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Revisions of Rating Methodologies by Sector "Pulp and Paper," "Petroleum" and "Cement"

Japan Credit Rating Agency, Ltd. (JCR) hereby announces that it has revised rating methodologies by sector "Pulp and Paper," "Petroleum" and "Cement."

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

Pulp and Paper

Paper manufacturers produce pulp from chips, the raw material, to produce various paper and paperboard products. Paper manufacturers themselves basically have no sales function, and their products are supplied to end users through distributors, who are primary wholesalers, and wholesalers, who are secondary wholesalers. This rating methodology is applied to paper manufacturers and distributors.

1. Business base

Pulp and paper products are highly dependent on domestic demand due to constraint of transportation cost. Business environment is severe in the domestic market where demand for paper mainly printing and information paper has been declining. In these circumstances, major paper manufacturers have been seeking opportunities in overseas markets with high growth potential and focusing on businesses other than pulp and paper for growth. JCR sees that higher efficiency in the domestic market through revisions to the production system and developments in growth strategies such as business expansion in the overseas markets will lead to an expansion of gaps among companies in business bases, earnings and financial structure.

(1) Characteristics of industry

(i) Market overview

Pulp and paper products are broadly divided into paper and paperboard, both of which are highly dependent on domestic demand. Domestic demand for mainstay paper products that are printing and information paper has been declining due to factors such as diversification of information collection methods and digitalization. Meanwhile, among paperboards, the mainstay containerboard, has been firm due to the lack of other viable substitutes with the product being primarily used in the distribution of processed foods, fruit, vegetables, and other products, in addition to the relatively low import ratio.

The domestic market for paper distribution has a hierarchical structure consisting of paper manufacturers, distributors (primary wholesalers), and wholesalers (secondary wholesaler). Although direct sales from paper manufacturers to large-scale customers is the most common approach for some products such as newspaper, the overall mainstream channel is distribution from distributors to customers through wholesalers or from distributors to customers.

(ii) Competitive situation

Paper and paperboard industry is a typical process industry that can largely benefit from economies of scale. The three largest manufacturers producing paper and paperboard highly dominate the market as the share exceeds 50% in each product. Oversupply has been continuing for the printing and information paper due to large scale capital investments made in the past and a trend of domestic demand toward shrinkage; therefore, price competition may occur easily in order to maintain the capacity utilization ratio of production equipment. In a situation where the yen is appreciating, competition may become intensified due to low-priced imported paper readily available in the market. However, the risk of a decline in the sales market is no longer as high as before as a result of the reduction of production capacity and revision of sales strategies mainly by major paper manufacturers since 2019. Meanwhile, with the added value of containerboard, the key paperboard products, being lower than that of paper, its logistics costs limit the sales area that can be covered from production sites to a certain extent. The domestic market, therefore, can be somewhat segmented based on factory locations, and competition with imports is also limited. The reorganization of containerboard manufacturers and progress in the vertical integration by major containerboard manufacturers including downstream corrugated board businesses have enabled companies to escape from the past excessive competition.

In response to the intensified competition, major distributors, which sell the products of multiple major paper manufacturers and have strength in broad product lines, have also merged into three companies. In addition, there are moves by major paper manufacturers to strengthen their direct distributors, while distributors related to general trading companies also maintain a certain level of influence.

(iii) Cost structure

Pulp and paper industry is an industry which is highly influenced by market conditions and the ratio of the cost of raw materials and fuel to the manufacturing costs is relatively high. The profit structure is hence susceptible to the effect of market conditions and fluctuations in the prices of raw materials and fuel. With regard to foreign exchange effects, yen depreciation (appreciation) has a negative (positive) impact on raw material and fuel costs and a positive (negative) impact on product exports. In order to secure stability of profit, it is important whether a company can pass on price increases when raw material and fuel prices rise.

With much of the raw materials being wastepaper, paperboard is susceptible to changes in the price of wastepaper. However, in the mainstay containerboard, the structure is such that the price pass-on can be easily progressed in a manner led by the top containerboard manufacturers due to the limited competition from imported products and progress in vertical integration.

