

45 Years of
Leadership

Indian Steel Industry Analysis

(June 2018)



Disclaimer



The purpose of this report is to introduce the readers to the basics of Steel, the Global Steel Industry and the Indian Steel Industry in particular. This report is intended to only provide a starting point for further research.

This work is based on secondary market research & analysis of financial information available and has not been independently verified. Data reliance is primarily on government, industry bodies and companies and sources used are listed in the Annexures and Notes. No representation or warranty, express or implied, is made that such information provided is accurate or complete. Projected market and financial information, analyses and conclusions contained herein are based on the information described above on report writer's judgment, and should not be construed as definitive forecasts or guarantees of future performance or results.

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Overview of Steel

Overview of Steel

What is Steel?

Steel is the common name for a large family of iron alloys which are easily malleable after the molten stage. Steels are commonly made from iron ore, coal, and limestone. When these raw materials are put into the blast furnace, the result is a "pig iron" which has a composition of iron, carbon, manganese, sulphur, phosphorus, and silicon.

As pig iron is hard and brittle, steelmakers must refine the material by purifying it and then adding other elements to strengthen the material. The steel is next deoxidized by a carbon and oxygen reaction. A strongly deoxidized steel is called "killed", and a lesser degrees of deoxidized steels are called "semi-killed", "capped", and "rimmed".

Steels can either be cast directly to shape, or into ingots which are reheated and hot worked into a wrought shape by forging, extrusion, rolling, or other processes. Wrought steels are the most common engineering material used, and come in a variety of forms with different finishes and properties. It is used in every aspect of our lives; in cars and construction products, refrigerators, and washing machines, cargo ships, and surgical scalpels.

What are the Types of Steel?

Steel is not a single product. There are more than 3,500 different grades of steel with many different physical, chemical, and environmental properties.

How is Steel Made?

Globally, steel is produced via two main routes: the blast furnace-basic oxygen furnace (BF-BOF) route and induction furnace-electric arc furnace (IF-EAF) route. Variations and combinations of production routes also exist.

The key difference between the routes is the type of raw materials they consume. For the BF-BOF route these are predominantly iron ore, coal, and recycled steel, while the EAF route produces steel using mainly recycled steel and electricity.

About 75% of steel is produced using the BF-BOF route. First, iron ores are reduced to iron, also called hot metal or pig iron. Then the iron is converted to steel in the BOF. After casting and rolling, the steel is delivered as coil, plate, sections, or bars.

Steel made in an EAF uses electricity to melt recycled steel. Additives, such as alloys, are used to adjust to the desired chemical composition. Electrical energy can be supplemented with oxygen injected into the EAF. Downstream process stages, such as casting, reheating, and rolling, are

similar to those found in the BF-BOF route. About 25% of steel is produced via the EAF route.

How much Steel is produced in a year?

World crude steel production reached 1,673.9 million tonnes (MT) for the year 2017 as per World Steel Association.

Major Steel Producing Countries in the World in 2017

The top 10 Steel producing countries (including EU) accounted for around 91.1 per cent of global steel production in 2017.

1. China	831.7 MT	6. Russia	71.3 MT
2. European Union	168.1 MT	7. South Korea	71.0 MT
3. Japan	104.7 MT	8. Turkey	37.5 MT
4. India	101.4 MT	9. Brazil	34.4 MT
5. United States	81.6 MT	10. Ukraine	22.7 MT

China is the largest producer of steel in the world accounting for nearly 48.0 - 50.0 per cent of global production of the metal while the enormous infrastructure investments by China also make it the largest consumer of steel. Consequently, China dominates the Steel Industry globally, affecting prices, policy, and outlook.

Major Steel Producing Companies in the World in 2017

1. Arcelor Mittal	97.0 MT	6. Shagang Group	38.4 MT
2. China Baowu Group	65.4 MT	7. Ansteel Group	35.8 MT
3. Nippon Steel & Sumitomo Metal	47.4MT	8. JFE	30.2 MT
4. HBIS Group	45.6 MT	9. Shougang	27.6 MT
5. POSCO	42.2 MT	10. Tata Steel	25.1 MT

Types & Uses of Steel

What are the different grades of Steel?

Steel grade is determined by the quantum of carbon and other elements such as manganese, phosphorous, sulphur, silicon, nickel, titanium, copper, chromium, and aluminium. These elements determine the steel's properties, such as its hardenability, corrosion resistance, strength, formability, weldability or ductility.

The elements influence the properties of steel and its acceptability is predicated on the final application. Steel can be classified based on its composition into five broad groups viz. Carbon Steels, Alloy Steels, Stainless Steel, Tool Steels and Galvanized Steels.

Carbon Steel

Accounts for 90.0 per cent of manufactured steel, and is categorised based on carbon content ranging from low (less than 0.3 per cent) to high (greater than 0.6 per cent)

Alloy Steel

Manganese, phosphorous, sulphur, silicon, nickel, titanium, copper, chromium, and aluminium, are alloyed with steel to manipulate its properties, for use in highly demanding environments such as pipelines, auto parts, transformers, power generators, and electric motors.

Stainless Steel

Contains between 10-20% chromium as the main alloying element, and is valued for its high corrosion resistance, and is used in food processing equipment, kitchen utensils, piping, knives, cutting tools, as well as dental and surgical equipment.

Tool Steels

Contains tungsten, molybdenum, cobalt, and vanadium in varying quantities to increase heat resistance and durability, making them ideal for cutting and drilling equipment.

Galvanized Steel

Coated with zinc to prevent corrosion and protect the steel from scratches, dents, and damage thereby making it resistant to elements.

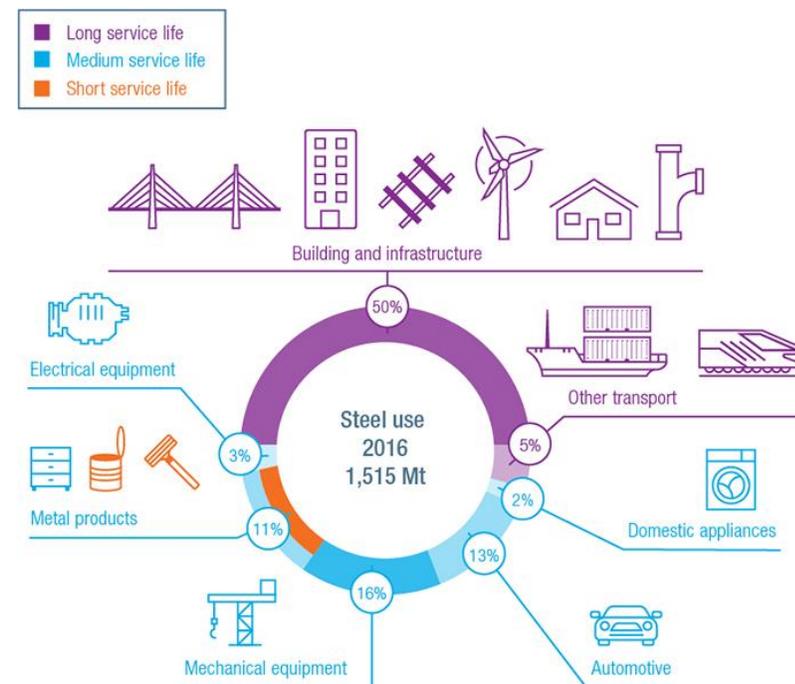
Classification of Steel based on Form & Shape

Steel can also be classified based on shapes and applications:

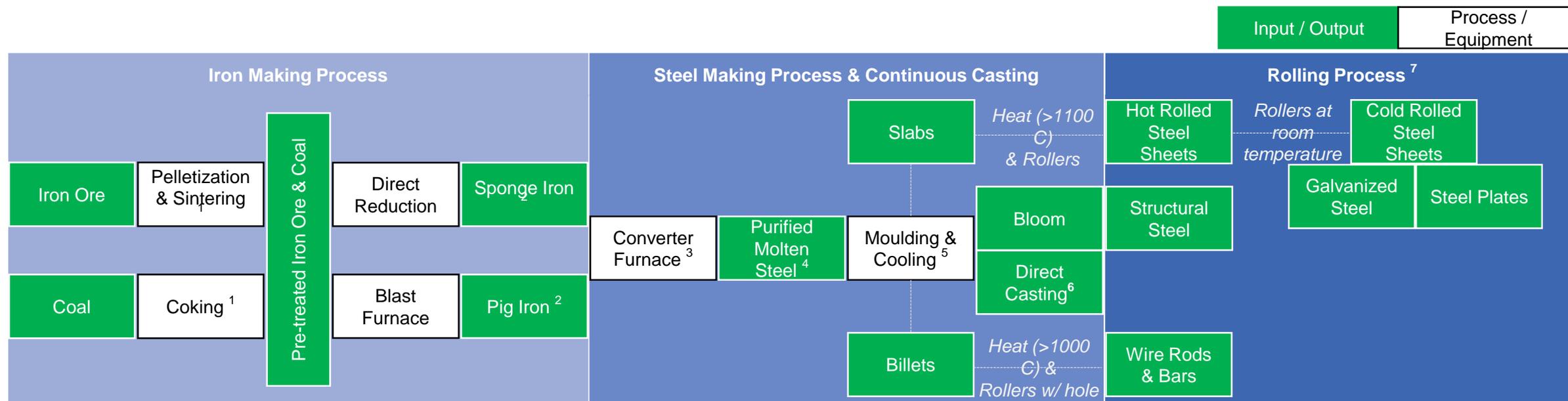
Flat Products include plates, sheets, coils, and strips. These materials are mainly used in automotive parts, appliances, packaging, shipbuilding, and construction.

Non-Flats include bars, and rods, rails, wires, angles, pipes, and shapes and sections. These products are commonly used in the automotive and construction sectors.

Uses of Steel by Industry



Basic Steel Manufacturing Process



Notes:

1. Iron Ore and Coal are extracted in impure powdered form from mines. Pelletization, Sintering and Coking are methods of pre-treating the raw materials for the manufacturing of steel.
2. Sponge Iron, also known as Direct-Reduced Iron (DRI), is produced from iron ore lumps, pellets, and fines through the reduction method. Manufacturing of Sponge Iron requires significantly less energy as compared to the manufacturing of Pig Iron through the blast furnace method. Sponge Iron can be compressed into highly dense Hot Briquetted Iron (HBI) making it easy for transportation. The Iron output looks porous like a “Sponge” and hence the nomenclature. There are 2 grades of Pig Iron – basic and foundry which primarily differ based on silicon content.
3. Converter furnace may either be an Induction Furnace (IF), Electric Arc Furnace (EAF), a Basic Oxygen Furnace (BOF) or Blast Furnace (BF). Pure oxygen is used to burn off impurities such as carbon, phosphorous and sulphur, in the molten iron in the BOF process of manufacturing. An EAF can also use scrap steel as an input for manufacturing steel.
4. The temperature and substance composition of the purified molten steel is adjusted through the introduction and reduction of elements depending on the properties required for the final steel product.
5. A semi-finished steel product is formed on cooling the purified molten steel which is further processed to make the final steel product. The semi-finished steel product can be in the form of slabs (wide and flat bars), bloom (rectangular cross-section, wide and thick bars), and billets (square cross-section, thin bars). Ingots are also a semi-finished steel product that is melted and used in forging and extrusion.
6. Direct Casting is when liquid metal is directly cast into specialised shapes.
7. To manufacture Stainless Steel further processing (addition of chromium and other elements) is required to modify the properties of the steel output.



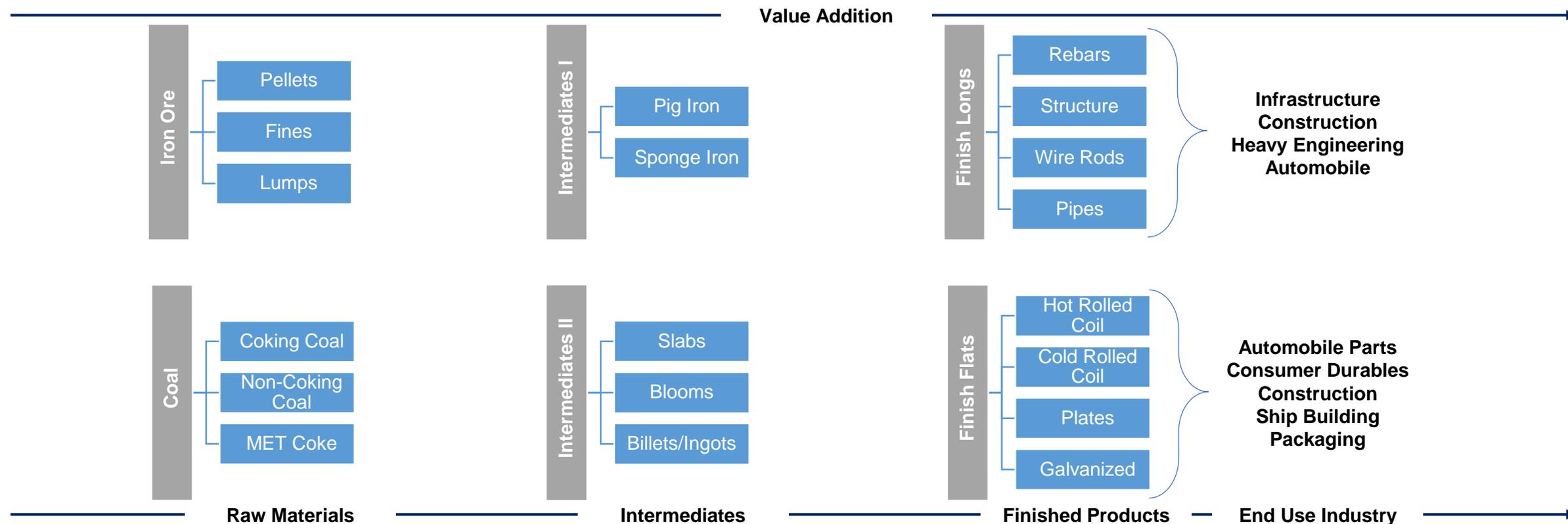
Steel Industry Value Chain

Integrated Steel Producers

Integrated Steel Producers are present across the value chain of steel manufacturing from the mining of iron ore, to the manufacturing and marketing of finished products. The Basic Oxygen Furnace method is used to manufacture the Steel.

