

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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