The primary revenue source of distributors is their wholesale margins, so the risk of falling into the red is low and profit stability is relatively high. Major distributors with a long history of business such as those that originated as Japanese paper wholesalers, also engage in real estate leasing businesses using their own well-located properties, and the contribution of these revenue sources other than the paper wholesaling is also factored into the rating assessment.

(2) Important factors in market position and competitiveness

(i) Market position

In the business of pulp and paper, economies of scale can be achieved at each factory and a market share affects the company’s influence on the market, indicating a relatively strong effect of a market position on the company’s competitiveness.

Market positions are important also for major paper distributors for the adequacy of their sales and distribution networks and price bargaining power against large paper manufacturers.

(ii) Industrial reorganization

The reorganization of major paper manufacturers has been mostly completed, but there are still movements for alliances by business segment. Management integrations and business alliances may create synergies, including cost savings and streamlining, and benefits such as generation of room for reduction of production capacity, which might have been difficult to achieve by a single company. JCR is paying attention to whether manufacturers can increase their competitive strength through realization of these synergies.

While the restructuring among major distributors is also complete for now, wholesalers are likely to be further reorganized to deal with the even harsher domestic business environment. JCR will pay attention to the extent of the effect of this trend on major distributors.

(iii) Competitiveness of factories

In the midst of continued fierce competition in the paper market, an increase of cost competitiveness becomes important, especially for major factories. The competitiveness of paper manufacturing factories is assessed based on factory locations, capacity utilization ratio, energy composition, and other factors. It is necessary to keep capacity utilization ratio at above a certain level through reduction of production capacity and expansion of exports in order to maintain and improve the competitive strength of factories over a medium term in the face of declining domestic demand mainly for printing paper. The differences in these efforts are likely to result in varying levels of future cost competitiveness among companies.

Since significant medium-term growth in domestic demand for paperboard is also unlikely, an increase of cost competitiveness through measures such as integration or disposal of facilities is an issue. The installation of new machines is an optional measure to resolve the obsolescence of facilities, but this often leads to increased production capacity. When installing new machines, therefore, attention must be paid to the effect on domestic demand and market conditions.

(iv) Growth strategy

Major paper manufacturers have been streamlining their pulp and paper businesses in the domestic market, where demand forecasts are bleak, through the management integration and modification of production systems. At the same time, they are seeking opportunities in overseas markets with high growth potential and focusing on businesses other than pulp and paper to achieve growth.

For the rating decision, the key criterion is an ability of the companies to increase their earnings from overseas expansion and new businesses, while maintaining certain earnings and cash flow from their domestic pulp and paper business. Companies expanding their business overseas are also assessed based on the target business field, the amount of invested capital, and whether the expansion is primarily through local production or M&A, etc. that can change their business risk.

2. Financial base

(1) Business size

As indicators of business size, JCR focuses on net sales, production and sales volumes, market share, and the size of factories that may create economies of scale.

Key financial indicators:

- ■ Net sales
- ■ Production and sales volumes
- ■ Market share

(2) Earnings strength

Since the profit structure is susceptible to the effects of market conditions and price fluctuations of raw materials and fuel, trends in raw material and fuel prices, progress of price pass-through, and differences in business portfolios are taken into consideration in the assessment of earnings strength. For major distributors, JCR observes the trends in their margin levels, taking into account their power relationships with paper manufacturers and progress of price pass-through.

Key financial indicators:

- ■ Operating income
- ■ Ordinary income
- ■ Operating margin
- ■ Ordinary margin

(3) Cash flow generation capacity

Being a process industry, pulp and paper industry incurs relatively heavy depreciation expenses, which adds to the importance of the assessment of cash flow generation capacity based on operating cash flow, EBITDA, and other criteria. JCR also evaluates the solvency of the companies through, for instance, a comparison of EBITDA against net interest-bearing debt.

