Last Updated: October 4, 2024

Rating Methodology by Sector

General Heavy Machinery

1. Business base

General heavy machinery companies have a wide variety of businesses and product lines. Since business risks such as delivery time, profitability, and volatility are not uniform, JCR focuses on a portfolio analysis centered on their core businesses in its rating evaluation of general heavy machinery companies.

(1) Characteristics of the industry

(i) Market overview

Many of general heavy machinery companies' businesses are related to social infrastructure, transportation equipment, and corporate production facilities. First, JCR identifies which businesses are the core businesses of each company, and then analyzes the markets to which each business belongs in a multidimensional manner, focusing on those for core businesses. The analysis includes economic sensitivity (e.g., demand volatility and time lag with the business cycle), growth potential, regional characteristics (domestic, overseas, etc.), customer attributes (private/public, large specific customers, mass customers, etc.), and competitive situation. Competitive situation is discussed below in the next section (ii).

Taking social infrastructure as an example, there are two broad categories: large-scale projects mainly overseas and domestic public facilities (public demand). For the former, demand for power generation plants is likely to increase due to rising demand for electricity, especially in emerging countries. However, as the trend toward decarbonization continues, there will likely be a shift to power generation methods that emit less CO2. In addition, many high-speed railroad projects are being planned and considered in both developed and emerging countries, and this trend is expected to continue. Meanwhile, domestic demand for new public facilities (bridges, waste disposal facilities, etc.) has been sluggish, reflecting the severe fiscal situation. However, from the standpoint of safety and environment, more than a certain level of replacement demand is considered to exist. Whether overseas projects or domestic public facilities, the impact of economic fluctuations will be relatively small due to the nature of infrastructure.

(ii) Competitive situation

Competitive situation is an important factor that has a significant impact on business performance, and JCR pays attention to the competition terms and conditions and changes for each business.

Many businesses are engaged in fierce competition under free competition. However, some of them show peculiar aspects. For example, in large international projects such as power plants and high-speed railroads, there is a trend toward cooperation between companies and the governments of the countries to which they belong. On the other hand, defense-related projects such as fighter jets and naval vessels have limited suppliers and tend to be no-bid contracts, and competition has been relatively slow (see below).

(iii) Cost structure

Since costs are normally taken into account when receiving orders, probabilities of recovery of invested capital and securing profits are considered relatively high. However, since the weight of raw materials and equipment is generally high, a company is vulnerable to price fluctuation risk due to timing difference between receiving orders and procurement of these materials and equipment. In addition, there are many products that are difficult to shift production overseas while expanding into international markets, and a mismatch between sales and costs in terms of exchange rates is inevitable for these products, limiting the company's ability to control exchange rate risk. For each company, JCR tries to understand the degree of risk by checking the sensitivity of its business performance to these risks and its actual response to these risks, such as hedging.

Noteworthy among the individual businesses is the aircraft-related business, which differs in aspect between public and private sector demand. In the case of public sector demand, prices are determined by adding a cost fluctuation adjustment rate and a profit margin that reflects corporate efforts in terms of quality and delivery time to manufacturing costs such as raw material costs and expenses, and are therefore evaluated as a stable source of earnings. In contrast, in the case of private-sector demand, a commensurate upfront burden of development costs and capital investment is indispensable. Upfront losses are inevitable, and unless a certain level of orders for the aircraft are secured, it will be difficult to recover the capital invested. JCR does not consider the initial losses incurred in the commercial aircraft business a negative factor, and determines the medium- to long-term contribution to business performance and the probability of capital recovery each time, while updating the outlook for air transportation and demand for such aircraft.

(2) Key factors in market position and competitiveness

(i) Market position

In terms of market position, the businesses of general heavy machinery companies can be broadly divided into two categories: (a) those that have established themselves as big players and (b) those that are just one of many players. Although some of the businesses in the position (b) have a certain level of earnings strength, JCR focuses more on the status of businesses in the position (a) (most of which are core businesses) in terms of examining the strength of their business bases.

In the position (a), there are also businesses that compete intensely with other big players, albeit to a limited extent (e.g., power plants, rolling stock, motor cycles), and businesses that have a near-exclusive position due to strong relationships with specific customers (e.g., aircraft parts, defense-related businesses). Others, such as chemical plants and industrial machinery, are not necessarily big players but have established a certain position in their specialty fields or products. In each case, JCR understands demand trends for existing customers (repeat customers) and potential customers, and watches the past records of orders received and products delivered, which are the keys to deepening the relationships with existing customers and developing new customers.

The businesses in the position (b) are public facilities and others. Although they have little advantage in terms of scale and are forced to operate in a difficult business environment whenever demand slackens, there are some businesses that enjoy the benefits of being a survivor as a result. For these businesses, JCR is confirming the direction of future contribution to business performance, including the way the business should be conducted.

