

Rating Methodology for Steel Companies

Industry Overview

- Steel is manufactured by de-oxidizing and de-carbonizing iron ore at very high temperatures (around 1100 degrees Celsius).
- Key raw materials used for steel manufacture are iron ore, coke/coking coal, fluxes like limestone and dolomite and ferro alloys. On an average, 1.6 metric tones (MT) of iron ore, 1.4 MT of coal and relatively smaller quantities of fluxes and ferro alloys are required to manufacture 1 MT of crude steel.
- Steel is manufactured mainly through three methods, the Blast Furnace (BF) route, the Electric Arc Furnace (EAF) route and the Induction Furnace route. In India, the BF route contributes 44% of the steel produced, EAF contributes 23% and the Induction Furnace route contributes 30%.
 - ❖ The BF route uses iron ore lumps (or derivatives of iron ore like sinter or pellets) and coke as key raw materials. Although less power-intensive than the EAF route, the BF route of steel manufacture faces the risk of lack of control over a key raw material viz. coking coal since coking coal of the required quality is available in limited quantities in India.
 - ❖ The EAF route is highly power-intensive and therefore cost inefficient in India given the high cost of power in India.
 - ❖ Induction Furnaces use sponge iron or scrap, pig iron and thermal coal as the key raw materials. Since the size of these furnaces is small, power requirement is less than that of an EAF and flexibility of manufacturing process is high. On the other hand, the quality of steel produced is poorer than the other methods and the production capacity is also low.
- Steel products can be classified into long products and flat products. Long products like bars, wires and wire rods are primarily used by the construction industry. A variant of long products called structural steel products, e.g. angles and channels, are used for infrastructure sector. Flat products, on the other hand, are mainly used in automobile, pipes and consumer durables industries. Examples of flat products are Hot Rolled Coils (HRC) and Cold Rolled Coils (CRC).
- Steel is a global commodity due to standardisation and ease of transportation of the finished product and globally limited supply of raw materials. As a result, domestic prices of steel and steel products generally move in tandem with international prices.

Key characteristics of the industry

- **Cyclicality:** Steel is a cyclical industry, strongly co-related to economic cycles, since its key users viz. automobiles, construction and consumer durables are heavily dependent on the state of the economy. Apart from the cyclicality of the end-user industries, heavy capital investment and a gestation of period of 2-3 years for a new plant also contribute to the cyclicality of steel prices.
- **Continuous production process:** Steady supply of raw materials is important to the steel industry since steel manufacture is a continuous process. Most steel manufacturers tend to ink long-term agreements with their local suppliers where possible. Most Indian manufacturers are also currently trying to gain control over mines to ensure steady supply at stable prices.
- **Working capital intensiveness:** Manufacture of steel is a working capital-intensive process with the production cycle at 50 days on an average. The long working-capital cycle is primarily due to high inventory maintained by manufacturers both in terms of raw material and finished goods, owing to the continuous nature of the production process, the standardised nature of the finished products and the limited and geographically disparate supply of raw materials. Additionally, in a scenario where demand exceeds supply, rising prices of inventory - both raw material and finished goods as well as increased stocking of raw materials by steel manufacturers who do not have control over their raw material supply or prices, results in increased working capital requirements.
- **Ability to pass on input costs to customers:** Manufacturers of steel are invariably able to pass on the increase in cost of raw material to consumers in a normal market scenario due to the importance of steel to many economic activities like construction, infrastructure sector, and manufacture of consumer durables and modes of transportation.
- **Entry barriers:** The capital-intensive nature of the steel industry coupled with the long gestation period (2-3 years) acts as an entry barrier to small entrants. However, in India, to circumvent this problem, a number of players have set up induction furnaces which need less investment. However, these induction furnaces produce lower quality and quantity of steel.
- **Availability of finance:** The steel industry is both fixed capital and working capital intensive. Thus, availability of finance for both, expansion as well as running day to day operations in terms of inventory acquisition and holding and payment to creditors is critical. The raw material suppliers tend to dictate the payment terms as there is heavy dependence on the supply of raw materials.

Rating Methodology

CARE has a standard methodology for rating of companies belonging to the manufacturing sector. As per this methodology, CARE's rating process begins with the evaluation of the economy/industry in which the company operates, followed by the assessment of the business risk factors specific to the company. This is followed by an assessment of the financial and

project-related risk factors as well as the quality of the management. This methodology is followed while analysing all the industries that come under the purview of the manufacturing sector.

However, considering the size and diversity of the sector, CARE has developed methodologies specific to various industries within the manufacturing sector. These methodologies attempt to point out factors, over and above those mentioned in the broad methodology, which are assessed while carrying out the rating exercises of companies belonging to the particular industry.

