CRISIL Ratings’ criteria for the oil and gas sector

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Executive summary

The oil and gas industry includes the upstream exploration and production (E&P) and the downstream petrochemicals sectors.

The petrochemicals sector comprises commodity product lines and bulk chemicals. The high-volume and low value-added products are used extensively in various end-user segments. Given the integration of global players across oil E&P and refining, the industry is intensely competitive—mostly price-based in the absence of any significant product differentiation. Regional demand-supply imbalances have an impact on international prices. For instance, a plant shutdown or commencement of production of new capacities or seasonal demand in a region may affect international prices.

Petrochemical products are prone to business cycles and are vulnerable to volatility in crude oil prices. Around 50% of the global cracking capacity is based on naphtha, which is derived from crude oil, thereby imparting volatility to petrochemical products prices. Basic petrochemicals and intermediates see higher price volatility than polymers and downstream organic chemicals, given their close linkages with crude oil and the lesser trade of these products.

E&P depends on demand for petroleum products, which is determined by economic growth. National oil companies such as Oil and Natural Gas Corporation and Oil India Ltd have undertaken E&P activities since inception. After the liberalisation of the petroleum sector in the 1990s, the government encouraged participation of foreign and Indian companies in the E&P sector to increase crude oil production in the country. The New Exploration Licensing Policy (NELP) provided an equal platform to public and private sector companies. In 2016, the Hydrocarbon Exploration Licensing Policy (HELP) replaced NELP, and altered the system from profit-sharing to revenue-sharing. HELP was launched to sustain production growth and attract foreign investment. It provides a uniform licensing system to cover all hydrocarbons.

In its analysis of players in the oil and gas sector, CRISIL Ratings broadly covers business, financial and management risks.

The analysis of the business risk profile covers operational and marketing risks. For petrochemicals companies, CRISIL Ratings focusses on understanding cyclicality, pricing, product diversity, capacity utilisation, cost structure and plant efficiency. For companies engaged in E&P of hydrocarbons, CRISIL Ratings understands the sensitivity of their performance to volatile global hydrocarbon prices, apart from evaluating risks associated with estimates of hydrocarbon reserves, the estimated cost of tapping them, their size, location, and diversity, as well as the ability of the player to effectively exploit reserves and consistently replace exploited reserves.

For financial risk assessment, CRISIL Ratings evaluates accounting policies, current and future financial position, and financial flexibility. The current financial position covers past performance and considers parameters such as trends in revenue from operations, cost and profitability analysis, management of receivables and payables, and capitalisation. The future financial position focusses on operational and financial forecasts to assess the degree of certainty in cash flow projections. CRISIL Ratings analyses the adequacy of projected cash flows to meet financial obligations after covering operational expenses, and capital and working capital requirements. CRISIL Ratings also assesses flexibility to raise funds from conventional and alternative sources.

Capital structure is a key parameter in the financial risk assessment of E&P players. This is because an E&P company requires substantial capital if a number of its fields are in the exploratory or developmental stage. Also, ability to raise the required capital will have a significant bearing on the company's rating. A large proportion of producing wells will not only generate cash flow to support exploratory and developmental operations, but will also considerably enhance ability to raise capital (debt and equity).

For management risk assessment, CRISIL Ratings follows the standard criteria used for all manufacturing companies, which includes evaluating the company's management philosophies, strategies/policies, and risk appetite. This is available in detail in the CRISIL Ratings publication, 'Rating criteria for manufacturing and services sector companies'.

Scope

This document covers the criteria for rating companies operating in the following industries:

- Upstream oil & gas
- Petrochemicals

Rating criteria for the upstream oil & gas sector[1]

Background

The analysis of the business risk profile covers operational and marketing risks. For CRISIL Ratings, the primary criterion for rating companies engaged in E&P of hydrocarbons is the sensitivity of their performance to volatile global hydrocarbon prices. Other parameters include the risks associated with estimates of hydrocarbon reserves, the estimated cost of tapping them, their size, location, and diversity, as well as the ability of the player to effectively exploit reserves and consistently replace exploited reserves.

Business risk

An E&P player faces risks pertaining to operations while it explores and develops hydrocarbon reserves. Once production starts, it faces risks related to marketing of the output and its profitability. CRISIL Ratings analyses each aspect of these risks as briefly discussed below:

Diversity of fields

The diversity in fields provides a hedge against disruption in production in any one field. Geographical diversity provides a hedge against operational risks, as well as local demand-supply and evacuation risks.

Ratio of oil and gas

If a company's portfolio of producing fields contains a concentration of either gas or oil, its performance will be vulnerable to swings in the price of that commodity. A balance in the reserve and production profile between these commodities will provide a hedge against volatility in the price of either.

Operator's credentials

A company's track record and experience in producing oil and gas and in developing reserves are key factors in the rating decision. Capabilities are indicated by the oil and gas reserves that a company currently manages, and the trends in oil and gas production across its operational areas around the world.

Percentage of proven reserves that are developed

The higher the proportion of proven reserves developed, the lower the capital requirement (and the lower the risk) associated with bringing additional production on-stream.