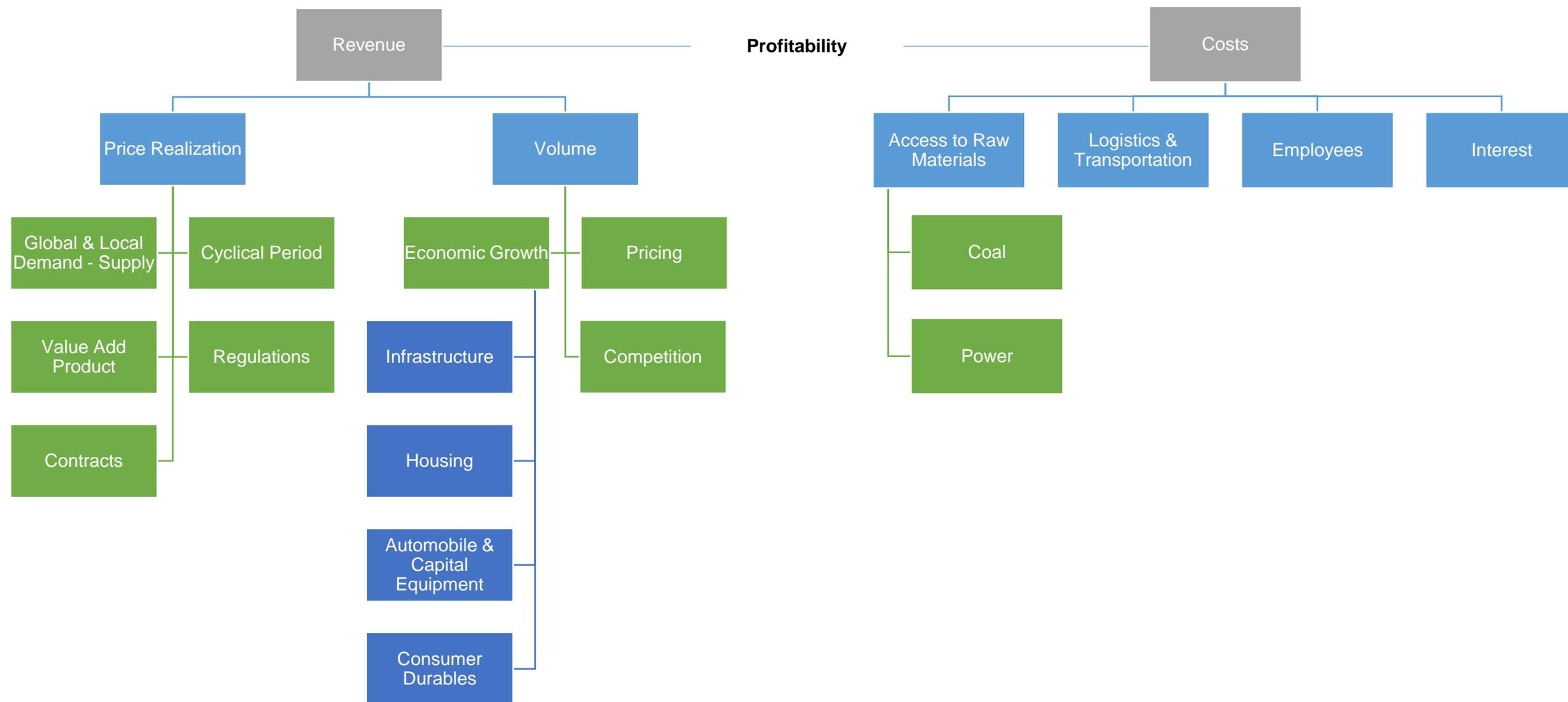
Secondary Producers / Mini Steel Plants

These are smaller manufacturers manufacturing steel from sponge iron and scrap. Electric Arc Furnace and Induction Furnace units are used to manufacture the steel.



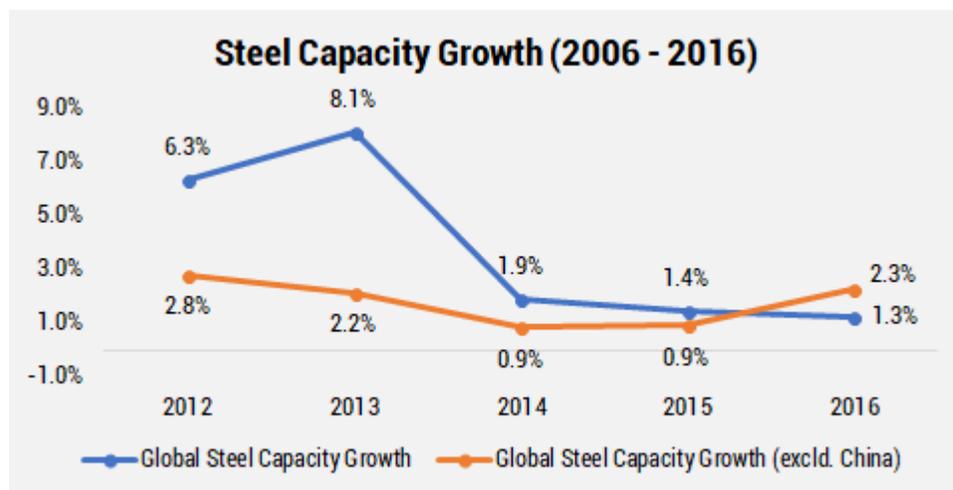
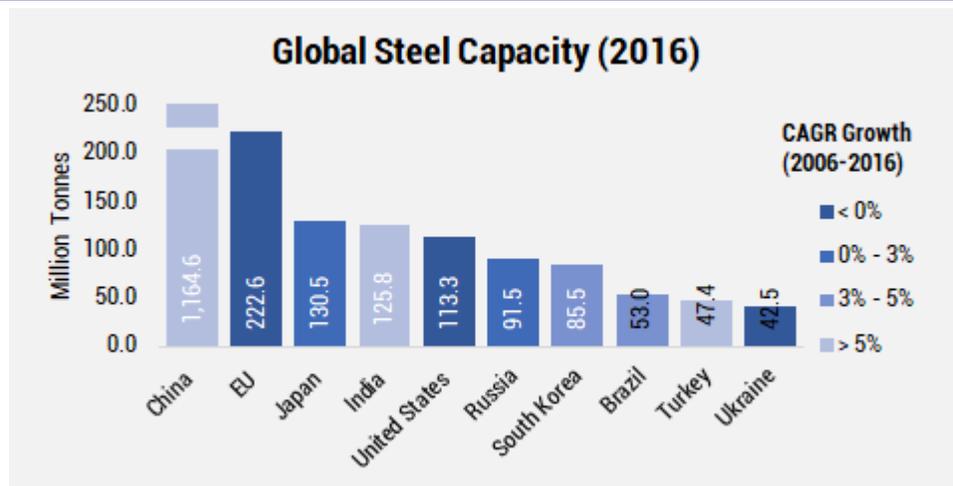


Value Drivers in the Steel Industry



Global Steel Industry

Global Capacity of Steel Production



Note: Growth in 2012 displayed above is calculated as a CAGR growth between 2006-2012. Global steel production capacity is highly concentrated - with 92.1 per cent of capacity coming from just 15 players. The economical extraction of iron ore, availability of power supply, high capital costs,

long gestation periods and initial non-competitiveness requiring government support, makes it difficult for most countries to develop this core sector.

Global Capacity

Global steel capacity as of 2016 stood at 2,391.4 MTPA. China leads in production capacity at 1,164.6 MTPA, followed by Japan, India, United States and Russia. The Top 10 countries by capacity account for 78.8 per cent of global steel capacity, while EU as a region accounts for an additional 9.3 per cent of global steel capacity. Other countries in the top 10 production capacity, in the order of relevance, include South Korea, Brazil, Turkey, Ukraine and Iran. Taiwan, and Mexico account for an additional 2.2 per cent in production capacities.

Global steel capacities have been added at a CAGR of 5.0 per cent between 2006-2016. China and India accounted for 80.4 per cent of steel capacity addition of 927.3 MT, with China alone adding 72.9 per cent to global steel capacities. South Korea (3.1 per cent), Turkey (2.1 per cent), Vietnam (2.1 per cent), Iran (2.1 per cent), Brazil (1.7 per cent), Russia (1.7 per cent) and Saudi Arabia (1.1 per cent) are other countries that added 13.9 per cent to global steel capacities in the corresponding period.

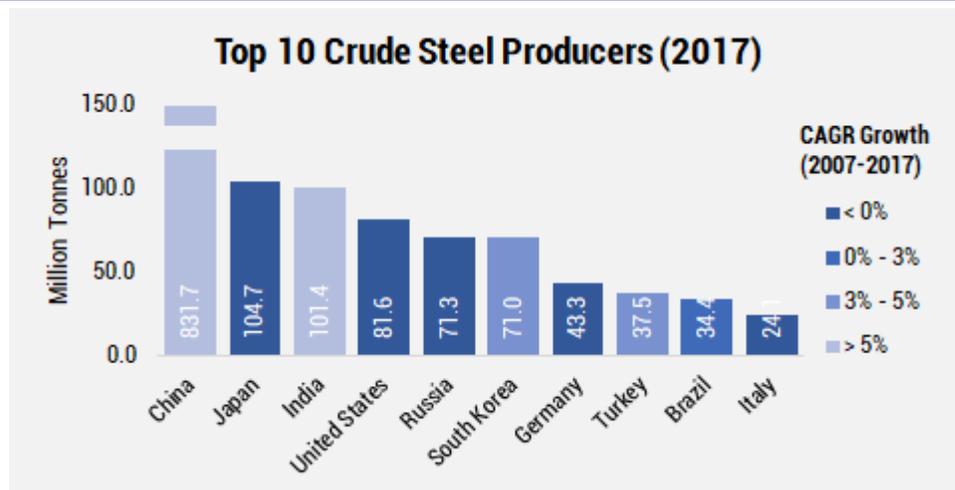
China skews the capacity growth data due to its sheer size. To lend perspective, global steel capacities excluding China has been added at a CAGR of 2.3 per cent in 2006-2016. The capacity addition of 251.2 MT was added by India (27.8 per cent), South Korea (11.6 per cent), Turkey (7.8 per cent), Vietnam (7.8 per cent), Iran (7.7 per cent), Brazil (6.4 per cent), Russia (6.2 per cent), Saudi Arabia (3.9 per cent), Taiwan (3.4 per cent) and Indonesia (2.0 per cent) which together accounted for 84.5 per cent of additions (excl. China).

Around 88.4 per cent of total capacity additions between 2006-2016 occurred between 2006-2013. There has been a decline in capacity addition worldwide since 2013. Global steel capacity addition has grown at a CAGR of 1.5 per cent in 2013-2016. This was primarily driven by slowdown in China's investments due to overcapacity. Nevertheless, China accounted for 54.5 per cent while India accounted for 20.4 per cent of global steel capacity addition in 2013-2016. The latter along with Vietnam, Brazil and Iran account for 93.1 per cent of global steel capacity additions in the period 2013-2016.

Excluding China, global steel capacity addition has grown at a CAGR of 1.4 per cent by 48.8 MT in 2013-2016. India accounted for 44.7 per cent of the added capacity in the period while Vietnam, Brazil, Iran, and Russia accounted for an additional 46.1 per cent.

Note: 14.5 MT steel capacity was shut down in United States, Peru, South Korea, Japan, Turkey and Peru.

Global Production of Steel



Global Production

The Global Crude Steel Production for 2017 was 1,673.9 MT with China accounting for 49.7 per cent of production. Other major crude steel producing countries in the order of production include Japan, India, United States, Russia, South Korea, Germany, Turkey, Brazil and Italy. These countries including China account for 83.7 per cent of global production amounting to 1,401.0 MT.

Excluding China, global steel production in 2017 stood at 842.2 MT. Japan accounted for 12.4 per cent of global production while India accounted for 12.0 per cent of the production. The other major countries including United States, Russia, South Korea, Germany, Turkey, Brazil, Italy and Ukraine together accounted for an additional 45.8 per cent of crude production.

The global crude steel industry has grown at a CAGR of 2.2 per cent between 2007-2017. In the corresponding period steel production in Japan, United States, Russia, Germany and Italy declined by 1.3 per cent on average while production in China, India, Turkey and Brazil increased by 3.9 per cent on average. The growth has primarily been driven by China and India which grew 5.4 per cent and 6.6 per cent respectively.

Excluding China, global steel production saw a CAGR decline of 0.2 per cent due to economic uncertainties in Europe and United States.

China's crude steel production grew the most between 2007-2013 by 1.68 times at a CAGR of 9.0 per cent. The production was driven by the rapid infrastructure development in the country. The growth has since tapered to a CAGR of 0.3 per cent between 2013-2017. China is in the process of rationalising steel production due to overcapacity and slow down in infrastructure investments. Production is estimated to reduce by 20.0 per cent through 2020.

