

*Original Paper*

# Research on Cash Flow Risk Management of Construction Enterprises

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## **Abstract**

*With the increasingly fierce international competition and scarce resources and environment, some enterprises in the important economic transition period appeared the capital chain fracture situation, stable capital chain is a necessary condition for the long-term development of enterprises. Therefore, this paper takes China Railway Construction as an example, analyzes the problems existing in cash flow risk management, and puts forward corresponding measures to provide certain reference for the industry.*

## **Keywords**

*Cash flow, Construction enterprises, risk management*

## **1. Introduction**

Cash flow reflects the ability of an enterprise to utilize available funds on a cash based basis, which is the “blood” of cash, contract assets and accounts receivable through each economic activity of construction projects. If the construction industry wants to carry out engineering projects, it needs to invest a large amount of capital, and the project completion cycle is long, and the payment is slow, which means that the cash flow risk of the construction industry is much higher than that of other industries, and more strict management is needed.

China Railway Construction is one of the leaders in the construction industry. Under the national development strategy of “One Belt and One Road”, China Railway Construction has established a good brand image of infrastructure construction and has a leading international influence. Therefore, it is of great significance to analyze its cash flow risk.

## 2. Overview of China Railway Construction and Current Situation of Cash Flow Risk Management

### 2.1 Company Overview

#### 2.1.1 Company Profile

China Railway Construction Corporation was first incorporated in Beijing in 2007, and then listed in Shanghai and Hong Kong respectively. It is an oversize construction enterprise directly managed by State-owned Assets Supervision and Administration Commission. With a registered capital of 13.58 billion yuan, it is one of the world's oversize construction groups with both scale and strength. Strong and influential in the construction industry. In the world's top 500 companies, the world's 250 largest contractors, China's top 500 companies have been ranked in the top 50.

China Railway Construction Corporation has contracted many project projects, with a business scope covering the country and even the world. It can independently provide integrated services to customers and has established a good reputation in the industry, and it is moving towards the corporate vision of being the most trustworthy world-class comprehensive construction industry group.

#### 2.1.2 Financial Status of the Company

Understand the company's financial situation by organizing financial statements for the past three years. As shown in Table 1.

**Table 1. Basic Financial Position from 2020 to 2021 Unit: 100 Million Yuan**

Year	Asset		Liability		Owner's equity	
	total	Year-on-year	total	Year-on-year	total	Year-on-year
		increase or decrease (%)		increase or decrease (%)		increase or decrease (%)
End of 2020	12427.93	14.94%	9291.54	13.42%	3136.39	19.70%
End of 2021	13529.70	8.87%	10064.77	8.32%	3464.93	10.48%
End of 2022	15239.51	12.64%	11379.35	13.06%	3860.16	11.41%

From Table 1, it can be seen that the company's assets have continued to grow, with the largest increase in 2020, mainly due to the development from focusing on construction contracting to have a complete industry chain and the ability to provide one-stop comprehensive services for owners. By opening up channels in the market, the company's scale has expanded, resulting in an increase in accounts receivable, inventory, and fixed assets. Secondly, in 2022, China Railway Construction strengthened its resource investment guarantee, made every effort to smooth the industrial and supply chains, maintained stable production and operation, and increased monetary funds due to better customer payments. The debt amount has been continuously increasing for three years, with the largest increase in 2020, mainly due to the company's increased investment in cooperative development projects. The

second is 2022, mainly due to the expansion of business scale in the reporting period, and the increase of payables, prepaid purchases, payments for labor services, payments for land and other receivables. The total owners' equity of the company continued to rise for three years, and the largest increase will be achieved in 2020. This is mainly because in addition to the common stock issued by the company, various financial instruments were issued, which increased other equity instruments. The second is 2022, mainly because the increase of the company's profits this year leads to the increase of undistributed profits this year, resulting in the increase of owners' equity.

### 2.1.2 Operating Results of the Company

By sorting out the data of the income statement, the purpose is to understand the operating results of the company in the recent three years, as shown in Table 2.