Reserve replacement prospects

In the E&P business, a healthy portfolio of producing, developmental (short- to medium-term), and exploratory (medium- to long-term prospects) fields ensures a strong business position. In such a portfolio, cash flow from producing fields could help fund capital required for development and exploration.

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[1] Updated: February 2021*; For accessing the previous published criteria document, please refer to*

https://www.crisil.com/content/dam/crisil/criteria_methodology/oil-and-gas/archive/CRISIL-Ratings-crieria-upstream-oil-gas-sector_feb2018.pdf

A company’s reserve replacement ability, that is, success in replacing reserves, is measured in terms of its finding, development and acquisition (FD&A) costs. As this measure can be skewed in a given year, the average FD&A cost over three to five years, and the trends in the cost are used to assess how economically a company adds to its reserves.

Marketing risk

Prices of oil and gas

The single-most important factor affecting an E&P company’s cash flow is the price of oil and gas. Given the volatility of oil prices, CRISIL Ratings stresses the cash flow for different pricing scenarios to determine sensitivity to such movements. The price of gas is either benchmarked to a basket of fuel oil prices with a floor and ceiling set in the contract, or is based on a formula submitted by the field operator subject to review by the government. As with oil, CRISIL Ratings stresses the cash flow to determine sensitivity to gas prices.

Operational risk

Reserve risk

Estimated oil and gas reserves of a field will critically determine its production life and profile. An independent estimation of reserves by a reputed agency through advanced valuation techniques, such as three-dimensional seismic surveys, increases the level of confidence in the estimate. A large reserve implies economies of scale and superior operational flexibility. The quality of reserves is important as lighter oils command a premium over heavy oils.

Purchaser’s creditworthiness

India has deficient supply of oil and gas. As long as this continues, the government is likely to stipulate that private sector E&P players sell their oil and gas production to entities nominated by it. The nominees’ ability to clear dues on time will have a bearing on an E&P company’s liquidity. Hence, the creditworthiness of these nominees constitutes a key factor in the rating analysis.

Evacuation arrangements

Appropriate evacuation arrangements for the offtake of oil and gas are essential for smooth operations. In general, a pipeline from the field to the delivery point is the cheapest and most reliable mode of transport for both oil and gas. Tankers are also a reasonably reliable mode of transport for offshore oil. The availability of adequate pipeline capacity over the life of the field, therefore, needs to be studied.

Political risk

On many occasions, governments tend to influence the E&P business through policy decisions. For instance, the government controls gas prices, which constrains the pricing flexibility of E&P companies. Export embargoes imposed by the government preclude companies from realising the full price potential of their products in the global market. At times, the government instructs E&P companies to share the under-recovery of cooking fuel and transport fuel. A company’s ability to manage these constraints is a critical determinant of the rating.

Profitability

CRISIL Ratings evaluates the E&P operations' profitability and sensitivity to price fluctuations. As mentioned earlier, a balance between oil and gas production provides some stability to cash flow if the price of either commodity declines. The cost structure of operations is also analysed. A number of factors are considered, including:

- **Location of proven reserves:** The closer the proven reserves are to the market, the lower the transportation cost.
- **All-inclusive production cost:** A company's production efficiency is compared to the industry average and to that of other producers in the region. CRISIL Ratings also takes into account anticipated volume increase, if any, as these will help bring down the cost of production per barrel.
- **Overheads:** The player's overheads are compared, on the basis of production per unit, with those of other producers.

The upstream oil and gas sector was decontrolled under the NELP regime, where fields were allocated based on competitive bidding. This system continues under HELP. The field development plans of winning entities are evaluated to ascertain the terms of cost recovery, investment multiples, and the share of profit from petroleum to ascertain the profitability and cash flow of production from HELP fields.

In general, the analysis aims to identify factors that result in lower cost than the industry average as these will indicate an ability to withstand downward movement in price.

Conclusion

CRISIL Ratings believes the key determinants of the credit quality of companies in the E&P sector are:

- Price of oil and gas
- Size and quality of reserves, ability to constantly replace exploited reserves
- Diversification in portfolio of assets
- Mix of hydrocarbons
- Cost structure

Rating criteria for the petrochemicals industry[2]

Background

In its analysis of the business risk profile of petrochemicals companies, CRISIL Ratings covers aspects of market position and operating efficiency that are specific to the industry.

Business risk

Market position

The market is characterised by extreme cyclicality and limited product differentiation, resulting in price-based competition. Moreover, domestic prices are determined by the corresponding rates prevailing in the international market. Each of these (and other related) factors will be examined to analyse the market position and its sustainability.

Cyclicality

The petrochemicals industry tends to make sizeable investment to set up more plants and expand capacity when product prices are exceptional. The high gestation period for setting up plants and uneven expansions could result in an over-capacity situation, especially during weak economic cycles. CRISIL Ratings considers this trait as a negative and analyses a company's performance through several such cycles.