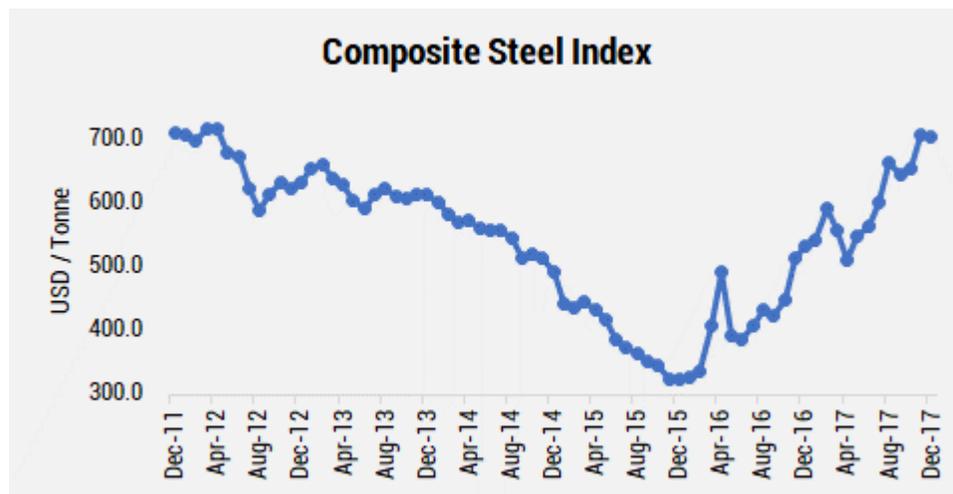
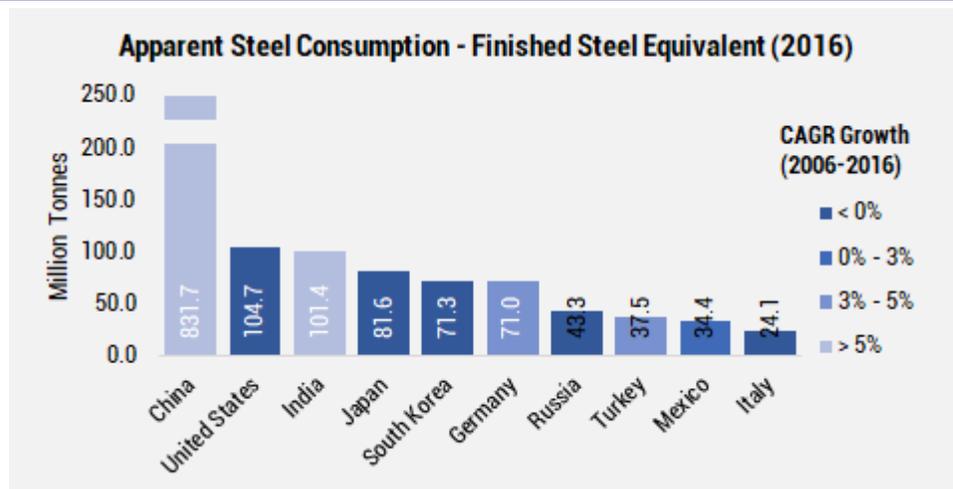
India's steel production has nearly doubled between 2007-2017 to 101.4 MT. Quarterly Steel Production Data indicates that India will overtake Japan and become the 2nd largest crude steel producer in the world in 2018. This growth is again backed by the government's investments in the infrastructure sector and improving economic conditions.

Capacity Utilization

The global steel capacity utilization has declined from 73.8 per cent in 2012 to 68.1 per cent in 2016.

in MT	World	China	Japan	India	US	Russia
Production Capacity	2,391.4	1,164.6	130.5	125.8	113.3	91.5
Production - 2016	1,628.0	808.4	104.8	95.5	78.5	70.8
Utilization	68.1%	69.4%	80.3%	75.9%	69.3%	77.4%

Global Consumption of Steel



Apparent steel consumption is a method of calculating steel consumption in an economy.

It is calculated by adding net imports to the total production in a year. It could be calculated on the basis of crude steel production or finished steel production in the economy.

Global Consumption – Apparent Steel Use (Finished Steel Equivalent)

China accounted for 43.7 per cent of the apparent steel consumption (crude steel equivalent) in the world. The other major consumers include United States, India, Japan and South Korea accounting for an additional 19.9 per cent. Apparent Steel Consumption has grown at a CAGR of 2.4 per cent in 2007-2016.

Excluding China, global steel consumption has grown at a CAGR of 0.5 per cent in 2007-2016. Most major steel consuming countries have only recently begun realizing levels of consumption seen prior to the financial crisis in 2008-2009.

Global per capita Consumption – Apparent Steel Use (Finished Steel Equivalent)

The per capita consumption of steel is considered to be an indicator of the economic prosperity. This method of measuring prosperity is, however, flawed as it does not take into account the improvement in steel production technology that make it possible to use less steel and still achieve similar strength.

The global steel consumption per capita is 207.3 kgs., with per capita consumption in South Korea at 1,123.7 kgs., China at 485.2 kgs., United States at 284.9 kgs. and India at 63.1 kgs. in 2016.

Steel Prices

There is no single price for steel due to the numerous steel grades and types available. One must look at the prices in relation to the product that is manufactured and sold. To provide the price movement of steel over the years, we have used the steel composite index which provides weighted average prices across products grades and types. Prices of Hot Rolled Steel which is the largest steel product manufactured is also a fair representative of the state of steel prices in general.

Due to China's weak economic activity in 2013-2015 the country exported its excess steel. Around 53.0 per cent more steel was exported between 2013-2015 thereby dampening prices which fell by ~45.0 per cent between 2011-2015 causing stress to steel companies in other regions of the world. Since early 2016, steel prices have been firming up and has recovered 87.0 per cent since the bottom seen in November 2015.

The increase in steel price is attributed to positive economic news from the United States and EU as well as the infrastructural growth plans of India. China's rationalization of its production has also contributed to the firming up of steel prices.

Indian Steel Industry

Indian Steel Industry Overview

Industry Structure (2007-2016)



Largest Steel Players



Background

Steel is one of the world's most essential materials. It is fundamental to the growth of any nation as it forms the backbone of industrialization. The demand for steel comes primarily from the infrastructure, automobile, and consumer durables industry and the fortunes of steel is highly correlated with these user industries.

Steel production in India began with the setting up of Tata Iron & Steel Company (TISCO - now Tata Steel) in 1907. In 1947, India had a fledgling private steel industry with only 3 significant steel companies with a total capacity of 1.0 MT.

The Indian Steel Industry currently accounts for 2.0 per cent of India's GDP and employs around 2.5 million people. The low cost of labour and availability of coal and iron ore make India a competitive producer of the metal.

India is the 3rd largest producer of steel at 104.8 MT in 2017 and is poised to overtake Japan to become the 2nd largest manufacturer in 2018 backed by the robust economic activity in the country. India also ranks 4th in steel production capacity in the world and is the 3rd largest consumer of the metal after China and the United States.

Industry Structure

The industry in India is classified based on the nature of the manufacturing companies into Integrated Steel Producers (ISP) and Secondary Producers.

Integrated Steel Producers are companies that are present throughout the steel value chain - starting from the extraction of Iron Ore to the manufacturing and marketing of finished steel. The Integrated Steel Producers account for 43.0 per cent of steel production in India. The largest integrated steel players in India include Steel Authority of India, Rashtriya Ispat Nigam Limited (Vizag Steel), Tata Steel, JSW Steel & Power, JSW Steel, Electrosteel and Essar Steel. Other major players include Jindal Stainless Steel and Jindal Stainless Steel (Hisar)

Secondary Producers are generally smaller manufacturers who manufacture steel from sponge iron and scrap. The secondary manufacturers manufacture steel using Mini Blast Furnace, Electric Arc Furnace and Induction Furnace units. The share of secondary producers has been steadily rising in India and in 2011-2012 secondary producers accounted for ~68.0 per cent of steel production in India.

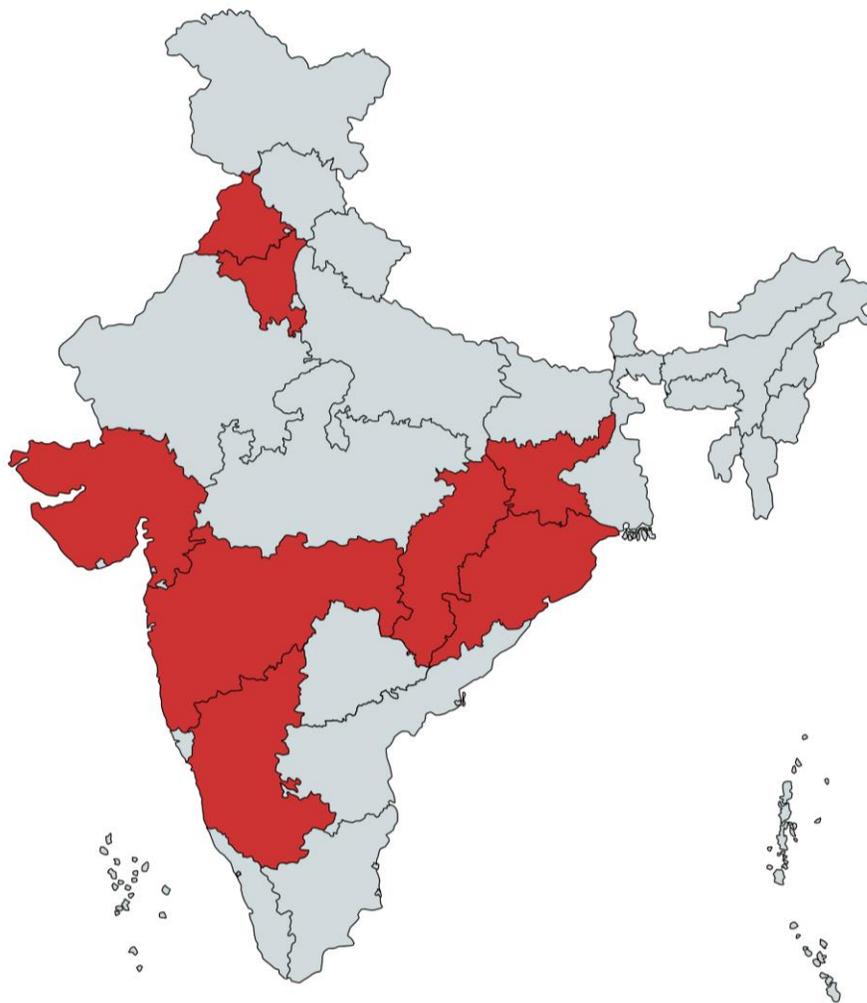
In the aftermath of the coal scam in 2012-2013, the ISPs could better cope with the economic uncertainty and saw a growth of 41.0 per cent in production as against secondary producers' who saw production decline by 11.4 per cent in the corresponding period.

Note: Steel data from JPC and Ministry of Steel identified with prefix 'FY' is based on Financial Year (March-April), while data from World Steel association based on calendar year.

Indian Steel Production



Iron & Steel Producing Regions in India



Created with mapchart.net

Production

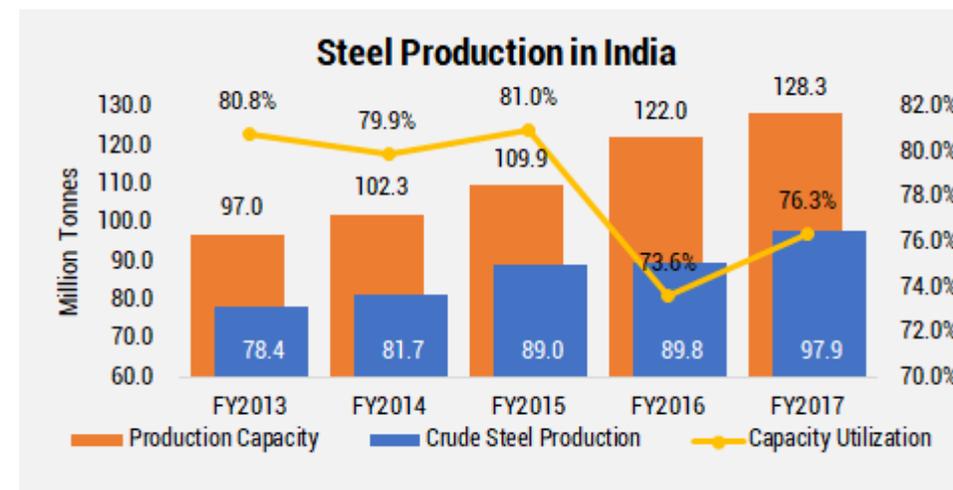
India is the 3rd largest producer of crude steel in the world and is estimated to overtake Japan, which is experiencing a decline in production, to become the 2nd largest producer in the world in 2018.

Steel production is concentrated in the mineral rich eastern regions including Jharkhand, Chhattisgarh, West Bengal and Orissa. Other states that produce steel include Maharashtra, Karnataka, and Gujarat.

India has added production capacity at a CAGR of 6.9 per cent between 2012-2016 and as of 2017, India has the 3rd largest installed capacity for crude steel production. The total steel production capacity is 125.8 MT with an average capacity utilization of 78.5 per cent between 2012-2016 which is higher than the world average of 70.9 per cent in the corresponding period.

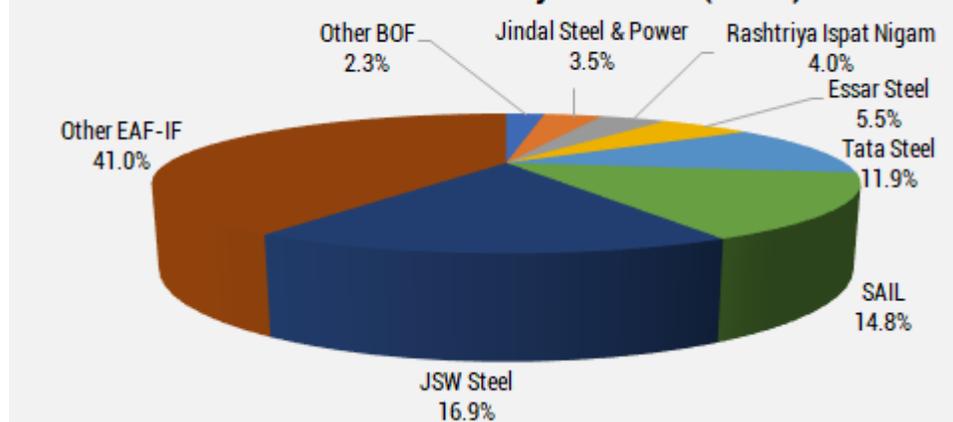
The steel production in India has nearly doubled between 2007-2017 to 101.4 MT at a CAGR of 6.6 per cent. This growth is driven by the government's investments in the infrastructure sector and the growth in the economy .

