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Revisions of Rating Methodologies "Tires" and "Electrical Machinery" by Sector

Japan Credit Rating Agency, Ltd. (JCR) hereby announces that it has revised rating methodologies by sector "Tires" and "Electrical Machinery."

The revisions do not alter the framework, concept, treatment, or other details of the methodologies. Descriptions in the methodologies have been revised to reflect recent trends and other factors in the explanation of industry characteristics that form the backgrounds of the methodologies, or to make the explanation of the concept easier to understand. Therefore, there is no impact on individual ratings.

The revised rating methodologies will be posted on the page of “Rating Methodologies: Corporates” (https://www.jcr.co.jp/en/rrinfo/meth_corp/) of JCR’s website.

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Rating Methodology by Sector

Tires

(Note) Abbreviations: EV (Electric Vehicle), HV (Hybrid Vehicle), PHV (Plug-in Hybrid Vehicle)

1. Business base

While demand for tires for new vehicles is easily affected by economic fluctuations, demand for replacement tires, which account for a large portion of total demand, is less volatile than demand for tires for new vehicles, reducing volatility in tire manufacturers' production volume and business performance. On the other hand, in addition to high technological capabilities, tire manufacturers must also have a strong customer base and global supply capacity for new tires, and an extensive distribution network for replacement tires. Since business performance is easily affected by rising raw material prices, and its global expansion requires a heavy capital investment burden, JCR incorporates these business risks.

(1) Characteristics of the industry

(i) Market overview

While demand for tires for new vehicles in developed countries such as Japan, the U.S., and Europe has matured, demand is rising in emerging markets on the back of progress in motorization, and demand in emerging countries is expected to drive global demand growth over the medium term. On the other hand, replacement tires, for which demand is relatively stable, account for 70-80% of the sales, including exports. Therefore, moderate market growth is expected over the medium to long term, with replacement tires supporting fluctuations in demand for tires for new vehicles.

In terms of structural changes in the industry, tires will remain necessary even if the power source changes from internal combustion engine-powered vehicles to EVs and other vehicles. On the other hand, over the long term, demand for tires for new vehicles will be affected by a possible decline in new car sales due to the spread of automated driving and car sharing in some areas.

(ii) Competitive situation

Large-scale factories are needed to manufacture tires at low cost, and barriers to entry are high, including the investment burden of global expansion. As a result, the global tire market is an oligopoly market led by Bridgestone, Michelin, and Goodyear, but in recent years the three companies' market shares have been shrinking somewhat due to the expansion of markets in emerging countries and the rise of new manufacturers.

In recent years, there has been a shift in demand from sedans to large vehicles such as SUVs (multi-purpose sport utility vehicles), mainly in North America. As a result, demand for large-diameter tires,

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which are high value-added products, is increasing. Large-diameter tires require high technology to ensure circularity, and Japanese tire manufacturers have a competitive advantage in this area.

On the other hand, low-inch tires are becoming increasingly commoditized, and price competition is becoming tougher due in part to the rise of new tire makers.

(iii) Cost structure

Raw material costs account for a large proportion of the cost structure of tires, and market fluctuations can easily affect earnings. Automobile tires are manufactured by combining various raw materials, including raw rubber (natural rubber and synthetic rubber), compounding agents (vulcanizing agents and other agents), reinforcing agents (carbon black and other agents), and tire cords (steel, polyester and other materials). In particular, it is easily affected by changes in the market prices of natural rubber and crude oil, and each company revises its prices in response to changes in market conditions, but profit margins are often squeezed when raw material prices are on the rise.

(2) Important factors in market position and competitiveness

(i) Market position

As the tire industry is a typical apparatus industry, economies of scale tend to work. Since 70-80% of sales by Japanese manufacturers, including exports, are considered to be for replacement use, the establishment of an extensive distribution network for replacement tires is also important.

Competition is intensifying for both general-purpose products, especially in emerging markets, and high value-added products in developed markets, and it is necessary to establish a business structure to ensure earnings in each market.

