Rating Criteria – Rating of Iron & Steel Industry

Executive Summary

The iron and steel industry in India, a cornerstone of the nation's industrial framework, plays a critical role in development of infrastructure, railways, construction, automotive and manufacturing sectors. As the world's second-largest crude steel producer after China, India has witnessed substantial growth, backed by abundant iron ore reserves as a fourth-largest iron-ore producer, rising domestic demand, increasing steel consumption and favorable government policies to protect the domestic industry. The increase in steel production is linked with modern industrialization. Per capita steel consumption is commonly used to assess the level of industrialization in a country as several sectors rely on steel for the manufacturing process. India's comparatively low per capita steel consumption offers significant future growth potential and is expected to rise further due to increased spending on infrastructure development and construction activities, along with strong growth in the sectors such as automobile, consumer durable and railways.

Steel manufacturers are mainly of two types:
Primary steel producers are large-scale, backward integrated entities that commence steel production using raw iron ore and coke/coal. They predominantly utilize the blast furnace-basic oxygen furnace (BF-BOF) method to produce pig iron, which further processed to manufacture flat or long steel products. Blast furnace is employed to produce molten iron, then pure oxygen is blown into the molten iron, oxidizing excess carbon and other impurities resulting in steel. They produce high-quality steel suitable for critical applications.
Secondary steel producers are entities involved in the production of steel from scrap, sponge iron and pig iron using the electric arc furnace (EAF) or induction furnace (IF) manufacturing methods. These methods melt the scrap using high-voltage electric arcs and are more energy-efficient and environmental friendly compared to traditional methods.
Steel products are broadly classified based on the type of steel, composition and end use. Flat steel products such as hot rolled coils, cold rolled coils, galvanished coils, plates are some of the most commonly used steel types in manufacturing and automotive industries. Long steel products such as bars, wire rods, rails, beams are vital in reinforcing construction structures, infrastructure and transportation systems. The other categories include pipes and tubes, special & alloy steel, value-added steel products etc.

Scope of the Criteria

BWR analyzes the various quantitative and qualitative risks that steel companies are exposed to, while assessing the steel companies. The key risks that steel companies may face are segregated into industry, business, financial and management risks. These primary risks and the way in which they are incorporated in the rating framework are discussed in detail below.
BWR has an established rating criteria for manufacturing companies, under which this document forms part of the broader sector-specific criteria applicable to various industries within the manufacturing sector. The detailed criteria for manufacturing companies is available on the BWR website: www.brickworkratings.com.

A. Industry Risk:

High Capital and Energy Intensity

Steel manufacturing is highly capital-intensive, involving large upfront investments, long gestation and payback periods. Establishing a steel plant, especially those employing the Blast Furnace–Basic Oxygen Furnace (BF–BOF) manufacturing methods, requires substantial capital expenditure across multiple stages of the process such as linkages of raw material supplies, captive power plants and supporting infrastructure for backward integration. High fixed costs necessitate sustained high-capacity utilization to maintain profitability and generate reliable cash flow.

In addition, steel production is very high energy-intensive, with energy costs forming a substantial portion of operating expenses. Processes such as iron ore reduction, coke making and steel melting require continuous and reliable supplies of power, coal and other fuels. Volatility in energy prices or supply disruptions can materially impact production costs and margins, while low demand and underutilization during downturns can quickly erode profitability, limiting operational flexibility for producers.

Cyclicality of Demand

Steel demand is closely linked to economic cycles, especially construction and automobile sectors. During economic upturns, producers may expand capacity in anticipation of continued demand. However, by the time these new facilities become operational, the economic cycle might get shifted, leading to oversupply, inventory buildup and downward pressure on prices. During the economic downturn, the company's ability to reduce production and remain cost-efficient would be one of the key rating considerations. Economic development provides significant scope for increase in demand supply dynamics of steel products (flat or long).

Demand & Supply Scenario

Dependence on raw materials like iron ore, coking coal and scrap makes costs of steel products vulnerable to global commodity price swing and follows highly cyclical pattern. This reliance exposes the industry to international price fluctuations and supply chain vulnerabilities. In the global market recessions, geopolitical instability or pandemics can stall infrastructure and manufacturing activity, leading to decline in demand of steel products. Also, international trade policies like tariffs, government policies to protect domestic market and dumping from China can disrupt steel market scenario. The imposition of tariffs can redirect steel flows, affecting domestic markets and leading to price fluctuations. Global overcapacity (especially from China) can lead to price wars, squeezed margins and can create financial strain on producers. Also changes in global demand and supply can lead to shifts in export and import volumes, impacting demand and supply dynamics in domestic steel markets.

Currency & Interest Rate Volatility

Steel being a globally traded commodity, currency fluctuations and rising interest rates (in developed countries) affect competitiveness and financing costs. Depreciation of the INR makes imported steel more expensive, potentially reducing import volumes or escalating input costs leading to higher steel production expenses. Conversely, an appreciating INR can make imports cheaper, intensifying competition for domestic producers.