**Table 2. Operating Results from 2020 to 2022 Unit: 100 Million Yuan**

year	Total operating amount		Total operating cost		Net profit	
	total	Year-on-year increase or decrease (%)	total	Year-on-year increase or decrease (%)	total	Year-on-year increase or decrease (%)
2020	9113.93	9.62%	8587.03	9.51%	257.09	13.64%
2021	10211.22	12.04%	9909.12	15.40%	293.15	14.03%
2022	10974.96	7.48%	10250.66	3.45%	317.53	8.32%

As can be seen from the table, the operating revenue, operating cost and net profit continue to rise for three years. In 2020, the operating revenue increases by 9.62% and the net profit by 13.64%, which is because the company has a strong market operation and development ability, leading to a significant increase in the operating indicators. In 2021, the company intensified its acquisition efforts and improved its supply chain service level, resulting in the highest revenue growth. Despite the impact of the epidemic, the amount of contracts signed increased, among which, the amount of new contracts signed in domestic business was 256.35513 billion yuan, accounting for 90.87% of the total amount of new contracts signed, up 10.38% year on year. The value of newly signed contracts for overseas business reached 257.303 billion yuan, accounting for 9.13% of the total value of newly signed contracts. Therefore, China Railway Construction's operating results are better.

### 2.2 Cash Flow Risk Management Status of China Railway Construction Corporation

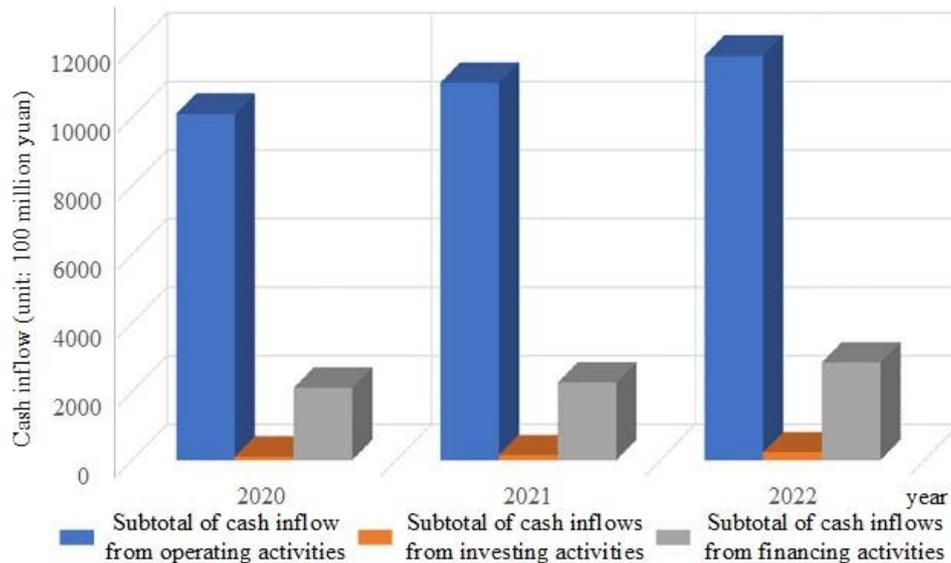
Profit is important to the enterprise, so is cash flow, which is the key to maintain the operation and development of the enterprise. Cash flow is more important to the construction industry because it needs to pay upfront for projects. Cash flow risk can be exposed if projects are not adequately investigated and budgeted, or if there is a lack of supervision over the use of cash flow. The following will be combined with specific data and relevant indicators from the cash flow direction, flow analysis.

### 2.2.1 Analysis of Cash Flow Direction

This paper studies the cash flow direction into cash inflow and cash outflow in order to understand the source and use of cash of China Railway Construction. Through the analysis of cash flow direction, a comprehensive understanding of the source of cash, reasonable planning of the use of funds, improve the utilization rate, speed up the speed of cash turnover.

#### ① Cash inflow analysis

Figure 1 shows the cash inflow ratio of China Railway Construction in 2020-2022:

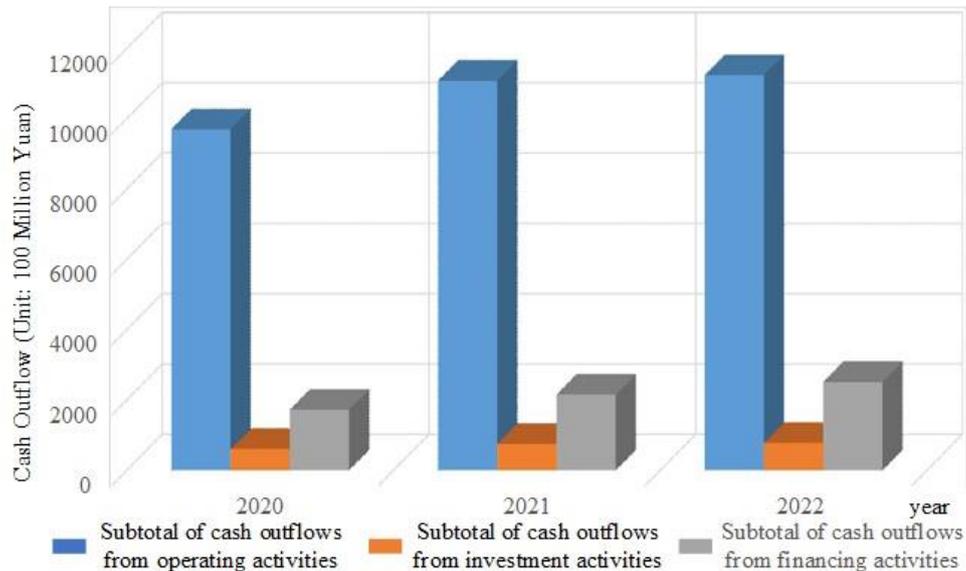


**Figure 1. Cash Inflow of China Railway Construction**

As shown in Figure 1, from 2020 to 2022, cash flow inflow from operating activities has always taken up the largest proportion, with a maximum of 87.08% and a minimum of 79.36%, with little fluctuation. It can be seen that the business strategy of China Railway Construction is relatively successful. In 2020, affected by the epidemic, the contracted sales volume reached a new high of 126.52 billion yuan, indicating that the business strategy of China Railway Construction is clear. In contrast, the cash flow inflow of investment activities has been low, indicating that the investment policy of China Railway Construction needs to be improved. Although the strategy of introducing investors to realize debt-to-equity swap is adopted, the increase of cash inflow generated by investment is not obvious, which may lead to the increase of financial expenses and asset-liability ratio, and the enterprise is faced with operational risks.

#### ② Cash outflow analysis

Figure 2 shows the proportion of cash outflow of China Railway Construction in 2020-2022:



**Figure 2. Cash Outflow of China Railway Construction**

As shown in Figure 2, the cash flow outflow from operating activities during 2020-2022 has always taken up the largest proportion, reaching up to 80.66% with little fluctuation. In contrast, the outbound investment of China Railway Construction has generated the least cash outflow, which is similar to the cash flow inflow. The reason is that engineering contracting has always been the main business of China Railway Construction Corporation, ranking among the top three of the world's largest engineering contractors. After industrial diversification, China Railway Construction Corporation will push its business to the downstream of the industrial chain and want to achieve one-stop service for engineering projects. However, at the same time, China Railway Construction Corporation should also actively promote investment and operation, improve the current situation of investment cash flow, and strengthen the company's core competitiveness. Thicken profits. From the link of investment and financing to the link of operation and management, the company extended to the downstream of the industrial chain without further assessment and separation, nor did it understand the content and quality of the project. Under the problems of strong periodicity and low gross profit rate, it could not guarantee the stable improvement of the company's performance and obtain long-term profits.

### 2.2.2 Cash Flow Traffic Analysis

Cash flow statement is one of the three statements of an enterprise, which can clearly reflect the flow of funds and profit quality of the enterprise, so that the users of financial statements can understand the cash flow of the company from specific data.

#### ① Analysis of cash flow from operating activities

It can be seen from Table 3 that from 2020 to 2022, the cash inflow from operating activities is on the rise, indicating that China Railway Construction is continuously occupying market share, signing many new orders and developing many new projects, which drives the steady increase of corporate profits,

plays a role in connecting the upstream of the industrial chain, forming linkage with the main business, and balancing the disadvantages of rising raw material prices. It shows that the development of China Railway Construction is in a good state.