The tire market can be also divided into consumer goods tires (for passenger cars, etc.) and producer goods tires (for trucks and buses, agricultural machinery, industrial vehicles, etc.). Diversification of tire applications will likely lead to stabilization of earnings power.

The key to competitiveness for Japanese tire manufacturers for the time being will be to expand their lineup of high value-added products, strengthen sales, and enhance environmentally friendly technologies.

(ii) Measures to counter a fluctuation in raw materials costs

For the selling price of new car tires, Japanese tire manufacturers have introduced a raw material cost-linked pricing formula with most of the customers, which allows them to revise prices even if there is a time lag.

For replacement tires, ease of raising prices varies depending on the country, area and competitive situation, so prices are set while keeping an eye on the competitive situation.

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(iii) Measures to deal with global market and product lineup

The ratio of overseas sales is high for all companies. The basic principle of tire production is to manufacture in the place of consumption due to the high transportation costs. In addition, low-inch tires are subject to global cost competition, which sometimes necessitates concentrated production in low-cost regions.

Some manufacturers are supplementing their global structure through alliances with other companies or M&A. Alliances and M&A may continue in order to expand overseas sales networks, enhance product lineups, and respond to next-generation technologies, and in such cases, the status of realization of synergy effects will be important.

(iv) Strengthening of high value-added products and environmental technologies

Amid stricter regulations on fuel efficiency and CO2 emissions, mainly in Japan, the U.S., and Europe, development of environmentally friendly vehicles is accelerating. As consumer awareness and automakers' development focus on fuel efficiency, differentiating products by improving fuel efficiency as well as safety performance will be a priority item in future product strategies.

Reducing rolling resistance will lead to reduced CO2 emissions while driving. As the development of EVs is in full swing to comply with environmental regulations, tires are required to have high performance in terms of rolling resistance reduction, weight reduction, wear resistance, and quietness. Japanese tire manufacturers have been working to improve their technologies for HVs and PHVs in these areas, and although they are not required to make drastic changes, the difference in performance is expected to affect their competitiveness.

In addition to electrification, there may also be differences in the added value of tires depending on how they respond to automated driving and connected systems.

(v) Non-tire business

In the business composition of Japanese tire manufacturers, non-tire business (sports business, industrial materials, etc.) accounts for 10-20% of consolidated sales. While many of the products in this business have relatively high market shares, there have been some unprofitable products in the past. The companies are restructuring their businesses to build a more stable portfolio, taking into account profitability, growth potential, and synergies with tire business.

2. Financial base

(1) Earnings strength

JCR is focusing on what factors are responsible for the high and low ratio of operating margin and how it will improve in the future. Various factors can be considered, including brand strength, cost competitiveness, ability to cope with rising raw material costs, ability to respond to exchange rate fluctuations, and sales network.

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JCR also checks the earnings conditions of each of tires for new vehicle, replacement, and exports. Profitability of tires for new vehicles has been improving due to the introduction of the raw material cost-linked pricing formula, but in some cases profitability has been lower than that of tires for replacement and exports. In addition, in forecasting profit and cash flow, JCR is checking the degree of penetration of tire price revisions.

Key financial factors:

- Operating margin
- Operating income
- Ordinary income

(2) Cash flow generation capability

Amid intense global competition and continuing investment burden, tire manufacturers must be able to generate sufficient cash flow for investments to maintain and improve their competitiveness. JCR places emphasis on the contribution of new investments and overseas production expansion to profit and cash flow.

- Operating cash flow, EBITDA
- Free cash flows
- Ratio of interest-bearing debt to EBITDA

(3) Safety

Since global business expansion requires a large amount of capital investment and R&D expenses, tire manufacturers must have reasonable financial strength. In addition to production capacity expansion, investments are expected to increase in response to electrification and other needs. Progress in maintaining and strengthening financial strength in such an environment is important.