India is the largest producer of sponge iron accounting for 25.0 per cent of global production for sale. India is also the 3rd largest producer of pig iron after China and Japan accounting for 5.0 per cent of global production for sale.

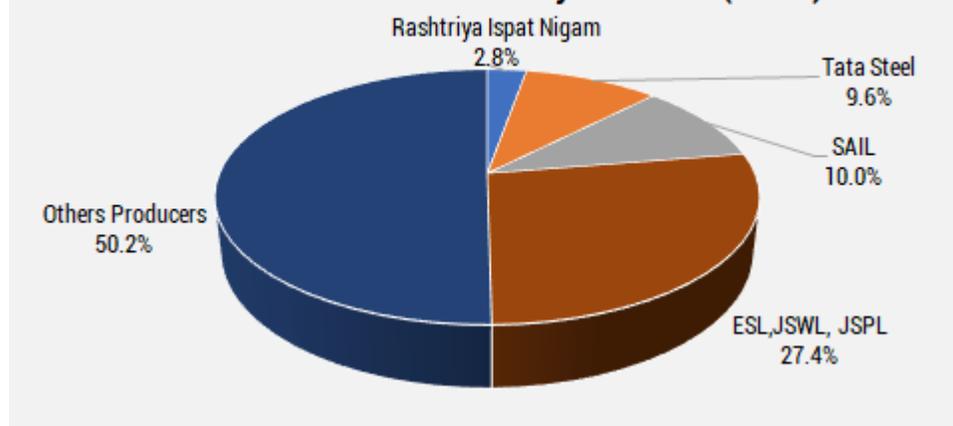


Indian Steel Production

Crude Steel Production by Producer (2017)



Finished Steel Production by Producer (2017)



Crude Steel Production

Crude production by the private sector accounts for 81.2 per cent of the total crude steel production in India at 79.5 MT. Production by Private producers has grown at a CAGR of 6.4 per cent between FY2013-FY2017. Production by private sector primarily comes from secondary steel producers that accounted for 41.0 per cent of the crude steel produced in FY2017.

Large integrated private players - JSW Steel, Tata Steel, Essar Steel, and Jindal Steel account for 46.6 per cent of the crude steel production by the private sector.

	FY2014	FY2015	FY2016	FY2017	% Share	CAGR
Other EAF-IF	37.0	41.9	40.1	40.2	41.0%	2.8%
JSW Steel	12.2	13.1	12.7	16.5	16.9%	10.5%
SAIL	13.6	13.9	14.3	14.5	14.8%	2.2%
Tata Steel	9.2	9.3	10.0	11.7	11.9%	8.5%
Essar Steel	3.2	2.9	3.7	5.4	5.5%	18.4%
Rashtriya Ispat Nigam	3.2	3.3	3.6	4.0	4.0%	7.4%
Jindal Steel & Power	2.8	3.6	3.2	3.4	3.5%	6.7%
Other BOF	0.5	1.0	2.2	2.3	2.3%	71.4%

Finished Steel Production - Producer

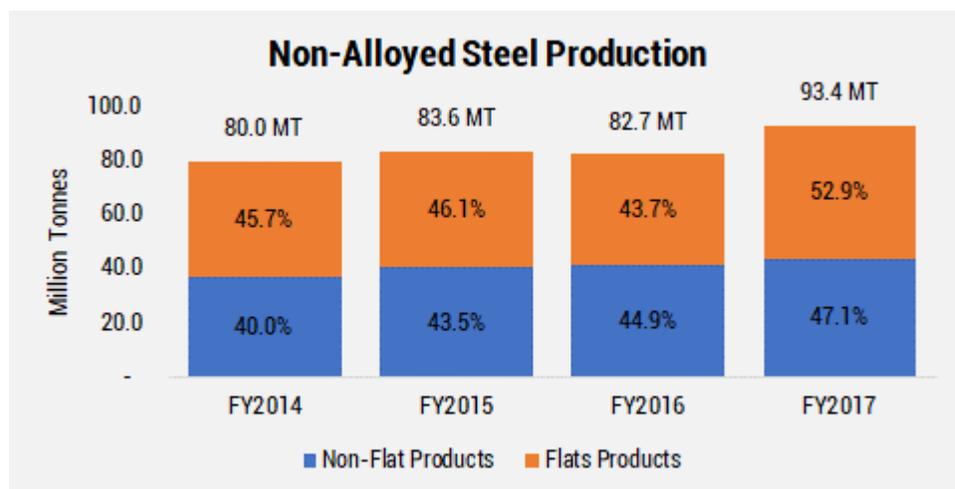
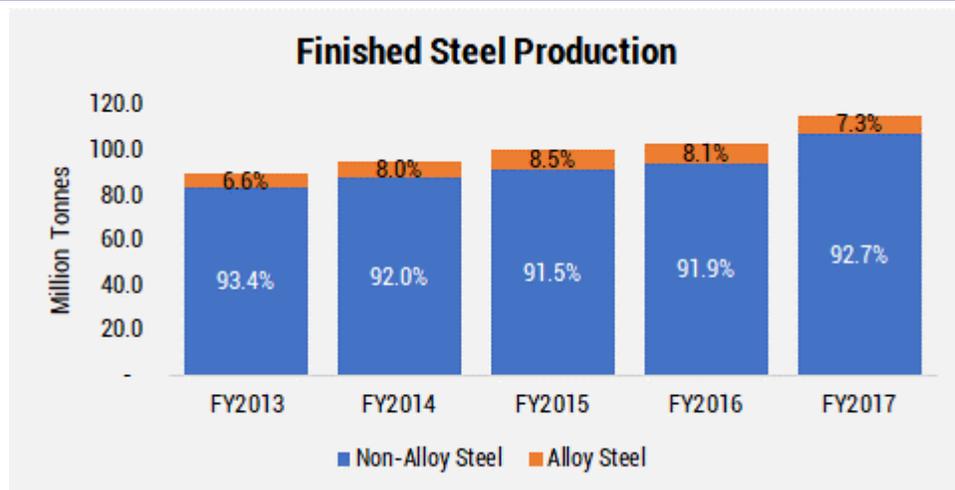
Finished Steel production in India grew at a CAGR of 6.6 per cent between FY2013-FY2017 and stood at 115.9 MT (includes inter-plant transfers and own consumption).

Production of finished steel by the private sector has grown at a CAGR of 7.1 per cent between FY2013-FY2017 and accounts for 87.2 per cent at 101.0 MT.

Large integrated players – SAIL, Rashtriya Ispat Nigam, JSW Steel ('JSWL'), Tata Steel, Essar Steel ('ESL'), and Jindal Power & Steel ('JSPL') account for 49.8 per cent of the finished steel production.

	FY2014	FY2015	FY2016	FY2017	% Share	CAGR
Others Producers	50.4	53.9	54.4	58.2	50.2%	4.9%
ESL,JSWL, JSPL	23.0	25.0	26.0	31.7	27.4%	11.4%
SAIL	10.6	10.3	10.2	11.6	10.0%	3.1%
Tata Steel	8.8	9.0	9.5	11.1	9.6%	8.3%
Rashtriya Ispat Nigam	2.8	2.6	2.8	3.2	2.8%	4.6%

Indian Steel Production



Finished Steel Production - Alloyed and Non-Alloyed Steel

The first classification of Finished Steel is based on the steel material itself which can be broadly classified as Alloyed and Non-alloyed Steel.

Alloyed steels are steels that are manufactured by introducing other elements such as manganese, phosphorous, sulphur, silicon, nickel, titanium, copper, chromium, and aluminium in the smelting process to modify the steel's mechanical properties including strength, hardness and corrosion resistance. This steel find application in extremely demanding conditions such as spacecrafts, jet engine parts and nuclear reactors among others.

Alloy steel accounts for 7.3 per cent of finished steel manufactured in India at 8.5 MT in FY2017. Between FY2013-FY2017, alloy steel production has seen a growth of 9.6 per cent driven by the automobile, defence, power industry, and heavy engineering sectors.

Non-alloyed steel refers to steel where elements are not added during the smelting process. They are also referred to as carbon alloys as the only element present other than iron is carbon. The carbon content determines the strength, hardness and durability of the steel to a certain degree.

Non-alloyed steel accounts for 92.7 per cent of finished steel manufactured in India at 107.4 MT. Between FY2013-FY2017, non-alloy steel grew by 6.4 per cent.

Note: The above figures have been not been adjusted for inter-plant transfers and own consumption

Finished Steel Production - Non-Alloyed Steel - Flat & Non-Flat Products

Non-Alloyed finished steel can be further segregated based on the shape of the output into Flat and Non-Flat Products.

Flat Products comprises of Plates, Hot Rolled Coil/Strips, Hot Rolled Sheets, Cold Rolled Coils, Galvanized Steel, Tin Plates etc. among others. Non-Flat products include Bars, Rods and Structural.

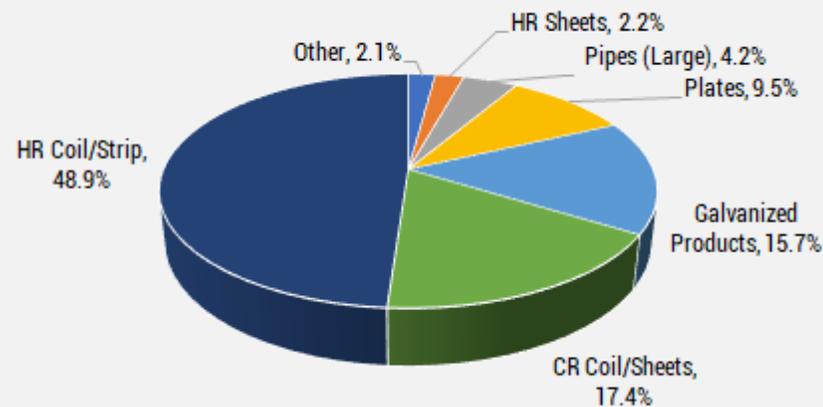
Flat products production has grown at the rate of 4.9 per cent between FY2014 and FY2017 forming 52.9 per cent of non-alloyed steel production in India at 49.3 MT.

Non-flat products production has grown at the rate of 5.6 per cent between FY2014 and FY2017 forming 47.1 per cent of non-alloyed steel production in India at 44.0 MT.

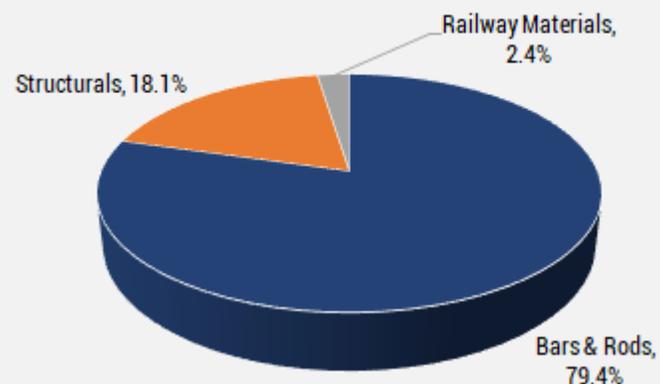
Note: The above figures have been adjusted for inter-plant transfers and own consumption.

Indian Steel Production

Flat Products Production



Non-Flat Products Production



Finished Steel Production - Non-Alloyed Steel – Flat Products

Hot Rolled Coil/Strips, Hot Rolled Sheets, Cold Rolled Coils/Sheets, Galvanized Steel of various types, and Pipes accounts for 97.9 per cent of the non-alloyed flat products manufactured in India.

Flats	FY2014	FY2015	FY2016	FY2017	%Share	CAGR
HR Coil/Strip	20.8	20.2	19.5	24.1	48.9%	5.0%
CR Coil/Sheets	7.7	7.5	5.9	8.6	17.4%	3.5%
Galvanized Products	6.9	6.9	7.2	7.7	15.7%	3.9%
Plates	3.9	4.7	4.1	4.7	9.5%	6.5%
Pipes (Large Dia.)	2.0	2.1	2.2	2.1	4.2%	1.7%
HR Sheets	0.9	1.1	1.5	1.1	2.2%	6.0%
Other	0.5	0.5	0.5	1.0	2.1%	28.7%

Note: The above figures have been adjusted for inter-plant transfers and own consumption hence the figures will differ from production figures elsewhere in the report.

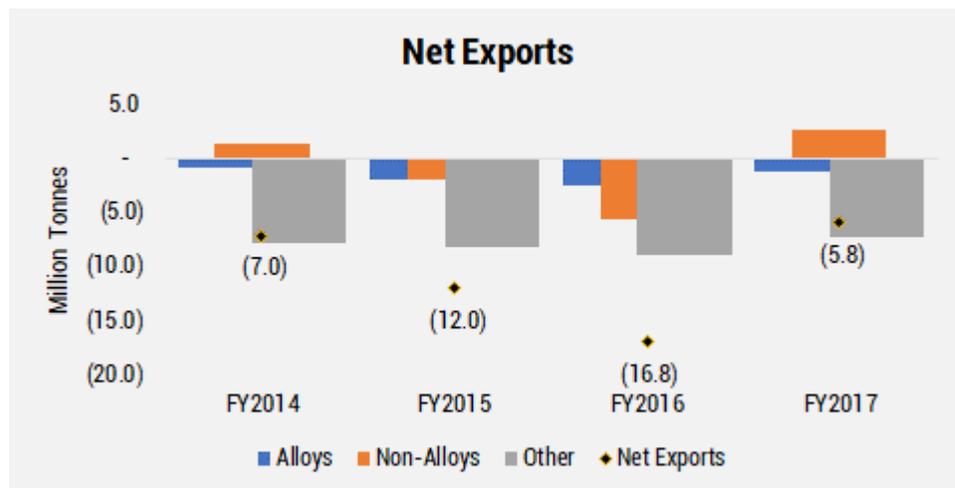
Flat Steel Production – Non-Alloyed Steel – Non-Flat

Bars and Rods, and Structural Steel accounts for 96.5 per cent of the total non-flat steel manufactured in India.