The following is a list of such additional factors, along with their analytical implications, considered by CARE while arriving at the rating of the players that operate in the steel industry:

1. Control over supply and cost of raw materials

a. Backward linkages for raw material supply

Steel is generally manufactured in a continuous process to keep down the power costs. Uninterrupted supply of raw materials is, thus, imperative to continuous production processes. CARE considers companies who have control over supply of their raw material as more capable of being cost efficient. The control over supply could be either in the form of captive operational mines or long-term supply contracts with miners.

b. Control over raw material cost

Raw material constitutes around 70-75% of cost of sales of steel. Further, due to limited global availability of key raw materials like iron ore and coal, the raw material industry is supplier-dominated. Ability to control raw material costs is therefore a key determinant of profitability. Although most steel manufacturers are able to pass on the increases in raw material prices to their customers, generally, the profitability of companies who have control over their raw material costs would be higher.

CARE considers ownership of operational captive iron ore and if applicable, coking coal mines, as a key strength. The adequacy of the reserves to meet the steel manufacturer's requirements is also assessed.

2. Control over other input costs

a. Freight

Due to the bulky nature of key raw materials, location of the steel plant is a key rating factor. Companies whose plants are close to the sources of raw material are likely to have an advantage in terms of freight cost, inventory holding costs and therefore,

working-capital cycle. Additionally, as some of the raw materials like coking coal or coke need to be imported due to their non-availability in India, the manufacturers who are located near to the ports or who have their private jetties have an advantage over others. This also applies to export-oriented companies like stainless steel manufacturers.

CARE views favourably those companies who are able to minimise their cost of transporting of raw materials.

b. Power

In the current scenario of power shortage in India, CARE views steel manufacturers who have captive power plants as superior to their peers, especially where the technology used is power-intensive. Steel manufacturers who are able to utilise captively generated fuel sources, for example, using waste heat gas recovery from sponge iron plants for power generation are viewed favourably as their power generation costs are likely to be lower.

CARE considers ability to keep power costs down as a critical parameter of operating efficiency.

3. Technology

The technology used for manufacture of steel determines not only the quality of steel produced but also the cost of production. The more sophisticated the manufacturing process, the lower will be the cost of production and therefore, higher the profitability.

CARE views use of sophisticated and proven technology as a rating strength.

4. Timing of expansion vis-à-vis demand-supply scenario

Demand-supply situation, although important for any cyclical commodity-based industry, assumes more importance for steel due to the capital-intensive nature of the business coupled with the long gestation period for the set-up of a new plant. In case of a downturn, companies who have project-related debt repayment obligations could find it difficult to service debt as both estimated cash accruals and fund-raising ability would deteriorate. Companies who face a downturn immediately post expansion or during an expansion are likely to be more at risk.

CARE believes that timing of the expanded capacity coming on-stream is critical to the success of a steel manufacturer.

5. Geographical and product diversification

a. Geographical diversification

Steel being a global commodity, global competition plays a role in the profitability of steel manufacturers. Steel companies with a diversified market base can take advantage of regional demand-supply mismatches and thus, mitigate their market risk. Geographical diversification also mitigates political and economic risks. Although steel is not a regulated entity, it tends to attract government attention in times of inflation, given its importance to the economy. A global presence helps to hedge against such regulations.

CARE considers geographical diversification as a strength for steel manufacturers.***b. Product diversification***

Steel manufacturers who have progressed up the value chain by diversifying to value-added products while continuing to manufacture crude and intermediary products are considered favourably. Not only are such manufacturers able to command better prices on account of value-addition but they are able to increase profitability due to their self-reliance with regard to the supply of crude and intermediary products. Further, such manufacturers are able to take advantage of differential demand conditions for different products by scaling up manufacture of any part of their product portfolio according to the demand conditions.

A steel manufacturer with end-to-end control over the value chain who has progressed to manufacture of value-added products is considered to be superior to one who manufactures merely crude steel or intermediary products.

6. Working capital management

Due to the long working-capital cycle of the steel industry, CARE believes efficient working-capital management to be an important rating factor for steel manufacturers.

CARE favourably views companies who are able to efficiently manage their working-capital costs.

7. Size

Size of the company is a significant rating factor for a steel company as the industry is fixed capital-intensive. Companies with a large capital base are considered better able to withstand downturns than others due to their stronger negotiation powers, their larger reserves and therefore greater financial flexibility.

However, while size is an important rating factor, CARE views size of the company in conjunction with other factors like capital structure, size of ongoing expansions and the industry cycle during the rating process.

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