Key financial indicators:

- ■ Operating cash flow
- ■ EBITDA
- ■ Ratio of net interest-bearing debt to EBITDA

(4) Safety

Profits are very vulnerable to fluctuations in raw material and fuel prices and market conditions, and there is a risk of impairing equity capital due to an impairment loss on disposal of equipment. To improve the ability to deal with these risks, a certain level of equity capital must be maintained.

In addition, an increase in overseas investment for future growth tends to create more business risks, which necessitates the establishment of a sound financial structure.

Key financial indicators:

- ■ Shareholders' equity
- ■ Equity ratio
- ■ Debt equity ratio

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Rating Methodology by Sector

Petroleum

1. Business base

The petroleum business is broadly divided into oil exploration and production, oil refining and sales, and petrochemistry. Here we describe primarily the oil refining and sales business, touching on petrochemistry and oil exploration and production.

Domestic demand for petroleum products is on decline in long term, refiner-marketers are faced with the problem of reducing their refining capacity and strengthening the competitiveness of their refineries. The successes of their growth strategy for business areas outside of domestic oil refining and sales and also business portfolio transformation will have implications for their earnings power in the future and is likely to increase disparities among entities. JCR will also monitor each company’s investment strategy addressing to growth and soundness of their financial standing.

(1) Characteristics of the industry

(i) Market overview

Oil refining and sales companies refine crude oil and produce and sell petroleum products. Petroleum products include fuels such as gasoline, jet fuel, kerosene, diesel fuel, and fuel oil, as well as products used as chemical raw materials such as naphtha. Although Japan’s reliance on petroleum has been declining since the oil crisis, petroleum is still the primary energy. Domestic demand for petroleum products will inevitably decrease in the long term with progress in fuel conversion associated with the growing popularity of eco-cars and efforts to reduce emissions of greenhouse gases.

Japan has basically maintained a system of local refining for local consumption, in which imported crude oil is refined within Japan to supply petroleum products, which are highly dependent on domestic demand. Meanwhile, export of petroleum products has expanded to adjust the balance between supply and demand as a main objective in response to the excess domestic refining capacity created by lower domestic demand for petroleum products. As a result, the export ratio has risen compared to that of the past. However, profitability of export is influenced by overseas market conditions, and the number of cost competitive large-scale refining facilities are increasing in emerging markets; thereby, the competition is severe. In these circumstances, domestic refining capacity is being reduced.

In the past, the petroleum sector was a typically regulated industry, but the abolition of the Provisional Measures Law on the Importation of Specific Petroleum Refined Products in April 1996 effectively liberalized the import of petroleum products. The Act on the Quality Control of Gasoline and Other Fuels, however, prohibits the sale of products that fail to meet certain quality standards, and numerous regulations such as the duty of private-sector storage are still imposed on oil refiners and importers. Tariffs on crude oil and petroleum and coal tax on petroleum products are imposed at the import stage, and the gasoline tax, diesel oil delivery tax, aviation fuel tax, and other duties are imposed at the product stage.

The distribution channels of petroleum products can be broadly divided into direct sales, in which refiner-marketers sell products directly to "consumers," and authorized dealer sales, in which products are sold through authorized dealers having a sales contract with a refiner-marketer and their affiliated outlets. Petroleum products such as fuel oil and naphtha for the industrial sector and jet fuel are sold in bulk and the buyers and their locations are limited, resulting in a high ratio of direct sales. In contrast, products such as gasoline and diesel oil for private cars and consumer kerosene are sold in small lots to general consumers in broad areas; therefore, selling through authorized dealers centering on service stations is the main distribution channel.