Non-Flats	FY2014	FY2015	FY2016	FY2017	%Share	CAGR
Bars & Rods	29.6	32.3	33.5	35.0	79.4%	5.8%
Structurals	6.9	7.5	7.5	8.0	18.1%	5.0%
Railway Materials	0.9	0.8	0.9	1.1	2.4%	6.7%

Note: The above figures have been adjusted for inter-plant transfers and own consumption hence the figures will differ from production figures elsewhere in the report.

Indian Steel Consumption & Export-Import



Finished Steel Consumption

India is the 3rd largest consumer of crude steel in the world after China and United States.

India's finished steel consumption has grown 1.6 times between 2007-2017 to 83.5 MT in 2017 growing at a CAGR of 5.5 per cent in the period. The increase in consumption is a consequence of the infrastructural spends and growth in the automobile sector.

Although India is the 3rd largest consumer of steel in the world it ranks 95th out of 142 countries in per capita consumption. The per capita Consumption of steel has grown by a factor of 1.5 times from 43.6 kilograms in 2007 to 63.1 kilograms (rural consumption 10.0 kilograms per capital) in 2017 at a CAGR of 4.2 per cent.

Even with the huge infrastructure expenditures envisioned, India is estimated that it will take several years for India to catch up to the world average of per capita consumption. The New Steel Policy, 2017, has envisaged to increase in the per capita consumption from the present 63.1 kilograms to 160 kilograms by 2030.

Exports & Imports of Steel

India's Exports and Imports can be classified as Alloyed Steel, Non-Alloyed Steel and Other Steel (includes Pig Iron, Sponge Iron, Steel Scrap, Fittings, and Other Items).

India's Total Steel Exports stood at 10.0 MT in FY2017 growing at a CAGR of 9.9 per cent between FY2014-FY2017. Non-Alloyed Steel accounted for 88.1 per cent of the exports, Alloyed Steel accounted for 6.7 per cent of the exports while the balance 5.2 per cent related to the exports of pig iron and sponge iron.

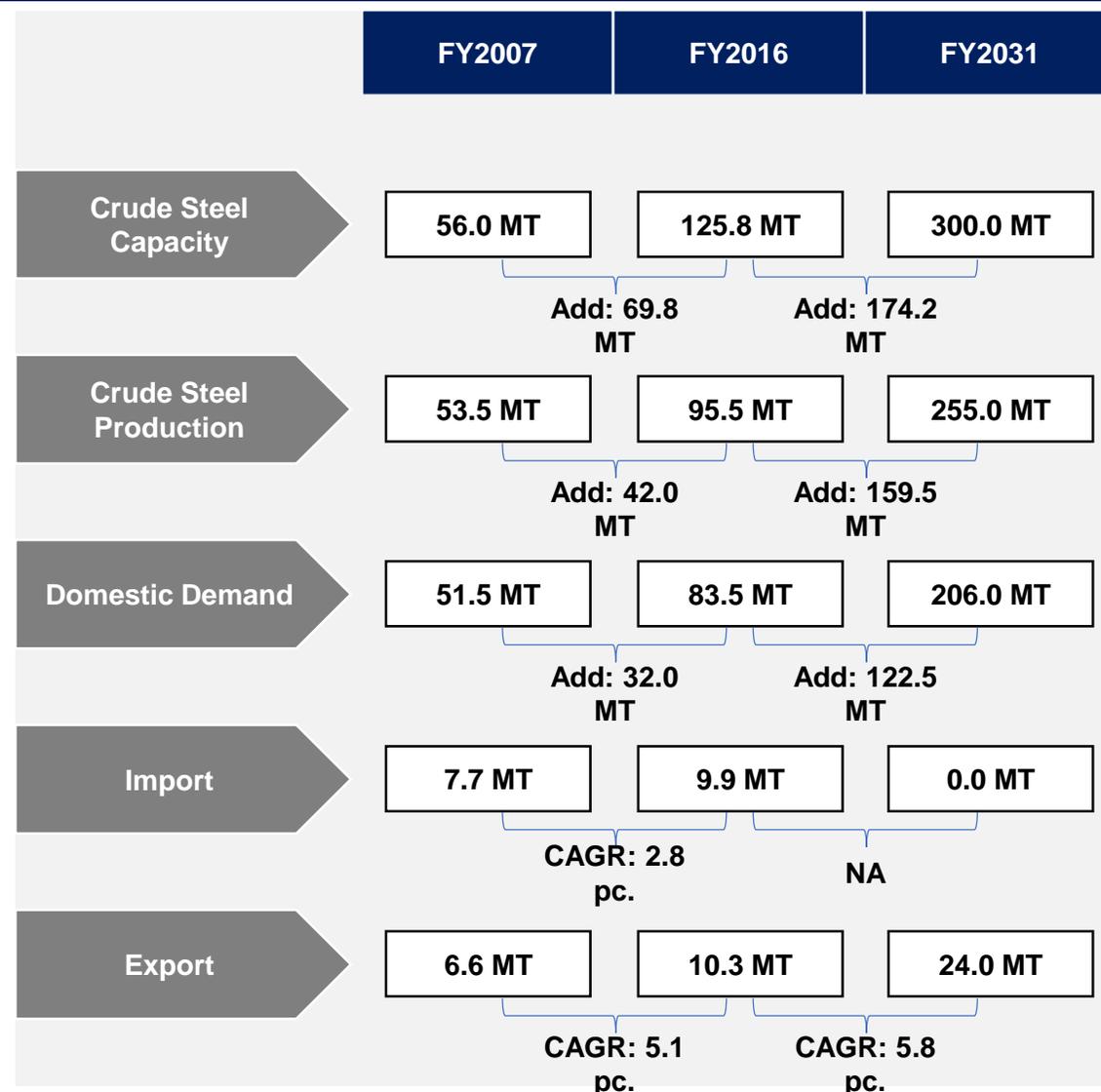
Based on the steel shapes, Flat Finished Steel (Alloy and Non-Alloy) accounted for 72.1 per cent of the exports, Non-Flat Finished Steel (Alloy and Non-Alloy) accounted for 10.7 per cent of the exports while 12.0 per cent was exports of semi-finished steel.

Exports of Hot Rolled Coils/Sheets (41.1 per cent), Cold Rolled Coils/Sheets (19.4 per cent) and Galvanized Products (23.9 per cent) accounted for 84.4 per cent of Flat Finished Steel Exports which has grown at a CAGR of 12.0 per cent between FY2014-FY2015.

India's Total Steel Imports stood at 15.7 MT in FY2017 growing at a CAGR of 2.7 per cent between FY2014-FY2017. Non-Alloyed Steel accounted for 30.7 per cent of the imports, Alloyed Steel accounted for 11.9 per cent of the imports while the balance 49.4 per cent related to the imports of other items (primarily steel scrap - 49.2 per cent), pig iron and sponge iron.

Based on the steel shapes, Flat Finished Steel (Alloy and Non-Alloy) accounted for 39.6 per cent of the imports, Non-Flat Finished Steel (Alloy and Non-Alloy) accounted for 6.3 per cent of the imports while 4.8 per cent was imports of semi-finished steel. Excluding Scrap Steel Imports India was a net exporter in FY2017.

National Steel Policy, 2017



A robust Steel Industry is fundamental to the economic growth of any country as it supports all the other industries for industrialization. National Steel Policy provides the government's vision, roadmap and focus with regards to various aspects of steel making in India including sourcing of raw materials, production, and consumption of Steel.

National Steel Policy, 2017 was released on May 3rd, 2017. The Indian government has indicated that the following objectives of the National Steel Policy, 2017:

Raw Materials

1. Ensure the availability of key raw materials including iron ore, coking and non-coking coal, natural gas and other metals required for making steel (alloyed/non-alloyed) through policy push
2. Reduce dependence on imported washed coking coal to 65.0 per cent from the current 85.0 per cent by FY2031
3. Adopt energy efficient technology in the smaller steel players to improve productivity and reduce energy consumption
4. Promote BOF method of manufacturing steel

Production & Consumption

1. Increase the production capacity from current 125.8 MT to 300 MT by FY2031
2. Increase per capita consumption of steel from the present 63.1 kilograms to 160.0 kilograms by 2030 through policy support to consuming sectors such as in infrastructure, housing and the automobile sectors
3. Meet the demand for high grade automotive steel, electrical steel and other special steels and alloys through domestic production by FY2031
4. Reduce dependence on imports and become a net exporter of steel by FY2026.

Significant Indian Steel Players

Company Profile: JSW Steel



JSW Steel Limited

Headquarters: Mumbai
 Employees: >10,000
 Incorporated: 1994
 Market Cap. (3/5/18) INR 76,178.7 Cr.

Key Management

Chairman & MD: Sajjan K Jindal
 Jt. CEO: Ashok K Aggrawal
 CFO & Jt. MD: M V S Sheshagiri Rao
 (Amounts in INR Cr.)

Financial Information

FY2017

Revenue: 55,604.6
 EBITDA: 12,326.4
 PAT: 3,523.12

Debt: 43,334.0
 Shareholder's Equity: 22,647.6

Business Description

JSW Steel Limited is a holding company of the JSW Group with interests in Steel, Energy, Infrastructure and Cement.

The JSW Group's foray into steel manufacturing began in 1982, when it set up the Jindal Iron & Steel Company with its first steel plant at Vasind near Mumbai. The next two decades saw significant expansion and several acquisitions, following the merger of Jindal Iron & Steel Co (JISCO) and Jindal Vijayanagar Steel Ltd (JVSL) in 2005.

The Company is engaged in the business of production and distribution of iron and steel products. It has plants in over six locations in India, including Vijayanagar in Karnataka, Salem in Tamil Nadu, and Tarapur, Vasind, Kalmeshwar and Dolvi in Maharashtra with a total capacity of 18.0 MT.

The group has a presence in over 100 countries and is recognised worldwide as a manufacturer of high-end, value-added steel and is India's largest exporter of coated products.

Business Segments / Product Lines

The product line for JSW Steel can be classified based on the finished product type:

- Hot Rolled (HR) Coils, Sheets and Plates
- Cold Rolled Coils and Sheets;
- Galvanized Products and Galvalume Products; Pre-painted Galvanized Products (Color Coated Sheets/Coils); Pre-painted Galvalume Products;
- Electrical Steel (CRNGO); Wire Rods; Special Steel Bars/Wires;
- Rounds, Blooms, and Angles.

JSW Steel caters to the following industries:

- **Automotive:** Automotive grade steel for use in suspension, transmission, engine components, chassis components, fasteners and ball bearings
- **General Engineering:** Steel for panel manufacturing, packaging fabrication, drums, barrels and furniture
- **Machinery & Heavy Engineering:** High Strength Steel for heavy equipment and machinery manufacturers
- **Construction & Infrastructure:** Specialized Steel for telecom, buildings, industrial sheds, railways, roads and bridges, ports, and energy sectors

Company Profile: Steel Authority of India



सेल SAIL

Steel Authority of India Limited

Headquarters: Kolkata
 Employees: 78,333
 Incorporated: 1973
 Market Cap. (3/5/18) INR 30,152.8 Cr

Key Management

Chairman & MD: Prakash K Singh
 Commercial Director: Soma Mondal
 Finance Director: Anil K Chaudhary

(Amounts in INR Cr.)

Financial Information

FY2017

Revenue: 44,209.7
 EBITDA: 493.8
 PAT: (2,756.2)

Debt: 41,395.7
 Shareholder's Equity: 37,042.3

Business Description

Steel Authority of India Limited (SAIL) is a public sector undertaking, owned and operated by the Government of India. The Company traces its origin to the Hindustan Steel Limited (HSL) which was set up in 1954.

The Government of India owns about 75% of SAIL's equity and retains voting control of the Company. However, by virtue of its Maharatna status, SAIL enjoys significant operational and financial autonomy.

The Company is the 2nd largest crude steel producer in India with a total capacity of 17.5 MT.

SAIL produces iron and steel at five integrated plants and three special steel plants, located principally in the eastern and central regions of India and situated close to domestic sources of raw materials.

Business Segments / Product Lines

The Company's products include the following:

Flat Products

- Hot Rolled Coils
- HR Plates
- Cold Rolled Coils
- Pipes and Electric Sheets

Long Products

- Thermo Mechanically Treated (TMT) Bars
- Wire Rods.

Other Products

- Rails
- Structurals
- Merchant Products,
- Electric Resistance Welded Pipes
- Spiral Welded Pipes
- Silicon Steel Sheets

Company Profile: Tata Steel



TATA STEEL

Tata Steel Limited

Headquarters: Mumbai
 Employees: >50,000
 Incorporated: 1907
 Market Cap. (3/5/18) INR 69,242.8 Cr

Key Management

Chairman: N Chandrasekaran
 CEO: T V Narendran
 CFO: Kaushik Chaterjee

(Amounts in INR Cr.)

Financial Information

FY2017

Revenue: 112,299.4
 EBITDA: 9,354.5
 PAT: (4,240.8)

Debt: 83,014.5
 Shareholder's Equity: 35,544.3

Business Description

Tata Steel Limited manufactures and sells steel products in India and internationally. The group has manufacturing operations in 26 countries, including Australia, China, India, the Netherlands, Singapore, Thailand and the United Kingdom

It is one of the top steel producing companies globally with annual crude steel production of 24.5 MT (in FY17), and the second largest steel company in India (measured by domestic production) with an annual capacity of 12.5 MT.

Tata Steel primarily serves customers in the automotive, construction, consumer goods, engineering, packaging, lifting and excavating, energy and power, aerospace, shipbuilding, rail and defence and security sectors.