Regulatory Risks

The iron and steel industry is exposed to significant regulatory risks arising from evolving environmental, mining, trade and labour regulations. Stricter environmental norms related to emissions, carbon intensity, waste management and water usage require substantial investments in pollution control equipment and cleaner technologies, increasing compliance costs and capital expenditure. Policies such as carbon taxes, emission trading mechanisms or mandatory adoption of greener production routes can impact operating margins, particularly for older BF–BOF plants. In addition, regulations governing mining leases, land acquisition and raw material linkages can affect the availability and pricing of key inputs like iron ore and coal. Frequent changes in trade policies, including import duties, safeguard measures, anti-dumping duty and export restrictions, can alter market dynamics and price realization for domestic producers. However, duty restriction may be effective if demand side scenario is good for the steel products, it may lead to opposite in case of oversupply side scenario. Compliance with labour laws, safety standards and ESG-related disclosure requirements further adds to operational complexity and any non-compliance can result in penalties,

production disruptions, or reputational risks for steel manufacturers.

B. Business Risk:

Market position and scale of operation

Steel companies with a significant market position, sizeable operating scale and a consistent ability to achieve high-capacity utilization levels benefit from economies of scale, which translate into lower per-unit costs and more stable cash flow generation. Steel companies with a large revenue scale and well-established market position are generally better equipped to withstand industry cycles and have greater ease of raising funds. Their scale provides enhanced negotiating leverage with suppliers and customers, allowing for improved cost management and greater flexibility in pricing decisions and effective cost competitiveness over peers. Further, a strong capital base supports continuous investments in capacity expansion, technology upgrades and modernization, which improves operational efficiency and competitiveness. It also allows companies to undertake large capex programs and absorb cyclical downturns without significant stress on their balance sheets.

Additionally, the ability to offer diversified products such as flat, long and specialized steel products helps cater to varied end-user industries, enhances realization, reduces dependence on any single segment or product and provides better margin stability. A diversified customer base across industries and geographies reduces reliance on a limited number of buyers, thereby mitigating risks arising from customer concentration, demand fluctuations or counterparty defaults.

Operational integration

Steel manufacturers can reduce dependency on external suppliers by consolidating raw material sourcing, production and distribution, thereby minimizing procurement costs, mitigating the impact of raw material price volatility and improves operating margins. Supply control can be achieved through mechanisms such as operating dedicated captive mines (iron-ore and coal), establishing long-term supply agreements with miners or securing favorable access to major mining companies. Backward integration with captive mines, towards raw material sourcing, adds favorable cost advantage to the company, rather than without any coal linkages. Managing the entire supply chain internally reduces dependencies on logistics providers. This leads to fewer disruptions and delays resulting in a more reliable production schedule. Similarly, electric arc furnace (EAF) or induction furnace (IF) method is having dependency on availability of uninterrupted power supplies. Therefore, presence of captive power plants running on by-product usage would be an added advantage.

Location of plant

Transporting heavy and high-volume raw materials like iron ore and coking coal over long distances can incur substantial freight costs. By situating steel plants near these resources, companies can minimize transportation expenses, leading to lower overall production costs and improving competitive position of the company. Similarly finished products require handling of tonnes of material, so proximity to markets or consumption centers, ports provide better inventory management. Steel plants in regions rich in coal and iron ore deposits such as Jharkhand, Odisha and Chhattisgarh benefit from reduced logistics costs due to their proximity to these raw materials. Proximity to raw material sources can also streamline inventory management. Shorter transportation times reduce the need for extensive inventory holding, thereby decreasing inventory carrying costs and improving the working capital cycle. This efficiency is particularly beneficial for steel companies operating in competitive markets where cash flow optimization is critical.

Technology adoption

The steel industry is increasingly embracing digitalization and smart manufacturing, including IoT sensors, automation and data analytics to improve operational efficiency, reduce downtime and enhance quality control. Real-time monitoring and predictive maintenance using AI help optimize furnace operations, detect equipment issues before failures and reduce waste.

On the production front, Electric Arc Furnaces (EAFs) are gaining prominence, particularly among mini-mill operators, due to their ability to utilize scrap metal and direct reduced iron (DRI) to produce steel. This production route lowers dependence on virgin iron ore and provides greater operational flexibility in steel production.

Simultaneously, the industry is exploring low-carbon ironmaking technologies to address environmental concerns. Hydrogen-based processes, such as hydrogen direct reduction (HDR) and hydrogen smelting

reduction (HSR), are emerging as viable pathways toward near-zero-emission steelmaking by replacing coke with hydrogen as the reducing agent. In parallel, alternative technologies like COREX and FINEX combine iron ore reduction with coal gasification, offering improved energy efficiency and comparatively lower carbon emissions than conventional blast furnace operations. Overall, the steel sector is undergoing a structural transformation, increasingly driven by advanced technologies that strengthen efficiency and resilience, boost global competitiveness and help manage environmental pressures/challenges and supply-chain risks.

