sales and customers clearly express the strict requirements for the recovery of accounts receivable, so that customers do not hold the psychology of delayed payment, before the sale of customer service to ensure that all the money or whether there is a breach of contract, for a number of non-repayment or delayed repayment of the record of the customer, the development of a strict repayment contract or reduce the sale of such customers, to fundamentally eliminate the generation of bad debts. Second, after the sale of commercial discounts or other forms of urging customers to return the money owed as soon as possible. Third, the establishment of mature debt collection rules. For delayed repayment or refusal to repay the customer to take the necessary legal means to urge repayment. Fourth, diversified sales channels for sales. Reduce the offline transaction, through the online mall or enterprise app, so that users to complete online transactions, online transactions in the process of completing the first payment after the establishment of the contract, in order to achieve the role of rapid recovery of accounts. Fifth, strengthen the control of their own product quality. Do to make customers satisfied with the products and services, reduce the number of customer refunds, good quality will also be publicized by word of mouth among customers, increase customer traffic, thus increasing sales. Sixth, the establishment of a customer credit system, the previous purchase of products for customers to do credit records, the good reputation of customers to sell more, the poor reputation of customers to limit the purchase or set up a strict purchase system.

### **4.2.2. Enhanced Inventory Sales Management**

For a large backlog of products can not be sold, you can sell products at a discount to promote sales; for the warehouse location is not suitable for the inventory backlog caused by damage or scrap, you can through the preliminary inventory of the warehouse address inventory, additional warehouse caretakers or to strengthen the management of warehouses to reduce the inventory of scrap, destruction; for product quality problems caused by the inability to sell the goods, you can through questionnaires to find out what customers are not satisfied with the way to analyze the recovered questionnaires to improve product quality, product quality is a very important condition for retaining customers. For product quality problems that lead to unsold goods, the questionnaire can be used to find out the customer's dissatisfaction points, the questionnaire will be recovered for analysis, product quality improvement, product quality is very important to retain the customer's internal conditions; to strengthen the quality control of suppliers, for the purchase of the quality of the product, the timeliness of the supply to do a good job of strict audits in order to prevent missing the production of the limitation period or the purchase of the product before the use of the scrapping and destruction of the product; to strengthen the distribution of the Management, must be timely and safe delivery of products to the hands of customers, to reduce the possibility of accidents on the way, resulting in the inability to deliver the product on time or the product has been scrapped.

## **5. Conclusion**

This paper analyzes the financial statements and other relevant data of China CRRC from 2018 to 2022, and then calculates the indicators of short-term solvency and long-term solvency, which represent the financing ability, and the indicators of accounts receivable rate and inventory turnover rate, which represent the operating ability. Through the horizontal

comparison between the relevant indexes and the standard value of the indexes of China CRRC, it is found that there are more risks in the enterprise's financing ability and operating ability, and corresponding measures are given according to the different risks, which are hoped to provide some help for the future development of China CRRC, and then provide some references for the identification and prevention of financial risks in the related industries. However, due to the limited research ability, the identification of financial risk is still to be improved in terms of details, and we hope that we can continue to study this topic in the future, and contribute to the study of financial risk of enterprises in China and even in the world.

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