Business Segments / Product Lines

The product line for Tata Steel can be classified based on the industries catered to:

- **Agriculture:** Steel products for agricultural sector
- **Automotive, Aerospace & Defence:** Steel products for vehicle manufacturers and component suppliers. In addition, the company offers and aerospace steels, including ingots, bars, and cut pieces for the production of gas turbine engines, landing gear, controls, and aero structure components, as well as shipbuilding, rail, and defence and security products.
- **Construction:** Structural frames, infrastructure products, building envelopes, and internal fit out application products for the construction industry
- **Consumer Goods:** Hot rolled coils and high-gloss pre-finished steel perforated blanks for use in consumer goods
- **Energy & Power:** Welded pipeline packages and prefabricated structural products for wind, and oil and gas structures; and light fabricated systems for solar farm foundations. It also provides semi-finished steel components for drilling and power generation.
- **Engineering:** Hot rolled and cold rolled sheets, wire rods and wires, sections, plates, bearings, and tubes for engineering companies; and engineering services.
- **Materials Handling:** Steel products for lifting and excavating sectors. Tinsplate, ECCS, and protact polymer-coated steel products for food and beverage cans, as well as for paint, aerosols, closures, and promotional packaging; formable steels for steel drums and pails in the industrial packaging sector.

Company Profile: Essar Steel



Essar Steel India Limited

Headquarters:	Mumbai
Employees:	>3,000
Incorporated:	1976
Market Cap.	Not Listed

Key Management

Chairman:	Jatinder Mehra
Managing Director:	Dilip C Oommen
CFO:	Suresh C Jain

(Amounts in INR Cr.)

Financial Information

FY2017

Revenue:	NA
EBITDA:	NA
PAT:	NA

FY2016

Debt:	14,380.9
Shareholder's Equity:	(2,093.2)
PAT:	(5,795.3)

Debt:	37,283.7
Shareholder's Equity:	4,617.0

Business Description

Essar Steel India Limited, an integrated steel producer which manufactures and sells steel products primarily in India. The Company also processes and trades in construction materials; and extracts and prepares thermal and metallurgical coal. It also exports its products to Europe, the Middle East, Africa, South America, and Asia, as well as to the NAFTA and ASEAN regions.

Essar Steel's manufacturing facilities across comprises ore beneficiation, pellet making, iron making, steel making, and downstream facilities including cold rolling mill, galvanising, pre-coated facility, steel processing facility, extra wide plate mill and a pipe mill.

Essar Steel has the largest steel manufacturing facility in the western region of India at 10.0 MT, supported by a captive port, power plant, lime plant and oxygen plant.

The Company is currently under insolvency proceedings under the IBC due to its inability to service debt. ArcelorMittal and JSW Steel are in contention to acquire the Company under the IBC the outcome of which is awaited.

Business Segments / Product Lines

The Company provides steel products for use in engineering, shipbuilding, automotive, construction, railways, white goods, line pipes, wind engineering and power generation, boilers and pressure vessels, and yellow goods.

The Company's products include the following:

- Hot Rolled Products
- Cold Rolled Products
- Galvanized Steel Products
- Color Coated Sheets
- Pipes and Plates
- Shot Blasted and Primed Plates
- Factory Welded Beams
- Burnt-to-shape Plates
- Trapezoidal Blanks
- Chequered Plates

Company Profile: Jindal Steel & Power



Jindal Steel & Power Limited

Headquarters: New Delhi
 Employees: >10,000
 Incorporated: 1979
 Market Cap. (3/5/18) INR 23,090.4 Cr

Key Management

Chairman: Naveen Jindal
 Group CEO: Ravikant Uppal
 CFO: Deepak Sogani

(Amounts in INR Cr.)

Financial Information

FY2017

Revenue: 21,655.5
 EBITDA: 4,295.7
 PAT: (2,281.3)

Debt: 45,850.5
 Shareholder's Equity: 30,050.5

Business Description

Jindal Steel & Power Limited operates in steel, power, mining, and infrastructure sectors in Asia, Africa, Australia, and the Middle East. The company produces steel and power through backward integration from its own captive coal and iron-ore mines.

The company has significant mining interests in South Africa, Mozambique, Namibia, Botswana and Mauritania and is expanding into steel, energy and cement.

The Company has a total crude steel capacity of 8.6 MT. It manufactures and sells sponge iron, mild steel slabs, ferro chrome, iron ore, mild steel, structural, hot rolled plates and coils. The Company operates the largest coal-based sponge iron plant in the world with an installed capacity of 3.0 MT of steel at Raigarh in Chhattisgarh.

It also has a 3,400 MW thermal power plant in Tamnar, Chhattisgarh; and a 258 KM long 400 KV double circuit transmission lines for the distribution of power in India.

Business Segments / Product Lines

The Company offers track and crane rails, and flash-butt welded rail panels; and medium and heavy hot rolled parallel flange beams and column sections for use in refineries, metro rail projects, airports, flyovers, power plants, highways, malls, and high rise buildings.

It provides discrete and cut to length plates, and hot rolled coils that are used in general engineering and structural fabrication, railway wagons, pressure vessels and boilers, oil and gas pipelines, bridges and flyovers, shipbuilding, earthmoving equipment, wind mills, and defence equipment.

It manufactures angles and channels for infrastructure, and industrial and light construction segments; TMT rebars; wire rods for various applications; and fabricated sections.

In addition, the company offers suspended concrete flooring systems for use in steel frame structures, RCC frame buildings, poured insitu or precast concrete frames, light gauge steel frames, and conventional structural brick wall constructions; semi-finished products for pipe industries, integrated mills, and rolling facilities; and coal-based sponge iron products.

The Company's segments include Iron and Steel, Power, and Other - consisting of aviation services and machinery division. The Company's steel product portfolio consists of steel product mix, construction solutions, and construction material and solutions.

- Steel product mix category includes rails and head hardened rails, parallel flange beams and columns, angles and channels, plates, coils and wire rods.
- Construction solutions category includes fabricated steel section, speedfloor, light gauge structures, and insulated dry wall panel.
- Construction material and solutions category includes Cement, Fly-Ash Bricks and Light Weight Aggregate (LWA).

Company Profile: Rashtriya Ispat Nigam



Rashtriya Ispat Nigam Limited

Headquarters:	Vishakhapatnam
Employees:	>15,000
Incorporated:	1982
Market Cap.	Not Listed

Key Management

Chairman ` MD:	P Madhusudan
CFO:	J Srinivasa Rao
Operations Director:	D Nageswara Rao

(Amounts in INR Cr.)

Financial Information

FY2017

Revenue:	NA
EBITDA:	NA
PAT:	NA

FY2016

Revenue:	8,989.5
EBITDA:	418.7
PAT:	(1,420.6)

Debt:	10,391.1
Shareholder's Equity:	9,873.2

Business Description

Rashtriya Ispat Nigam Limited (RINL), the corporate entity of Visakhapatnam Steel Plant (VSP), is a Navratna Company under the Ministry of Steel, Govt. of India.

Visakhapatnam Steel Plant is the first shore-based (at the coast similar to Korean Steel Plants) Integrated Steel Plant in India. The plant is strategically located given its proximity to both the raw materials as well as the port. The company exports its iron and steel products to China, Nepal, Sri Lanka, Bangladesh, South Korea, New Zealand, Canada, the United States, Indonesia, South Africa, Thailand, Malaysia, Vietnam, Japan, Taiwan, and Nigeria.

The Company has a crude steel manufacturing capacity of 6.3 MT and it is the second largest steel manufacturing public sector entity. The company also has blast furnace grade Limestone captive mine at Jaggayyapeta (Krishna District), a captive mine for Dolomite at Madharam (Khammam), a manganese ore captive mine at Cheepurupalli (Vizianagaram).

Business Segments / Product Lines

Rashtriya Ispat Nigam Limited produces and sells steel products to project customers, industrial users, retailers, and dealers primarily in India.

RINL, with an exclusive product mix of longs is one of the largest producer of "Bars and Rods" in the country. The products of RINL include Rebars, Wire Rods, Rounds, Structurals, Blooms and Billets & Pig Iron and the company also markets the resultant by-products like coal chemicals (Ammonium Sulphate, Benzol products etc.) and Slag.

Its long steel products caters to the requirements of the Construction, Infrastructure, Manufacturing, Automobile, General Engineering, and Fabrication Sectors.

Company Profile: Bhushan Steel



BHUSHAN

Bhushan Steel Limited

Headquarters: New Delhi
 Employees: >10,000
 Incorporated: 1983
 Market Cap. (3/5/18) INR 536.8 Cr.

Key Management

Chairman: Brij Bhushan Singal
 MD & CEO: Neeraj Singal
 CFO: Nittin Johari

(Amounts in INR Cr.)

Financial Information

FY2017

Revenue: 13,702.7
 EBITDA: 3,327.8
 PAT: (3,614.9)

Debt: 49,957.6
 Networth: (1,482.9)

Business Description

Bhushan Steel Limited is the largest secondary Steel maker in India and also the largest manufacturer of auto-grade steel in India.

Incorporated in 1983, the company operates 3 plants located at Maharashtra, Odisha and Uttar Pradesh with a total capacity of 5.6 MT. The plant at Uttar Pradesh produces the widest sheets in India for the automotive industry and is highly automated.

Being amongst the prime movers of the technological revolution in Indian Cold Rolled Steel Industry, the Company has emerged as the country's largest and the only Cold Rolled Steel Plant with an independent line for manufacturing wide Cold Rolled Coil and Sheet. The Company also has a Galvanized Coil and Sheet line up to a width of 1350 mm.

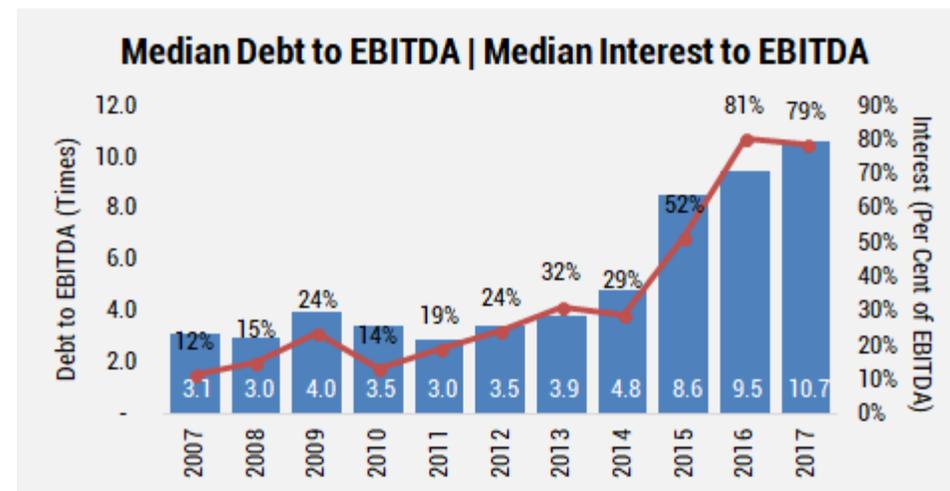
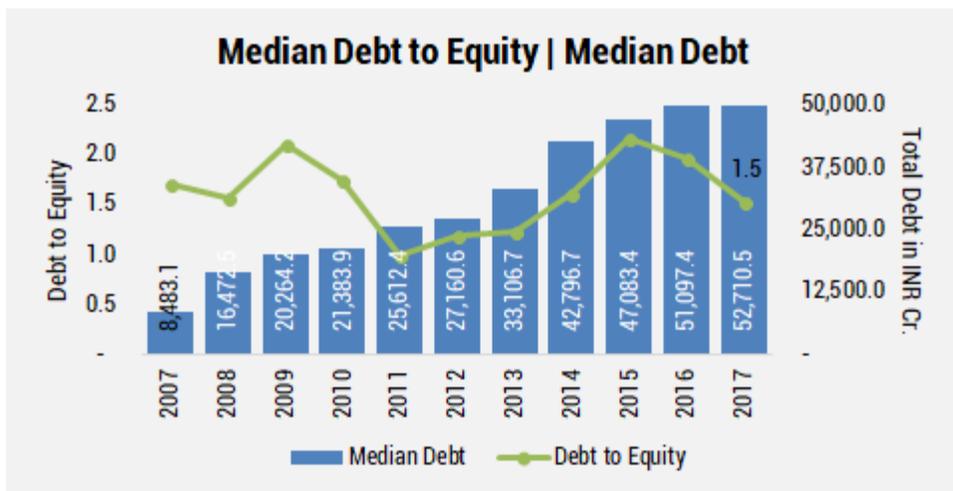
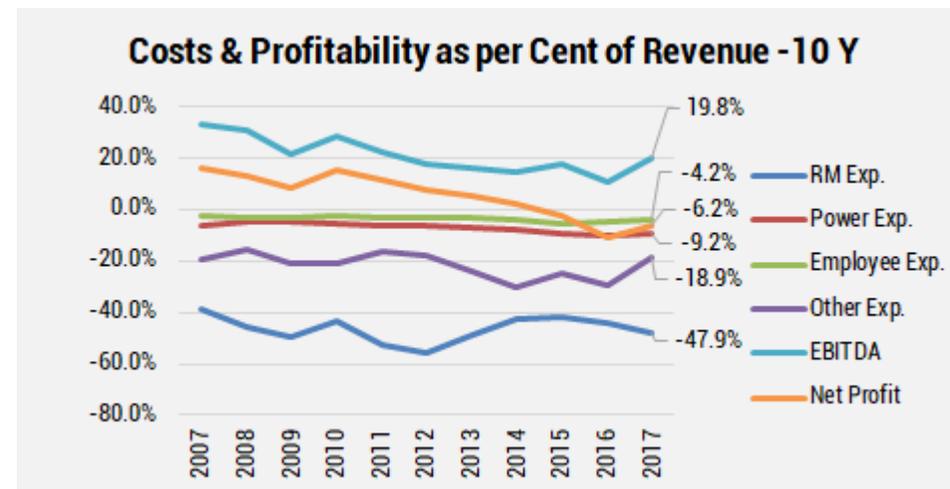
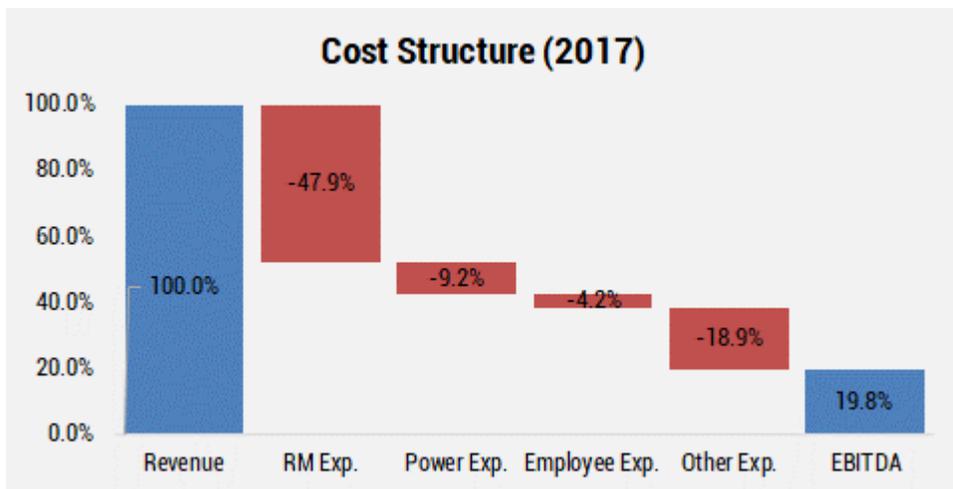
The Company is currently under insolvency proceedings under the IBC due to its inability to service debt. Tata Steel and Liberty House, UK are in contention to acquire the Company under the IBC the outcome of which is awaited.