(ii) Competitive situation

In the aspect of supply, two large companies account for approximately 80% of domestic fuel oil sales (gasoline, kerosene, diesel fuel, and fuel oil A), and at the distribution stage, too, service stations affiliated with the refiner-marketers comprise just under 80% of all service stations in Japan. In the past, a surplus in domestic refining capacity and too many service stations continued to cause excessive sales competition. Being co-products, making a production adjustment for each product is difficult and room for differentiation is small except for some products for petroleum products. Therefore, easing the balance between supply and demand may directly cause a decline in the petroleum product market conditions. However, integration and restructuring of domestic refiner-marketers progressed, and the excessive competition in the market have been tempered. The use of the "market-linked method," in which invoice prices (wholesale prices of refiner-marketers) are determined in conjunction with the market price of each product, has become common, and the fairness and transparency of the invoice price system have increased and competitive conditions have become more standardized.

It is expected that the industry order will be continuously maintained by the two large groups in the future and this should help ensure a stable margin in the oil refining and sales business in the medium term. In the long run, it is important that each company in the industry reduces the refining capacity as the domestic demand decreases and maintains an appropriate supply-demand balance. Meanwhile, disparities in efforts in developing growth businesses outside of the oil refining and sales area as well as efforts for decarbonization may expand gaps in competitiveness among companies.

At the distribution stage, while the number of service stations affiliated with refiner-marketers continues to decrease, the number of service stations owned by large petroleum distributors such as "super dealers" has been also continuously decreasing. In addition, following the progress of industry reorganization, transaction volume of resale products among domestic dealers has remained low.

(iii) Cost structure (profit structure)

Earnings from the oil refining and sales business of refiner-marketers are basically the margins that result from subtracting the cost of crude oil from invoice prices, which is characterized by the fact that it is a manufacturing yet a margin business. Because of this, an increase in the crude oil price tends to reduce profitability.

Large variation in income caused by changes in the conditions in the crude oil market is another characteristic of this industry. Refiner-marketers are obliged to stockpile crude oil and petroleum products by law and are keeping certain amount of stocks. For this reason, due to an impact of inventory valuation, income increases with a rise in the crude oil price and decreases with lower crude oil price. Because income that includes the effect of inventory valuation does not necessarily represent the substantial cash flow generation capability, JCR pays attention to income excluding the effect of inventory valuation.

At the distribution stage, the margin after subtracting the purchase price (invoice price) from the sales price of petroleum products becomes the income source. On the other hand, in the petrochemical business, the difference in prices between petrochemical products and raw material of naphtha forms the basis of income. For oil exploration business, crude oil price gives substantial influence on income.

(2) Important factors in market position and competitiveness

(i) Market position

In the oil refining and sales business, economies of scale can be achieved at each oil refinery. Since market share affects a company's control of the market, which suggests the market position is a strong determinant of a company's competitiveness.

Market positions are important also for large petroleum distributors, determining the adequacy of their distribution networks including petroleum terminals and the bargaining power with respect to refiner-marketers.

(ii) Refining capacity reduction over medium term

In order to meet the requirements of the first and the second public notices of the Act on Sophisticated Methods of Energy Supply Structures, a decrease in the processing capacity of atmospheric distillation unit has progressed in the entire industry. This tightened the balance of supply and demand for petroleum products; and each company's atmospheric distillation unit's facility utilization rate has increased.

However, a decrease in domestic demand for petroleum products has been continuing, and it is difficult to increase export substantially given the competition in overseas market. Therefore, in medium term, it is necessary to reduce refining capacity.

(iii) Competitiveness of oil refineries

With large and state-of-the-art oil refineries being built one after another in China and other parts of Asia, domestic oil refineries must also increase their global competitiveness. To determine the competitiveness of oil refineries, JCR considers that capacity for cracking heavy oil, energy efficiency, sourcing capabilities of crude oil, etc. are also important in addition to the size of devices such as atmospheric distillation unit.

Competition with overseas products is more direct for petrochemical products. A decline in the competitiveness of domestic basic chemicals is inevitable for as long as the Middle East enjoys high cost competitiveness in ethylene derivatives and China is also increasing its production capacity in basic chemicals. Given these circumstances, JCR monitors progress in strengthening alliances in an industrial complex, including integration with oil refining, and in consolidation of facilities.