**Table 3. Statement of Cash Flow from Operating Activities of China Railway Construction (2020-2022) Unit: RMB 100 Million**

project	2020	2021	2022
Cash flows from operating activities:			
Cash received from sales of goods and services provided	9860.32	10758.04	11465.01
Tax refunds received	1.06	40.63	61.57
Net increase in deposits and borrowed funds	9.95	(32.27)	15.80
Other cash received in connection with operating activities	228.31	241.10	253.68
Subtotal of cash inflow from operating activities	10099.64	11007.50	11796.07
Cash paid for goods purchased or services received	8619.69	9890.68	9952.06
Net increase in loans and advances	0.30	2.3	(15.75)
Net increase in loans and advances	1.41	(22.86)	3.71
Cash paid to and for employees	67.48	763.69	783.16
All taxes paid	262.15	267.16	301.69
Other cash disbursed in connection with operating activities	140.21	179.61	209.85
Subtotal of cash outflow from operating activities	9698.55	11080.54	11234.72
Net cash flow from operating activities	401.09	-73.04	561.35

## ② Analysis of cash flow from investment activities

The cash flow generated by investment activities of China Railway Construction enterprises is shown in Table 4:

**Table 4. Statement of Cash Flow from Investment Activities of China Railway Construction Corporation (2016-2020) Unit: RMB 100 Million**

project	2020	2021	2022
Cash Flows generated from investment activities:			
Recovery of cash received from investment	53.26	81.03	77.37
Cash received from investment income	15.54	14.20	13.12
Net cash recovered from disposal of fixed assets, intangible assets and other long-term assets	18.94	19.50	24.70
The net reduction in restricted monetary funds	-	9.62	35.41
Net cash received on disposal of subsidiaries	1.30	10.92	29.17

Other cash received in connection with investment activities	11.39	9.66	39.20
Subtotal of cash inflows from investing activities	<b>100.42</b>	<b>144.93</b>	<b>218.97</b>
Cash paid for the purchase and construction of fixed assets, intangible assets and other long-term assets	313.88	328.75	302.60
Cash paid by investment	242.05	426.85	472.82
The net increase in restricted monetary funds	35.93	-	-
Other cash disbursed in connection with investment activities	11.54	0.03	-
Subtotal cash outflow from investment activities	<b>603.40</b>	<b>755.63</b>	<b>775.43</b>
Net cash flows used in investing activities	<b>502.98</b>	<b>610.70</b>	<b>-556.46</b>

Enterprises often obtain income through investment and make reasonable arrangement of income funds. However, investment is an activity with both income and risk. If the object or time of investment is not right, they will often face investment failure and bring losses to enterprises. Therefore, enterprises should pay attention to investment risk. As can be seen from the cash flow statement of China Railway Construction in the past three years, the overall cash inflow from investment activities is on the rise, because the cash received from investment, obtained from investment income, disposed of various assets and received from other investment activities has decreased significantly, especially other investment activities.

### ③ Cash flow analysis of financing activities

Cash flows generated by financing activities of China Railway Construction enterprises are shown in Table 5:

As can be seen from Table 5, cash flow from financing activities of China Railway Construction Corporation in 2020-2022 is a positive inflow. Loans obtained and bonds issued are the main sources of cash inflow. However, these loans and bonds bring huge pressure of repayment and interest repayment to China Railway Construction Corporation, which may lead to cash flow risks.

**Table 5. Cash Flow Statement from Financing Activities of China Railway Construction Corporation (2016-2020) Unit: RMB 100 Million**

Project	2020	2021	2022
Cash Flows generated by financing Activities			
Absorb cash received from investments	358.52	297.90	349.75
Among them: subsidiaries absorb minority shareholders investment received cash	57.80	174.01	208.48
Cash received from issuance of bonds	134.34	156.60	133.12
Obtain cash received on loan	1577.26	180.64	2352.72
Other cash received in connection with fund-raising activities	34.38	-	12.62

Subtotal cash inflow from financing activities	2104.50	2260.91	2848.21
Cash to pay off debts	1483.32	1736.18	2093.64
Cash disbursed to distribute dividends, profits, or interest payments	194.17	217.54	217.91
Among them: dividends paid by subsidiaries to minority shareholders	30.69	34.58	37.11
Other cash disbursed in connection with financing activities	44.62	201.16	197.72
Subtotal cash outflow from financing activities	1722.11	2154.89	2509.26
Net cash flows from financing activities	382.39	106.02	338.94

### 3. The Cash Flow Risk of China Railway Construction

#### 3.1 More Cases Are Litigated

When the construction enterprise or project cash flow problems are unable to pay the downstream subcontractors and material suppliers, it will lead to an increase in corporate litigation cases. On the one hand, it increases the management cost of enterprises, resulting in the increase of cash outflow and cash flow risk, and also affects the social image and reputation of enterprises. On the other hand, when the enterprise is sued, the people's court may freeze the bank account of the construction enterprise because of the preservation of evidence, which will occupy the operating funds of the enterprise. If the enterprise does not have sufficient funds, the cash flow of the enterprise will be broken. If the case enters the execution stage, the enterprise must pay the arrears and the cash flow will increase.