Business Segments / Product Lines

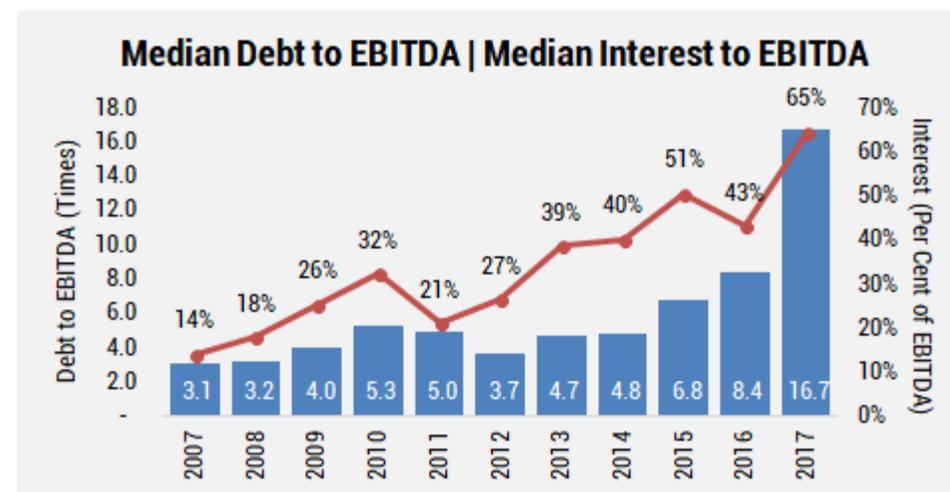
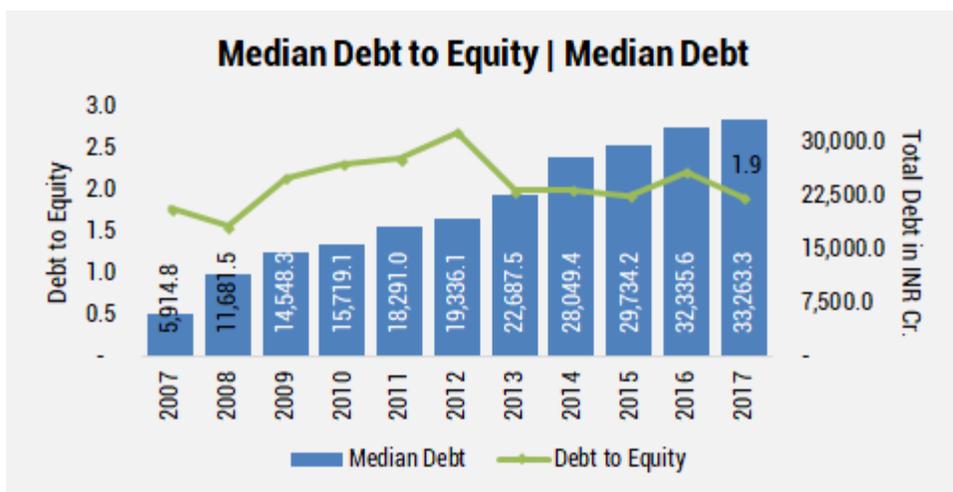
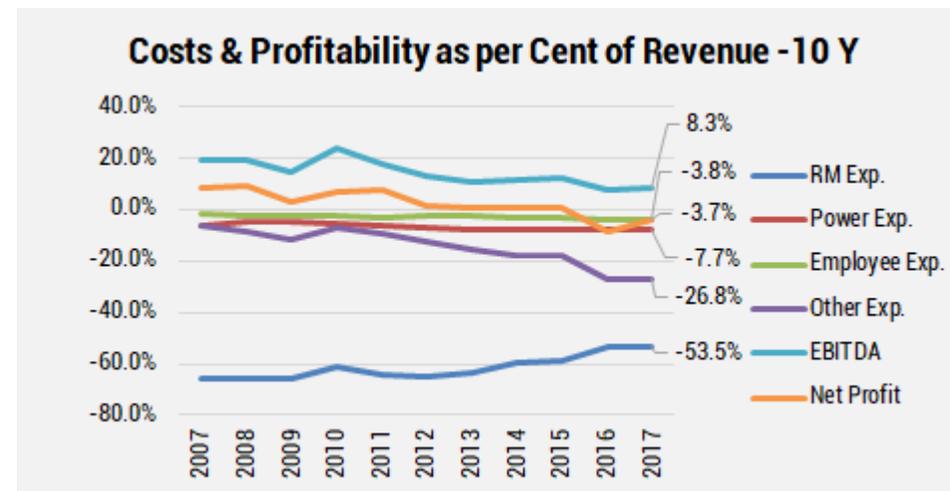
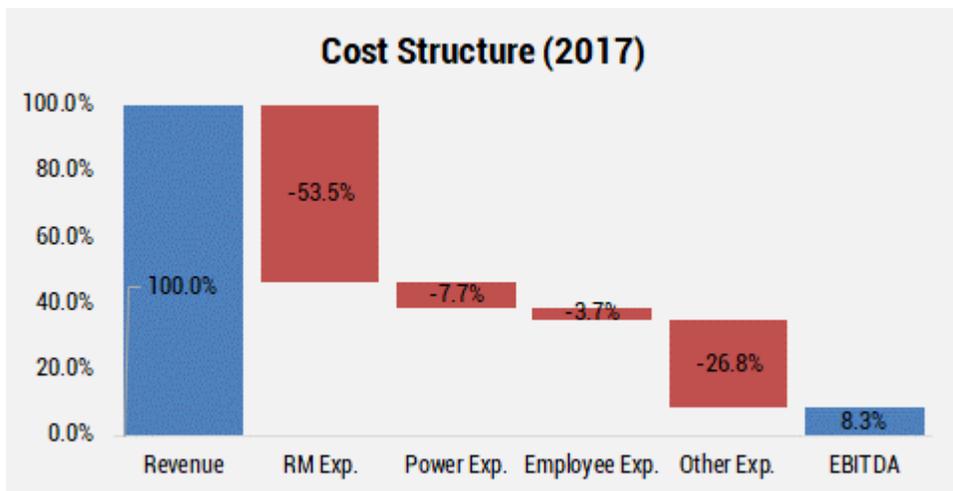
The Company manufactures the following steel products:

- Hot Rolled Coil
- Cold Rolled Coils
- Galvanized Coil and Sheet
- Galume Coil and Sheet
- Color Coated Coils
- Color Coated Tiles
- High Tensile Steel Strips
- Hardened and Tempered Steel Strips
- Precision Tubes
- Coated Pipes
- Billets and Sponge Iron

Cost Structure: JSW Steel, JSPL, SAIL, Tata Steel, Bhushan Steel

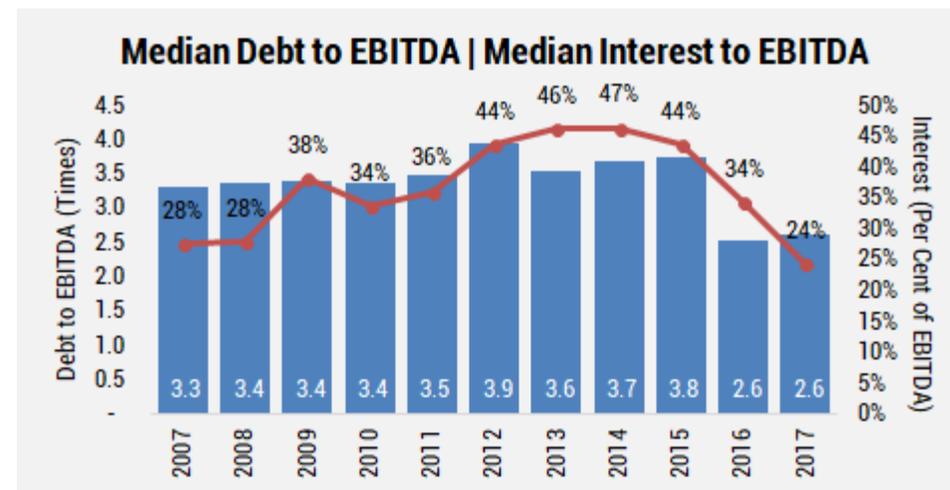
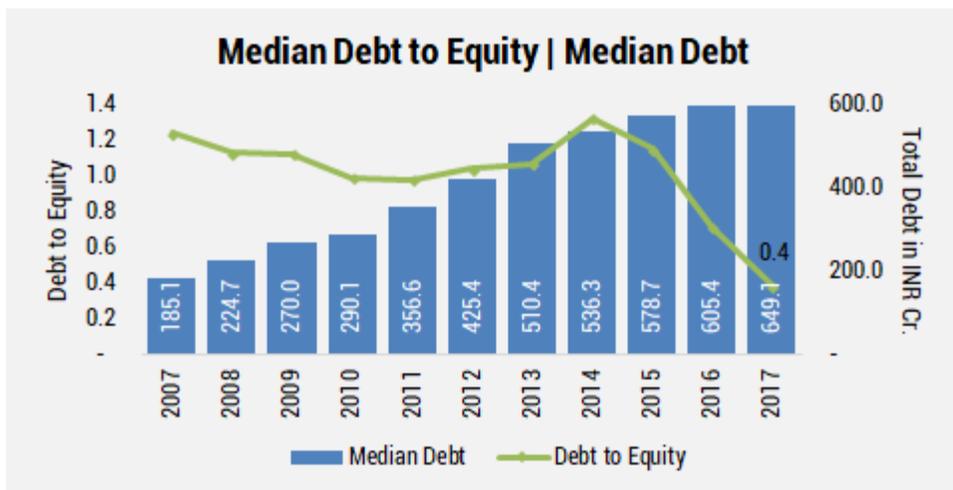
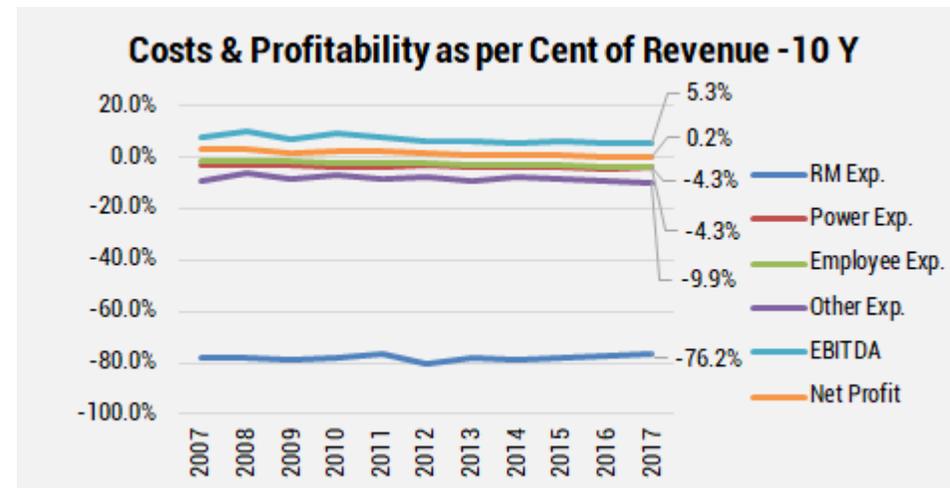
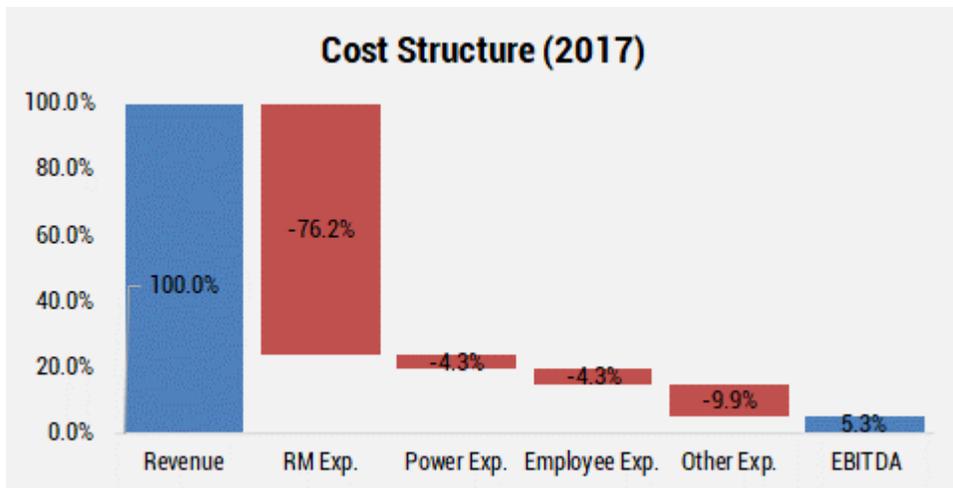


