

Ratings criteria for the chemical industry

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Executive summary

The Indian chemical industry comprises upstream commodity products, intermediates, and specialty products. From an analytical perspective, this sector can be divided into two segments: bulk chemicals and specialty chemicals.

Bulk chemicals are the building blocks which usually require large investments in plant and machinery. Technology for the production of these chemicals is easily available. Investment and pricing in this segment are driven by the demand-supply scenario and are typically cyclical. Specialty products are small-volume chemicals, which perform some critical function in the user industry. Investment in this sector usually pertains to research and development (R&D) and technology, and as these chemicals are used in small quantities, investment is lower. However, prices are not driven by demand-supply equations alone, but also by functionality and utility to the user. The key success factors for bulk and specialty chemicals are different and this is reflected in the risk profiles of these industries. CRISIL thus looks at these segments as related but different.

Scope

While the broader criteria of manufacturing companies¹ apply to entities in the chemical industry, this article² gives a brief background of the industry and details the industry-specific factors impacting the market position and operating efficiencies of this industry.

Business risk

Market position

Product profile

The product profile refers to the proportions of bulk and specialty chemicals in the sales mix. Specialty chemicals offer better and sustainable margins over the medium to long term because these products:

- Are backed by unique/patented technology/processes and hence are not readily available with competitors;
- Play an important role in the production process of the user and hence users do not compromise on quality. The supplies are finalised after stringent quality tests of final products. Once finalised, suppliers are not changed frequently, leading to a stable buying pattern;
- Constitute a minor proportion of the cost of production for the users and thus minor changes in prices do not alarm the users.

¹ The detailed criteria—'Rating criteria for Manufacturing and Services Sector Companies' and 'CRISIL's Approach to Financial Ratios'—are available on the CRISIL website under the section, 'Criteria and Methodology'.

² For accessing previous published document on "Rating Criteria for the Chemical Industry", Kindly follow below mentioned link:
https://www.crisil.com/content/dam/crisil/criteria_methodology/materials/archive/CRISIL-Ratings-criteria-chemical-industry_2007.pdf

Bulk chemicals are pure commodities and prices tend to be very volatile and with little or no relation to the cost of production of a specific manufacturer. Thus, a higher proportion of specialty chemicals should provide greater stability to revenue and thus strengthen the credit risk profile of the company.

Demand-supply equations and cyclicity

Rationalisation of import tariffs during the 1990s has linked the domestic markets to international cycles. The higher capital investment in bulk chemicals subjects them to more pronounced cycles than specialty chemicals. CRISIL closely tracks international cycles and determines the likely scenario over the medium term. The vulnerability of Indian manufacturers is then assessed in light of this outlook and appropriately factored into the rating.

Price and margins trends

Over the past few years, domestic prices of chemicals have been generally linked to the landed cost of imports. CRISIL thus analyses the global and domestic price trends to ascertain the level of linkages. There are also issues specific to bulk and specialty chemicals:

- **Bulk chemicals:** Price trends are seen to be a direct reflection of the variations in either downstream product prices or input prices CRISIL identifies these price determinants and analyses them to understand the trends.
- **Specialty chemicals:** Prices do not undergo cyclical changes as raw materials do not constitute a major cost. CRISIL thus emphasises on the identification of out-of-line variation in prices and analyses the reasons for these to understand the trends in the utility of the product.
- **Duty protection and pricing:** The differential between import duties on raw materials and finished products is also an important determinant of pricing for domestic manufacturers. CRISIL therefore analyses the movement in import tariffs and the sensitivity of margins to changes in the protection levels. This is an important aspect in the rating of bulk chemical companies.
- **Sales break-up:** CRISIL looks into the break-up between domestic and international sales and the changes in this mix. Increase in exports not only indicates consistency in the quality, but also reflects the ability to negotiate international market forces. Of late, the prominence of Indian companies in the global market has been increasing on account of two reasons: *First*, they are developing expertise to produce complex chemicals while complying with quality requirements of end users, and *second*, countries which traditionally were chemical manufacturing centres are witnessing environmental restrictions. This is expected to give a leg-up to the export contribution of Indian companies. Such companies would be better placed to handle future rationalisation in import tariffs.

Location

Proximity to users is an advantage, especially in bulk chemicals. CRISIL analyses regional demand-supply balances, which assume importance for low-value chemicals.