Demand-supply equation

CRISIL Ratings analyses the existing and emerging demand-supply situation in the industry, and its likely impact on product prices. Traditionally, India has been in deficit in this regard and a significant proportion of the total domestic demand is met through imports. While capacity additions have reduced dependence on imports in certain segments, the lag in the demand-supply situation is yet to be sorted efficiently.

Domestic demand is likely to rise over the medium term, aided by high population and healthy economic growth.

Price movements and tolling margin trends

The competition in the local industry is price based, driven by the absence of any significant product differentiation. The selling prices are highly volatile as they are determined by global supply and demand dynamics. CRISIL Ratings analyses historic domestic and international price fluctuations for various products, as well as price variation of upstream and downstream products.

Import duty and exchange rate as determinants of pricing

The domestic prices of various petrochemical products are linked to the landed cost of imports. CRISIL Ratings analyses the trend in import duties and its impact on a company's earnings.

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[2] Updated: February 2021; *For accessing the previous published criteria document, please refer to*

https://www.crisil.com/content/dam/crisil/criteria_methodology/oil-and-gas/archive/CRISIL-Ratings-crieria-petrochemical-industry_feb2018.pdf

The rupee-dollar exchange rate forms an important macro-economic variable, influencing the pricing of petroleum products. Devaluation of the rupee enhances the protection available to domestic producers, while its appreciation may reduce the realisation in the local market.

Product slate diversity and size

A diversified product mix (which may include polymers, fibres and intermediates) helps a company combat the risks associated with cyclicality in individual products through different end-user segments. A larger product portfolio also enhances pricing power in the commoditised petrochemicals industry. Other parameters such as the ability to export and expand geographically should continue to support the business.

Operating efficiency

Capacity utilisation

The level of capacity utilisation (usually referred to as the operating rate) is a key determinant of a company's market position and profitability.

Economies of scale in manufacturing

Economies of scale emanating from a large manufacturing plant significantly reduce operational costs. Low capital costs for large plants also improve pricing ability. CRISIL Ratings believes it is becoming imperative for local players to match their manufacturing economies of scale with global standards, owing to the strong linkages between the domestic and global petrochemical markets.

Cost structure

In an industry characterised by pricing volatility, a low-cost structure enhances a company's market position, improves pricing ability, and enables a higher operating rate during a downturn. In this regard, CRISIL Ratings analyses a company's access to (and cost of) feedstock, raw material sourcing ability, manufacturing capability, and the extent of vertical integration.

Security of feedstock

Feedstock rates form an important component of manufacturing cost in the petrochemicals industry. Integrated producers in India primarily use naphtha and natural gas as primary feedstock (for cracking), while non-integrated players use basic building blocks or downstream products as feedstock (such as ethylene), depending on the product mix and level of integration.

The choice of feedstock usually depends on its availability, cost, and a company's downstream product mix. Natural gas prices are relatively stable compared with crude prices. Furthermore, natural gas prices are controlled by the government, and thus provide a competitive advantage to players with access to natural gas as feedstock. CRISIL Ratings examines a company's access to feedstock at competitive costs. The historical price trends of feedstock, and the sensitivity of a company's cost structure to any adverse price fluctuation is critical.

CRISIL Ratings also examines the company's access to port infrastructure as this aids in sourcing the feedstock/raw materials.

Technology and plant efficiency

A commercially proven technology for producing basic petrochemical products is usually available from major international players (on licensing basis) and is not a major entry barrier. A technology is chosen based on its cost competence, product yields, and plant-efficiency levels.

Degree of vertical integration

CRISIL Ratings believes advanced integration helps a company benefit from timing differences in movements of various upstream/downstream product prices. Higher vertical integration can improve cost structure by allowing the company to maintain a higher-than-average operating rate during weak market conditions.

Conclusion

CRISIL Ratings believes the key success factors for the petrochemical sector are:

- Backward and forward integration of operations
- Economies of scale in manufacturing
- Efficient capacity utilisation
- Diversity in product portfolio

About CRISIL Limited

CRISIL is an agile and innovative, global analytics company driven by its mission of making markets function better. We are India's foremost provider of ratings, data, research, analytics and solutions. A strong track record of growth, culture of innovation and global footprint sets us apart. We have delivered independent opinions, actionable insights, and efficient solutions to over 100,000 customers.

We are majority owned by S&P Global Inc., a leading provider of transparent and independent ratings, benchmarks, analytics and data to the capital and commodity markets worldwide.

About CRISIL Ratings

CRISIL Ratings pioneered the concept of credit rating in India in 1987. With a tradition of independence, analytical rigour and innovation, we set the standards in the credit rating business. We rate the entire range of debt instruments, such as, bank loans, certificates of deposit, commercial paper, non-convertible / convertible / partially convertible bonds and debentures, perpetual bonds, bank hybrid capital instruments, asset-backed and mortgage-backed securities, partial guarantees and other structured debt instruments. We have rated over 33,000 large and mid-scale corporates and financial institutions. We have also instituted several innovations in India in the rating business, including rating municipal bonds, partially guaranteed instruments and infrastructure investment trusts (InvITs).

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