(iv) Growth strategy and business portfolio transformation

With a medium- and long-term decrease in domestic demand for petroleum products inevitable, the business structure based on oil refining and sales is not likely to facilitate continuous growth. For this reason, companies are taking steps to develop and strengthen businesses where future growth can be expected. More concretely, each company is shifting to carbon neutral products and focusing on expanding business areas including oil exploration, overseas oil refining and sales, power and electronic components.

The success of these growth strategies and business portfolio transformation will have implications for the earnings strength of refiner-marketers in the future and is highly likely to increase disparities within the industry in the long term. If business risk is increased by expansion of overseas businesses and shift to a new business, it is necessary to pay attention to the impact on cash flow and financial base.

2. Financial base

(1) Business size

As indicators of business size, JCR focuses on net sales, sales volume, market share, etc.

Key financial indicators:

- Net sales
- Sales volume
- Market share

(2) Earnings strength

Since oil refining and sales are a margin business, JCR focuses on the margin level instead of profitability. In addition, because inventory associated with changes in the crude oil price has a substantial effect, JCR pays attention to income that excludes the effect of inventory.

Margins are also important for large petroleum distributors.

Key financial indicators:

- Operating income (excluding the effect of inventory)
- Ordinary income (excluding the effect of inventory)

(3) Cash flow generation capability

The oil refining and sales business is a process industry and the burden of depreciation is relatively heavy, which makes it important to assess the ability to create cash flow based on EBITDA and other indicators. On top of accounting based EBITDA, EBITDA which excludes the effect of inventory, should be compared with net interest-bearing debt.

Key financial indicators:

- ■ EBITDA (excluding the effect of inventory)
- ■ Ratio of net interest-bearing debt to EBITDA (excluding the effect of inventory)

(4) Safety

The income of the oil refining and sales business is susceptible to changes in the crude oil price, which thus makes a company exposed to the risk of reducing equity capital along with a sharp decline in the crude oil price. To improve the ability to cope with this risk, equity capital should be increased. In making judgment, JCR considers each company's financial management policy and medium- and long-term trends without solely relying on a temporal level.

Key financial indicators:

- ■ Shareholders' equity
- ■ Debt equity ratio

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Rating Methodology by Sector

Cement

Cement companies are divided into two types: those that specialize in cement as their main business and those that have other businesses as their main business. Since the manufacturers who are engaged in businesses other than cement as their main business are in many cases incidentally engaged in the cement business in order to process and utilize by-products and waste from their main business, their creditworthiness depends on the status of their main business. For this reason, this rating methodology is applied to specialized cement manufacturers whose main business is the cement business.

1. Business base

Cement industry is an essential basic materials industry for the construction of buildings, dams, tunnels, bridges, and various other social infrastructures. However, domestic demand for cement in Japan has long been in decline. The demand may rise temporarily in the future, but in the long run, the demand will highly likely fall further due to a structural problem. Each company in the cement industry is always required to establish a production system and cost structure to meet the shrinking domestic demand.

(1) Characteristics of the industry

(i) Market overview

The domestic demand for cement had been increasing along with the rapid economic growth in Japan; however, after 1970s, it repeatedly increased and decreased in alignment with trends of construction demand. After having reached a peak in the final phase of the bubble economy in 1990, the demand for cement has since been in decline for a long time due to the economic downturn and reduction in public works, etc. After entering into 2010s, the rate of decrease declined; however, there are a number of negative factors for the future demands. Due to a shortage of manpower, construction capability has nearly reached its limit; thereby, it is difficult to increase the amount of construction work. Further to this, considering the diminishing need for strengthening infrastructure and construction works due to decreasing population, the declining demand is said to be a structural problem of the industry. Nevertheless, considering the fact that cement is essential for the maintenance of domestic infrastructure and the living and working environments and given the absence of alternative materials, a certain level of demand can be maintained.