Key financial factors:

- Interest-bearing debt
- Debt equity ratio
- Equity ratio

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Rating Methodology by Sector

Electrical Machinery

1. Business base

Electrical machinery manufacturers boast a wide range of products, including such end products as consumer and industrial electronics, various parts and components, devices, and manufacturing equipment. Their business compositions are diverse, consisting of different businesses that are principal sources of business performance. Understanding the business risk and competitiveness of a company requires an individual analysis of the conditions of its major businesses. In general, though, the businesses of electrical machinery manufacturers are exposed to high risk, due to rapid technological innovation, volatile demand, and other factors. A rating assessment, therefore, focuses on the competitive advantage of core businesses as well as the risk control measures of the entire company.

(1) Characteristics of the industry

(i) Market overview

The products of electrical machinery manufacturers are characterized by generally high volatility in demand. The extensive ranges of products and trends create an array of factors that can affect demand. Some products are affected by domestic consumption while others depend on global demand movements. The demand for electronic components is influenced by trends in end products, and cyclical fluctuations are also evident in the demand for semiconductor memory and flat panel display (FPD). Some products, such as semiconductor manufacturing equipment, are affected significantly by users' capital expenditure.

The speed of technological innovation and the resulting short spans of product life cycles are also among the characteristics of products in this industry.

Global demand for electrical machinery is created by such generational changes or, at times, by disruptive innovation, which tends to result in steady growth despite repeated changes.

(ii) Competitive situation

While technological advances and other factors place competitive limits on the producers of such products as semiconductor manufacturing equipment, the products of electrical machinery manufacturers are generally exposed to intense competition, both domestically and internationally. Japan not only has a number of leading manufacturers within the country, but competition with foreign players in the global market is also intensifying. In particular, general products exposed to intense competition are susceptible to price competition when demand declines, and, in some cases, sales are substantially reduced by falls in both the quantity sold and prices.

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The severe competitive situation also often results in corporate reorganization, such as business mergers, among companies. Reorganization not only among domestic manufacturers, but also with foreign counterparts may considerably change the future competitive environment, and this should be recognized.

(iii) Cost structure

The businesses of electrical machinery manufacturers often require a large amount of funds for continuous research and development as well as capital expenditure for advanced technological development and mass production. Their cost structures, therefore, commonly consist largely of fixed costs, including depreciation. Volatile demand for products and such inflexible cost structures combine to cause a large gap between the profit and loss of electrical machinery manufacturers.

Product prices are often under downward pressure in the severe competitive environment, requiring constant cost reduction efforts, not only in a downturn, but also in an upturn in the business environment.

(2) Key factors in market position and competitiveness

(i) Market position

In assessing the creditworthiness for delivering a credit rating to electrical machinery manufacturers, JCR focuses on analyzing their core businesses' market shares, as they are considered to be a reflection of a product's competitiveness. Increasing the market share to benefit from economies of scale is an important strategy in ensuring high profitability and in covering depreciation and other expenses in such process industries as semiconductor devices and FPD. Further, a large market share strengthens a company's price bargaining power, which is likely to help ease the effect of demand fluctuations.

(ii) Business portfolio

In assessing the creditworthiness for delivering a credit rating to electrical machinery manufacturers, JCR also emphasizes the analyses of companies' business portfolios. Given the large number of individual businesses exposed to high risk, JCR examines whether companywide risk control measures through, for instance, the combination of businesses in different demand areas and diversification of income sources have been taken.

Meanwhile, some large electrical machinery manufacturers have been restructuring their conventional all-inclusive business portfolios to concentrate more on areas of expertise. Such efforts are also taken into consideration.

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(iii) Technological development capacity

Each company's capacity for technological development is observed in assessing the creditworthiness for delivering a credit rating to electrical machinery manufacturers. For electrical machinery manufacturers engaging in businesses in which normally rapid technological innovation takes place, product quality, functions, and other features are considered to be important in substantially differentiating their products from those of others. Because cost, as well as product performance, becomes an important differentiation factor in such areas as semiconductor devices, the development of micromachining technologies to strengthen cost-competitiveness in advance of competitors is important.

Competitive conditions, such as technological advantages, however, are variable, due to the rapid technological innovation required. Some businesses pay continually rising research and development expenses as a result of technological sophistication. A Credit Rating is reflected companies' efforts to maintain technological advantages, such as intellectual property strategies and whether they are capable of continuous investment in research and development regardless of financial conditions.