Operating efficiency

Cost of production

India's competency in the manufacture of chemicals would primarily lie in its ability to be a low-cost producer of bulk as well as specialty chemicals. Thus, CRISIL lays great importance on cost competitiveness vis-à-vis other producing countries with specific emphasis on Southeast Asia and China. The elements that could play a role are: economies of scale arising from size of operations, technology and access to technology, flexibility in manufacture (ability to shift between products with the same set-up), level of integration in operations, access to raw materials,

nature of raw materials (whether petroleum derivatives or agro derivatives), taxes, and import tariffs. This cost structure is compared with the global weighted average cost of production and the global prices at the bottom of the cycle at various points in time. The larger the difference, the stronger the company is from a credit risk point of view.

Technology

CRISIL places great importance on technology-related issues. The role of technology varies between the various classes of chemicals as detailed below.

- **Bulk chemicals:** The technology is easily available and typically there is more than one way to manufacture a particular product. Choice of technology is therefore dependent on the availability of the required raw materials, economies of scale, and the ability to invest. CRISIL thus analyses the chosen technology and compares this with the other available technologies. Capital intensity makes this analysis critical as it would be a major determinant of cost.
- **Specialty chemicals:** Technology is typically developed in-house with the critical equipment being outsourced. The process is closely guarded as it can typically be duplicated. This exposes these companies to risks of technology theft. Thus, CRISIL looks into the level of investment on R&D and analyses the risk of manpower related to technology.

Capacity utilisation and flexibility in manufacturing

For bulk chemicals, the cost of production is directly related to capacity utilisation. Thus, it becomes important to maintain high capacity utilisation. For specialty products, small volumes generally do not translate into cost-efficient operations and are thus typically produced along with other products sharing common facilities. CRISIL therefore looks into the nature of products and the flexibility in manufacturing set-up to shift between products.

Level of integration

A high level of integration usually results in a better cost structure. However, in the event of adverse price movements in inputs or outputs, the company is exposed to adverse market circumstances. Thus, CRISIL looks into the flexibility available to the manufacturer to start from various stages in its production process in case of adverse price movements in its upstream products. The ability to market intermediate products in the event of adverse price movements in downstream products is also assessed.

Access to raw materials

Access to raw materials at a favourable price is critical, especially for bulk chemicals where cost of raw materials is high. Adverse price movements would typically impact the conversion margins available to the manufacturer. CRISIL thus analyses the past data to ascertain the ability of the company to pass on cost increases to consumers. The ability of specialty chemicals manufacturers to do so is high, but varies depending on the industry structure.

Environment impact and safety issues

CRISIL also looks into the pollution control measures employed by the company in the backdrop of increasing resistance displayed by developed countries in employing products which are not eco-friendly. This assumes importance as these countries are expected to remain primary consumption centres, at least in the medium term. The safety record of the company is also considered.

Infrastructure

CRISIL examines the nature of infrastructure with a special emphasis on the transportation and storage of chemicals. This is important due to the increased reliance on exports, which would necessitate special handling and storage facilities at the ports. Bottlenecks in infrastructure could curtail the growth of exports.

Product consistency and quality

With more companies diversifying into export market, product consistency and adequacy of quality standards become critical. Thus, CRISIL looks into quality levels and the systems employed by the company to maintain these. In this regard, companies complying with quality standards (ISO 9001), environmental standards (ISO 14001), and health and safety standards (OHSAS 18001) are viewed positively.

Financial risk

CRISIL's criteria for financial risk analysis is common across all industries in the manufacturing sector and are described in detail in the CRISIL publications 'Rating Criteria for Manufacturing and Services Sector Companies' and 'CRISIL's Approach to Financial Ratios'. In addition to these, for chemical companies, CRISIL's analysis specifically focuses on the following aspects:

Break-even analysis

Given the cyclical nature of the industry and the nebulous linkage between the cost of production and the sales price, carrying out a break-even analysis is an important part of CRISIL's analytical approach. This is a two-step process:

- The price (of goods) at which the company will break even (on both cash and accrual basis) is determined
- The relative probability of the price of the chemical dropping below the break-even point is assessed. CRISIL also assesses the probable response from the company in such an eventuality and builds sensitivity scenarios to assess the impact.

Management risk

To analyse the management risk, CRISIL follows the standard criteria used for all manufacturing companies. This can be accessed on the CRISIL website under the 'Criteria and Methodology' section - 'Rating Criteria for Manufacturing and Services Sector Companies'.

Conclusion

CRISIL's analytical approach to chemical companies centrally factors in the specific nuances of the sector. These insights enable CRISIL to provide the most in-depth assessment of credit risk for issuers in this sector.

The key success factors for companies in the chemical sector include:

- Proportion of specialty chemicals and exports in the product portfolio
- Global cost competitiveness

- Technological capabilities
- Manufacturing flexibility
- Environmental and safety measures adopted

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