Cement is mainly used in construction projects, and demand is influenced by trends in public and private investments. Companies dealing cement tend to deal other materials such as the aggregate and limestone, building materials, etc., but demand for these products is also principally dependent on investment in construction. Estimates of demand for cement over the medium and long terms are based on forecasts of future investment in construction, which is then applied to the expected income of each company. Because demand trends have a significant effect on the production and sales strategies of each company, these strategies is also necessary to be assessed carefully.

As for overseas, cement companies have mainly entered into North America and Asia. JCR estimates the future direction of demand for cement by considering factors such as trends in construction investment, demographic movements or infrastructure development in each country. Even though the future demand is likely to grow in these areas, it is also necessary to confirm that the target areas are not experiencing oversupply and excessive competition.

(ii) Competitive situation

The cement industry is a typical process industry, and companies in the industry will likely fall into overproduction to increase utilization ratio of the facilities. In addition, they will likely face price competitions once the balance of supply and demand breaks as products are difficult to differentiate. The industry in Japan was reorganized in the 1990s and it became an oligopolistic market comprised by a few large companies. However, a reduction in production capacity progressed relatively at a slow pace against the subsequent decline in demand. The industry still has characteristics of easily falling into price competitions. Each company in the cement industry is aiming to sell products at fair prices to secure enough cash to properly maintain and renew facilities, and is raising prices when it sees an opportunity.

(iii) Cost structure

Because the cement industry is a process industry, the plant utilization ratio is one of the essential indicators in the light of assessing the profitability. When demand for cement decreases, companies close their plants or stop their kilns to prevent a decline in plant utilization ratio. Together with promoting the cost cut, by using waste and by-products as raw materials and fuel for cement, the processing fees for these materials and fuel have also become one of the large sources of revenue for cement companies.

Cement manufacturing costs are likely to be affected by coal prices used as fuel. Coal prices have generally been high from the past due to rising demand in emerging economies and geopolitical risks. Prices of cement, in contrast, have remained low, partly because of sustained levels of excess competition. Cement manufacturers have sought to improve or maintain earnings capacity largely through cost cutting and the waste treatment business. Downward pressure on cement prices and the increasingly volatile price of coal constitute risk factors for cement companies. JCR focuses on whether a reasonable sales price of cement can be realized.

In recent years, companies have been introducing energy-saving equipment and expanding the use of alternative energy sources such as waste and by-products in order to become carbon neutral, and these efforts have led to improved production efficiency. At the same time, they are also developing new technologies and conducting demonstration tests to reduce CO_2 emissions, which may lead to an increase in costs.

(2) Important factors in market position and competitiveness

(i) Market position and selling system

Sales volume is an important determinant of the size of earnings of each company. Since the reorganization of the industry in the 1990s, however, market shares have not changed significantly. With cement a commodity, likelihood of major changes in the market shares of the leading manufacturers is low unless another industry shakeup substantially alters the production capacity of each company.

In selling cement, ready-mixed concreate companies, which are generally small- and medium-sized enterprises, exist as intermediaries between manufacturers and general construction companies, the end-users, and this complex distribution route is a factor holding down the manufacturers' price controlling power. JCR sees that the system will remain unchanged.

(ii) Adjusting supply capacity

Amid the continuous decline in the demand for cement, reductions in production costs are necessary by reducing supply capacity with plant closures and kiln shutdowns. In view of sales areas and disaster risks, however, the number of plants that a manufacturer can close is limited. Considering also the efficiency of distribution channels and logistics, plant closures may cause problems that attenuate the effect of cost reduction. Further, some cement plants also support local economy and act as waste treatment plants for their communities, so they cannot easily be shut down. If, in fact, production capacity is reduced, the likelihood of its contribution to earnings will be determined and scope for further reductions in the supply capacity of each company will be examined. JCR sees that a movement of forming alliances through subcontracting, integration of production and other means is also important.