#### 3.2 Weak Awareness of Risk Management

The projects of China Railway Construction enterprises are distributed in different parts of the country. Personnel changes within the enterprises will lead to the failure of the project department to carry out the projects smoothly and the weak risk awareness of the managers, which will have an adverse impact on the operation and management of the company. In addition, many project managers are experienced in engineering and construction, but they do not have financial knowledge, nor do they timely communicate with the financial department, and give orders hastily, which is likely to lead to problems in the fund chain of the project. If the debt cannot be repaid in the short term, it is likely to lead to the break of the fund chain of another project department, and the project cannot be completed on schedule, which will cause huge economic pressure to the enterprise, or even insolvency.

#### 3.3 High Cost of Project Capital

The capital sources of China Railway Construction mainly include its own capital and external financing, so its debt financing channels are relatively simple. The typical debt financing method is working capital loan. After the maturity of the working capital, the credit will be renewed and the loan will be paid in the form of entrusted payment. Once the arrears cannot be returned in time, the enterprise will break the capital chain and even go bankrupt. The project capital of construction enterprises is common, and the collection period is long. The enterprises frequently borrow and repay from banks, which leads to the financing characteristics of long-term short-term loans. As a result, the total interest cost is high, the interest burden of the company is increased, and the liquidity pressure is

brought.

#### **4. Strategies of China Railway Construction to Deal with Cash Flow Risks**

##### *4.1 Establish Pre-Bid Evaluation Standards*

Projects must be reviewed before bidding to reduce the number of lawsuits, which not only reduces administrative costs, but also reduces the cash flow risk of the business. Generally speaking, there is an inverse relationship between the payment terms in the contract of the project and the performance ability of the construction unit. Therefore, the enterprise should review the project before bidding. Once it is found that the payment ability of the construction unit is poor and there is a risk of failure to perform the contract, it is necessary to reduce the proportion of cushion capital, timely stop losses, and reduce the cash flow risk of the enterprise.

##### *4.2 Strengthen the Awareness of Cash Flow Risk Management*

Cash flow is an important index to measure corporate value, which can effectively reflect corporate financial risk. Therefore, enterprises should focus on cash flow risk management and strengthen the awareness of cash flow risk management. Business managers and decision makers should not only focus on immediate interests, but also take a long-term view to maintain a healthy cash flow situation. Secondly, the awareness of cash flow risk management should be popularized to every manager. In a word, enterprises should actively promote the management and control of corporate cash flow financial risk, improve the enthusiasm of cash flow financial risk management. If there are employees actively for the enterprise cash flow management suggestions, take the initiative to propose improvement methods, keep pace with The Times, employees should be rewarded. Financial departments should also focus on training to identify cash flow risks and improve the professionalism of financial personnel.

##### *4.3 Strictly Control Project Costs*

Only by balancing the cash inflow and cash outflow of the project can the whole project run smoothly. Cash flow management should not only pay attention to cash inflow management, but also pay attention to cash outflow management. China Railway Construction should do a good job in the overall planning of funds for each project, measure the relationship between the capital cost of long-term and short-term loans and project profit rate, and do a good job in financial planning, budget management, financial system construction and accounts receivable management system to control its own costs. Payment should be made in strict accordance with the contract and the actual work of the subcontract. In addition, we should increase financing channels, build a reasonable capital structure and reduce financing costs.

#### **5. Conclusion**

To sum up, at present, most enterprises have realized the importance of cash flow risk management and take cash flow risk management as the focus. In the increasingly competitive environment, enterprises should try to avoid risks, reduce cash flow fracture situation, in order to establish a more long-term

foothold. Based on the analysis of some problems existing in the process of cash flow risk management of China Railway Construction, this paper puts forward targeted suggestions for improvement, in order to provide suggestions for future enterprises in cash flow risk management, so as to promote the sustainable development of enterprises.

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