Meanwhile, companies have been increasingly selective and selling unprofitable businesses in recent years, and whether such activities hinder the technological development needed to build new profitable business in the future will also be monitored.

(iv) Customer base

The customer base also becomes a competitive factor for such companies as electronic component manufacturers. Demand for electronic components is significantly affected by the competitiveness of end products that use the components. It is important that electronic component manufacturers, therefore, sell their products to assembled product manufacturers with competitive advantages in growth areas. JCR considers that having an adequately diversified customer base comprised largely of such assembled product manufacturers is important.

(v) Cost-competitiveness

Easier entry into such business areas as equipment manufacturing and assembly due to parts modularization has resulted in more competition and less value added available. In addition to quality and functions, cost-competitiveness becomes an important factor in such business areas. JCR considers that improving production technology, developing a production system to achieve overall optimization, and increasing competitiveness are important.

Improving cost-competitiveness is important also for electronic component manufacturers. A key criterion is whether a company is capable of absorbing profit-reducing factors, such as the constant pressure to cut selling prices by manufacturers of assembled products and the rising costs of raw materials, by controlling other costs and expenses. JCR examines such measures as the overseas relocation of production, improved material efficiency, and the development and commercialization of

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new materials that are resilient to the effect of an increase in the costs of raw materials.

(vi) Management

For businesses that require continuous capital expenditure, such as semiconductor devices, the timing and size of the investment have a considerable effect on the subsequent business. Management decision making, therefore, is considered a very important criterion.

2. Financial base

(1) Earnings strength

In general, the businesses of electrical machinery manufacturers are largely influenced by demand fluctuations, where maintaining stable business performance is relatively difficult. Consequently, in the assessment of their earnings strength, JCR focuses not only on the level of a single fiscal year, but also on how much profit-generating power they have over a certain period of time, i.e., trends of earnings strength. Maintaining a business performance at a certain level even during low-demand periods is essential. A sharp decline in business performance during a recession resulting in a net loss would have an adverse effect on finance, which, therefore, is considered a significant negative factor in a credit rating even if it occurs in a single fiscal year.

More specifically, operating income and the ratio of operating income to net sales are emphasized as indicators of comprehensive earning power reflecting the total competitive advantage of a product. Since continuous capital expenditure is incurred in many of the businesses, JCR also observes the return on assets to determine whether the profit is adequate for the investment.

Key financial indicators:

- ■ Operating income
- ■ Operating margin
- ■ Return on assets

(2) Cash flow generation capability

JCR evaluates the companies' ability to generate cash flow that provides funds for investment and repayment of interest-bearing debt. It also monitors whether stable cash flow is maintained regardless of financial conditions by reducing production lead times, improving asset efficiency, such as controlling accounts receivable and inventories, and making other efforts.

Large capital expenditure is needed in many of the businesses of electrical machinery manufacturers, such as semiconductor devices. To determine whether the interest-bearing debt associated with investment is adding an excessive burden or if the companies have the capacity to continue constant investment going forward, EBITDA and the balance between cash flow from operating activities and interest-bearing debt are examined in the rating assessment.

Key financial indicators:

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- Cash flow from operating activities
- Free cash flow
- EBITDA
- Ratio of interest-bearing debt to cash flow from operating activities
- Ratio of interest-bearing debt to EBITDA

(3) Safety

Normally, electrical machinery manufacturers experiencing large fluctuations in the demand for products and/or in product prices as well as high business performance volatility will require higher levels of financial stability than companies whose businesses maintain stable performance.

Some businesses face an increasing burden of investment in research and development and capital expenditure, and maintaining a superior financial structure and the capacity for flexible procurement of external funds is important in view of durability against that burden.

A rating assessment focuses on the amount of equity capital as a risk buffer, equity ratio, debts equity ratio, and other indicators of financial stability.

Key financial indicators:

- Shareholders' equity
- Equity ratio
- Debt equity ratio

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