(iii) Room for rationalization

Because the domestic cement market is not expected to grow, ongoing cost reduction is essential for maintaining and improving earnings capacity. It is important for cement companies to cut the costs of production, and also of distribution by streamlining service stations or efficient use of transportation facilities such as tankers. It is also essential for them to make use of waste materials not only for reducing the cost of raw materials and fuel, but also for raising profit from securing processing fees by utilizing waste materials and byproducts. JCR will assess their capacity to process waste and byproducts as well as their ability to collect waste and the degree of contributions from these capabilities to profits.

(iv) International business development

With no potential seen in the future of the domestic cement market, some cement manufacturers have been expanding their market abroad. Besides the Asian region, which offers the prospect of future growth, the United States also represents a market with possibilities since its population is rising. In these markets, however, competition is fierce, as the local manufacturers and major cement manufacturers already exist. In addition to a trend in the market in which a company operates and degree of revenue contribution, JCR will also check a future overseas business policy.

JCR will analyze the types of overseas businesses operated by Japanese cement companies; for instance, whether they are establishing subsidiaries or only investing in other companies, and whether they are investing in cement manufacturing or also in downstream industries, such as the ready-mixed concrete business.

(v) Earnings strength in other businesses

Companies specializing in manufacturing cement are also entering non-cement business areas including electronic components and real estate other than cement related businesses such as the collection and sale of limestone and aggregate, the production and sale of building materials. While these businesses are not sufficient in themselves to offset the fall in earnings capacity of the cement business, the development is appropriate if it helps stabilize revenue in the future. Meanwhile, from viewpoint of asset efficiency and reduction in interest-bearing debt, businesses with low degree of profit contribution, inefficient assets and an absence of synergies must be sold or liquidated. Whether these businesses are contributing to overall earnings strength, asset efficiency, and financial strength will be determined.

2. Financial base

(1) Earnings strength

Taking into account the long-term domestic demand for cement, growth potential of domestic business is limited. Since volumes will not increase, fixed cost burden will increase unless unit sales prices are raised. Therefore, in addition to price pass-on, it will be essential to improve production efficiency and reduce manufacturing costs. To confirm these conditions, JCR focuses on the gross margin. In addition to the above, improvement in profitability, including rationalization of indirect departments, will also be important, so the operating margin will also be checked. Furthermore, as a process industry, the size of fixed assets is large, and there is also a strong possibility that investment will increase in the future due to aging and environmental measures. It is also likely that a company will make investments to strengthen its overseas business for its growth strategy. Assets are likely to increase due to investments, and profits are likely to decline due to the increased depreciation burden. It will be important to confirm the company's investment stance with an awareness of asset efficiency, so JCR will also confirm the ROA trends.

Key financial indicators:

- Gross margin
- Operating margin
- Return on assets

(2) Cash flow generation capability

With high depreciation expenses, cement manufacturers maintain a certain capacity to generate cash even with falling earnings capacity. However, investments in maintaining and renewing production facilities are heavy; therefore, investment in streamlining and labor saving is essential. Large investment may be needed to strengthen overseas markets or businesses other than cement. Sustained financial improvement is needed in light of the future investment risk, and free cash flow that could reduce interest-bearing debt must also be maintained. This requires some capacity to generate cash flow, and JCR always keeps a close eye on the interest-bearing debt level and the balance with cash flow in addition to transitions in cash flow level.

Key financial indicators:

- EBITDA
- Free cash flow
- Ratio of interest-bearing debt to EBITDA

(3) Safety

In addition to the heavy burden of capital expenditure for maintaining and renewing facilities due to the process industry, as they strengthen their overseas and non-cement businesses, cement manufacturers carry a commensurable amount of interest-bearing debt. In addition to such investments, they will need to make capital investments to become carbon neutral, which may further increase their interest-bearing debts. Furthermore, financial durability against extraordinary losses such as impairment losses will be important, considering the risks of new businesses, overseas businesses, and domestic business restructuring. JCR confirms whether they are able to maintain the financial structure essential for smooth financing and whether they have the scale of shareholders' equity to serve as a risk buffer.

Key financial indicators:

- Shareholders' equity
- Debt equity ratio
- Equity ratio

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