(ii) Technical strengths

Many of the general heavy machinery products require advanced technology, including in terms of safety. In addition, companies are focusing on differentiating their products with value-added features such as high efficiency and reduced CO2 emissions to increase their competitiveness. In addition, the development and expansion of advanced technologies is essential not only to meet customer needs, but also to develop new markets. As competitors are making progress in technology, securing technological superiority is the basis of the general heavy machinery companies' competitiveness. JCR makes efforts to understand the position of each company's technological capabilities, centered on its core business, based on its past performance.

(iii) Cost competitiveness

Cost competitiveness is, in a sense, paired with technological strengths. No matter how high the performance of a product is, it is difficult to win the competition for orders if companies can only set a price that exceeds that added value. In addition to the price advantage that Korean and other manufacturers tend to offer, the situation is particularly difficult for Japanese manufacturers when the yen appreciates.

It is undeniable that the fixed cost burden, especially depreciation, is generally high for general heavy machinery companies, but that is not to say that there is no room for cost reduction, including productivity improvement. In addition to optimizing materials procurement, including global procurement, and optimizing product inventory management, including distribution inventory, standardization and modularization of parts are also effective, as many products are one-of-a-kind items. Furthermore, depending on supply and demand trends, a review of production bases may also be an issue for consideration. JCR confirms each company's response and its effectiveness, as well as future directions.

(iv) Project management capacity

Plants and high-speed rail systems involve significant risks as a project, and there have been cases of recording huge losses in the past. Due to their large scale, even a single project can have a tremendous impact on corporate management, making project management capacity extremely important.

Proper and accurate judgment and response are required in a wide range of areas and stages, including country risk, cost estimation, contract contents, material price and exchange rate fluctuations, project progress management, and capital recovery. In addition, it is also necessary to respond to the growing needs of customers in the areas of construction work, operations, and after-sales maintenance. JCR confirms the status of each company's risk management efforts, i.e., specific approaches of risk management at each of the aforementioned stages for the project.

(v) Business portfolio

In the analysis of each company’s business portfolio, JCR focuses on the length of delivery time of each business. Long delivery businesses contribute to business performance in a delayed manner and are relatively stable because sales are recorded over a long period of time. Conversely, businesses with short delivery times and mass production are more sensitive to business cycle and their performance is more volatile. In order to achieve a certain level of performance, these businesses both require continuous orders and securing a certain level of order backlog, and JCR determines these probabilities based on the status of the market of each business and competitiveness of each company, as described above.

In the long delivery core business, JCR ties to understand the sustainability of receiving orders and the direction of business performance based on market trends and competitive advantages. On the other hand, in the short delivery and mass production businesses, the average profit level and fluctuation range are assessed over the medium term, rather than short-term fluctuations in business performance. However, large short-term fluctuations are considered a risk in themselves. Based on these recognitions, in assigning a rating, JCR analyzes the characteristics of the business portfolio, which is the aggregate of each business, including the stability of performance and the risk diversification effect of multiple businesses.

While large mergers and acquisitions and investments in new business fields that have a significant impact on a company's business portfolio are a major stepping stone to growth, they also entail a certain amount of risk. JCR responds to such events to show the impact on the ratings in a timely manner after confirming their impact on business performance and financial position, as well as financial management policy.

2. Financial base

(1) Earnings strength

In assessing the earnings strength of general heavy machinery companies, it is necessary to pay attention to the timing of revenue recognition due to the long delivery time of each business and the burden of upfront investment. Therefore, it is necessary to understand not only the overall situation but also the situation of each business (segments are the center of practical analysis) based on the concept of a time axis. The greatest point in evaluating the rating is the contribution of the core business to the company's performance and its stability.

Key financial indicators:

- Operating income
- Amount of orders received
- Balance of orders received
- Operating margin

(2) Cash flow generation capability

General heavy machinery companies have a generally high depreciation burden, which means that cash flow considerably exceeds profit and loss in the income statement. From the perspective of capital recovery, JCR focuses on the analysis of the balance between interest-bearing debt and cash flow.

Key financial indicators:

- Ratio of interest-bearing debt to EBITDA

(3) Safety

Interest-bearing debt tends to balloon for general heavy machinery companies because of their generally large capital expenditures and the large amount of working capital required due to the long construction period. On the other hand, there are cases where the company's equity capital is not necessarily sufficient, due in part to the losses it has incurred in the past. Considering the financing for future business development, the risk of rising interest rates, and business risks, it is desirable for the company to improve its financial structure by reducing interest-bearing debt and increasing equity capital. The rating incorporates the actual status and direction of improvement.

Key financial indicators:

- Debt equity ratio
- Equity ratio
- Shareholders' equity
- Interest coverage ratio

Japan Credit Rating Agency, Ltd.
Jiji Press Building, 5-15-8 Ginza,
Chuo-ku, Tokyo 104-0061, Japan
Tel. +81 3 3544 7013, Fax. +81 3 3544 7026