C. Financial Risk:

BWR assesses an entity's financial risk profile by conducting a comprehensive analysis of both the past financial performance and future projections, particularly the availability of cash flow and debt servicing capabilities. Given the cyclical, capital-intensive and working capital-heavy nature of the steel industry, the assessment focuses on earnings sustainability, capital structure, cash flow adequacy and liquidity position.

Primarily for steel industry the trends in operational revenue and profitability ratios are analyzed to determine earning capacity of the business and to evaluate the efficiency in cost management. Revenue growth ratio, operating profit margin, PAT margin and ROCE are some of the key metrics used to assess the profitability of steel companies. Better margins show the company's advantageous position, cost competitiveness and product demand in the market. Other ratios checked are Cost of Production per tonne of steel manufactured, Capacity Utilisation (%) ratio. Due to the capital-intensive nature of steel production and its substantial fixed costs, high capacity utilization reflects operational efficiency and demand stability and is a key factor in maintaining profitability and competitiveness in a cyclical operating environment.

Leverage and coverage ratios like debt service coverage ratio (DSCR), Debt to Ebitda, Debt to Equity, total outside liabilities to tangible networth and interest coverage ratio are analyzed to check the loan repayment capacity of the entities and helps to ascertain company's ability to meet its debt service obligations. Higher gearing ratios are common due to substantial investment in assets in steel companies. BWR compares an entity's gearing ratio with industry peers for an extensive analysis.

The stability of cash flows and liquidity in the business are also assessed. Key liquidity ratios include Current Ratio to measure overall short-term solvency and Quick Ratio to assess immediate liquidity after excluding inventory that may not be readily liquidated in the steel sector. The Working Capital Cycle is also analyzed to understand the duration for which cash remains locked in operations. Further, cash flow indicators such as the operating cash flow ratio, free cash flow to debt ratio are reviewed to assess the company's ability to meet short-term obligations as well as to fund its working capital requirements. In the case of a stress scenario, the company's ability to raise funds from alternate sources is evaluated to determine its financial flexibility.

D. Management and Corporate Governance

BWR evaluates the management quality and corporate governance framework of iron and steel companies by assessing the consistency of operating and financial performance across industry cycles, the depth of managerial experience, the effectiveness of board oversight and quality of corporate governance adopted by the company. In a highly capital-intensive and cyclical industry such as iron and steel, a strong, professional and experienced board plays a critical role in driving capacity utilization, cost efficiencies and profitability, while also strengthening the company's financial flexibility.

Given the sector's exposure to volatile raw material prices, foreign exchange fluctuations and large capital expenditure requirements BWR analyses the management's ability to complete expansion projects within stipulated time and cost, and its responsiveness during industry downturns. This includes an evaluation of strategies adopted to manage cyclicality, such as cost optimisation initiatives, key raw material supplies and backward integration, product mix diversification towards value-added steel and prudent working capital management.

In addition, the management's track record in timely servicing of debt, compliance with statutory and regulatory requirements, and governance practices, including transparency in related-party transactions, are key inputs in evaluating overall governance standards. The management's growth strategy, particularly with respect to expansion plans, is also analyzed through an assessment of the funding mix and leverage profile. BWR also monitors the management's ability to adapt to changes in the dynamic business

environment, including regulatory developments and technological advancements. Succession plan and key-man risk is another key area of risk, if the company's operations are dependent on a single promoter.

Environmental, Social and Governance:

In addition to the risks discussed above, BWR believes that Environmental, Social, and Corporate Governance (ESG) factors are playing an increasingly important role in influencing the operating performance and long-term sustainability of iron and steel companies. Accordingly, while evaluating the credit profile of an iron and steel company, BWR also examines its ESG profile, subject to the availability of relevant data. The steel sector is highly sensitive to ESG considerations due to its energy-intensive, carbon-intensive and resource-heavy nature. The strengths and weaknesses arising from the company's ESG practices such as environmental compliance, resource efficiency, workforce safety and governance standards are reflected in the management and risk-related parameters considered while assessing the overall credit risk of the iron and steel company.

Group or Parent Support: In cases where the iron and steel company is part of a larger group, the willingness and ability of the parent or affiliate companies to provide financial, operational, or strategic support is examined. The strength of such linkages enhances overall management credibility.

Conclusion

BWR analyses entities in the iron and steel industry by evaluating the impact of the above-mentioned industry-specific risks and key business attributes including raw material availability, supply linkages and price volatility, capacity utilization, scale of operations, cost competitiveness and operational efficiency, along with historical and projected financials over the next few years or the tenor of the facility and management quality. The overall assessment of credit quality is arrived at through a holistic evaluation of these factors. The final credit rating reflects the combined and interlinked impact of all the above parameters, resulting in a unique risk profile for each iron and steel entity.

This is the first criterion document, so no prior version or reference link exists.

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