Cost Structure: Large Steel Manufacturers



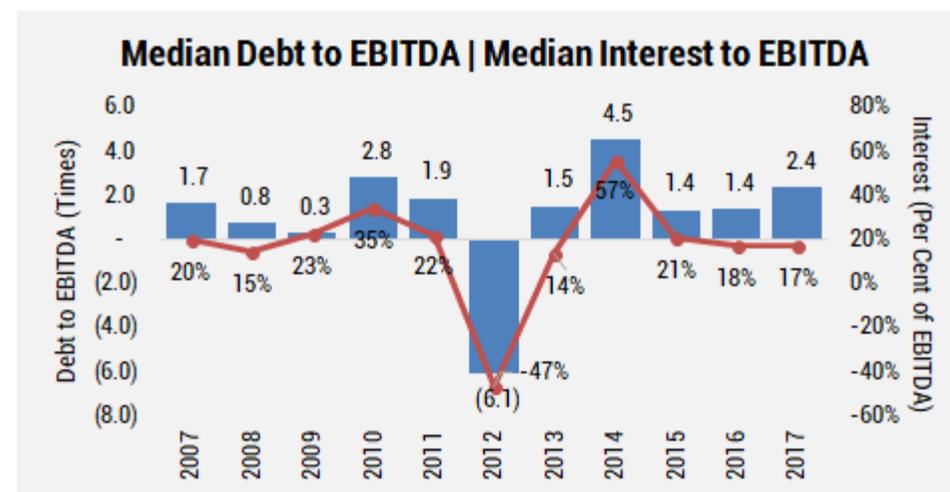
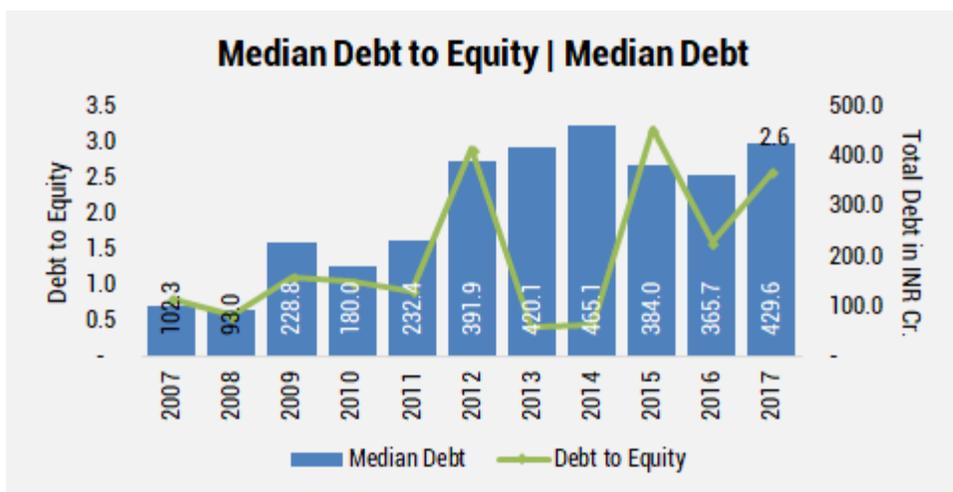
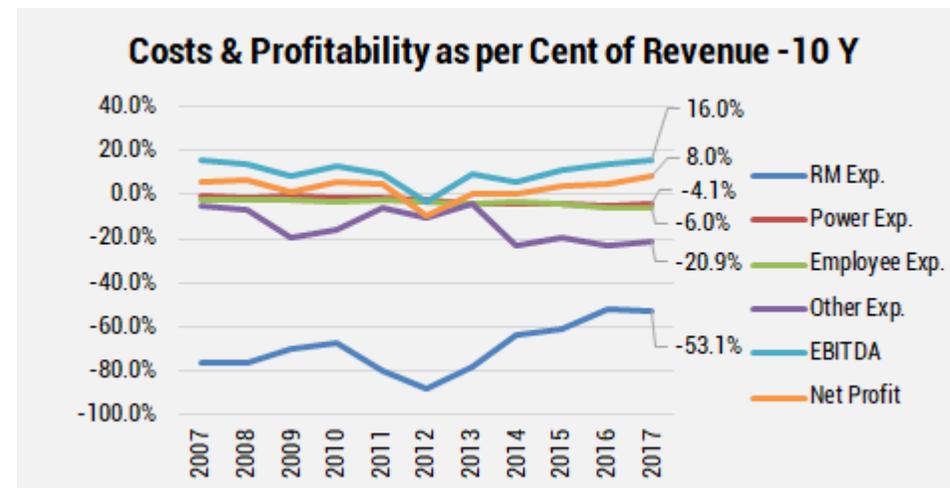
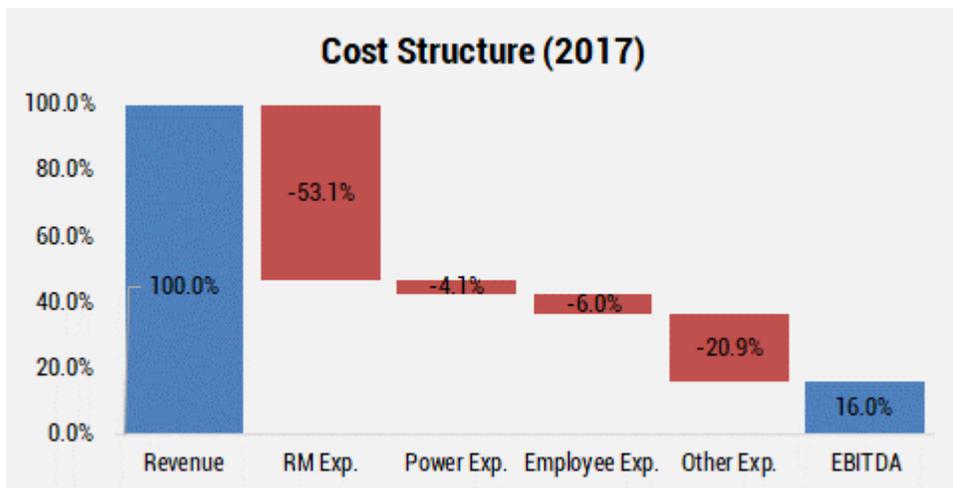


Cost Structure: Small & Medium Steel Manufacturers



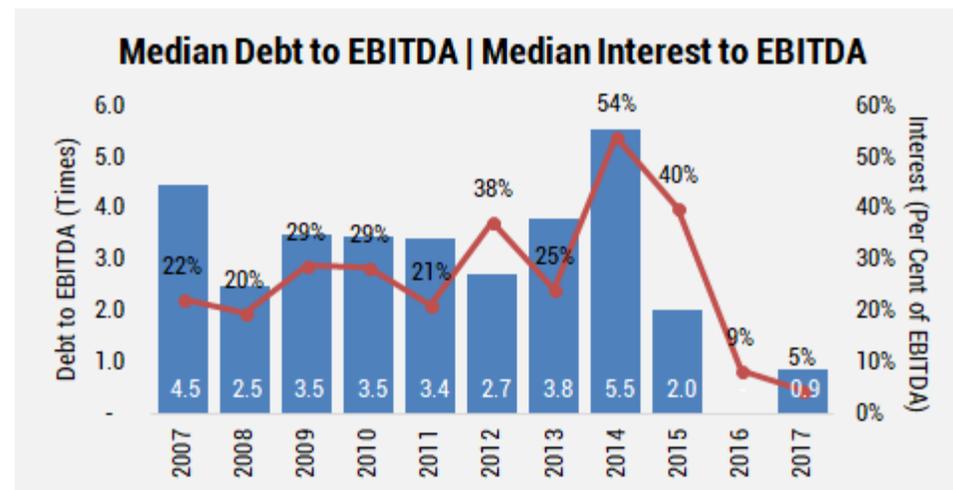
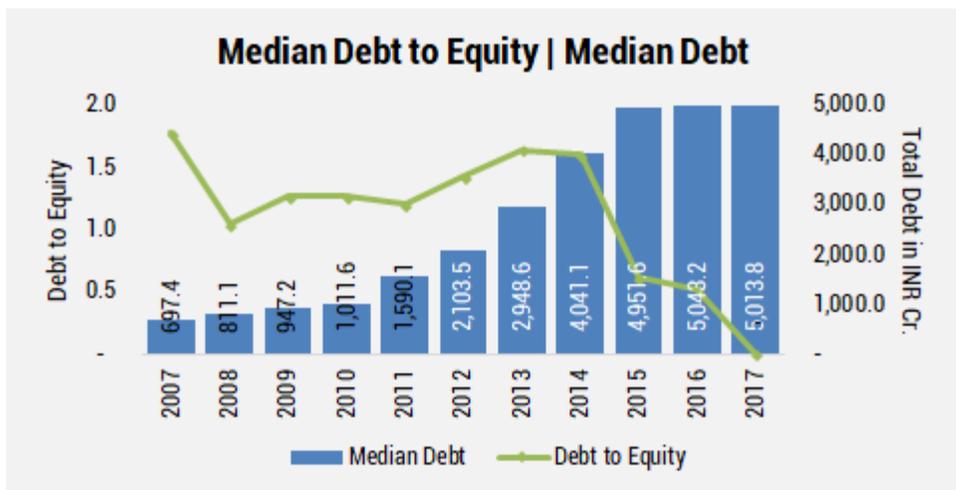
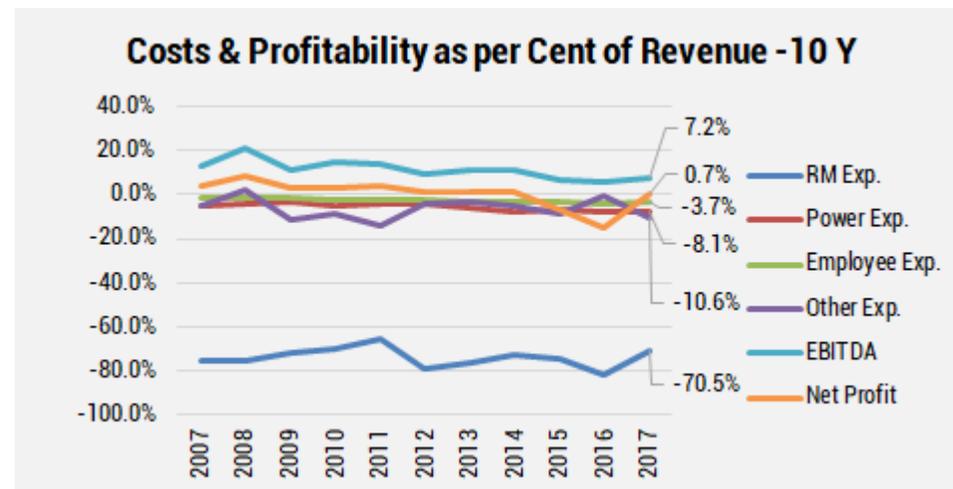
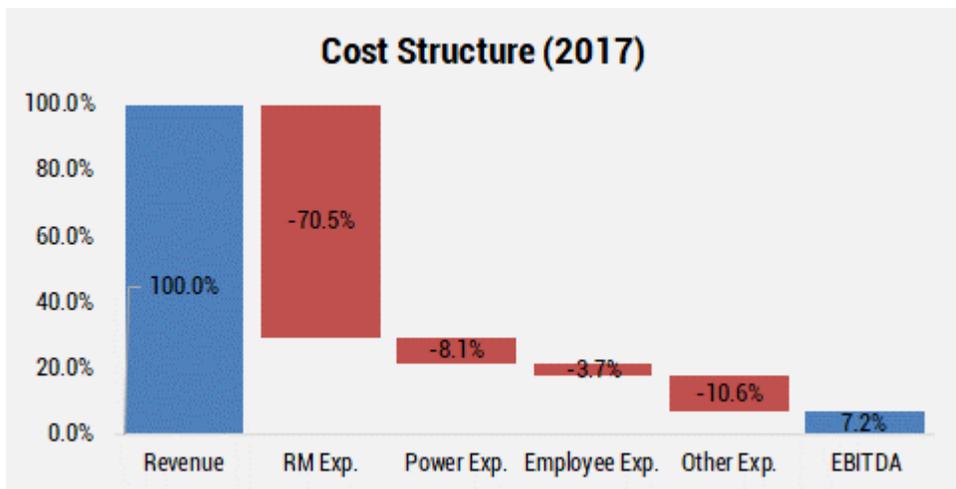


Cost Structure: Pig Iron Manufacturers



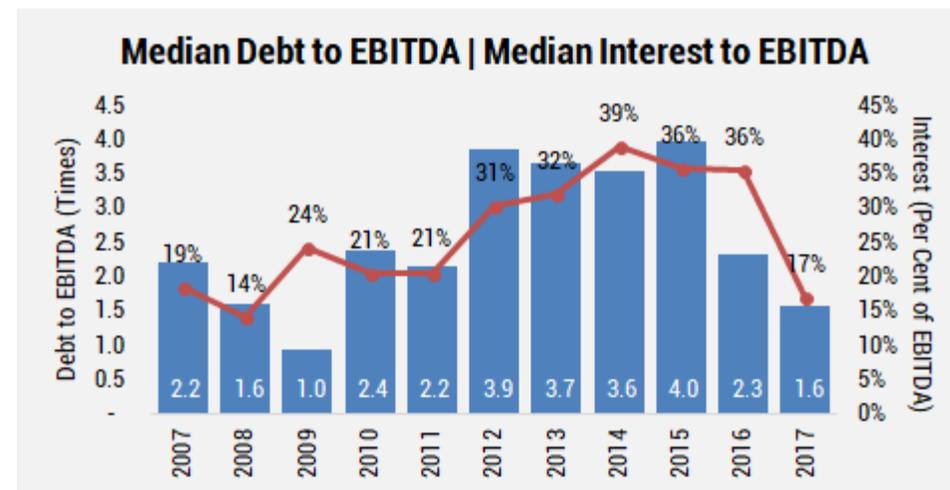
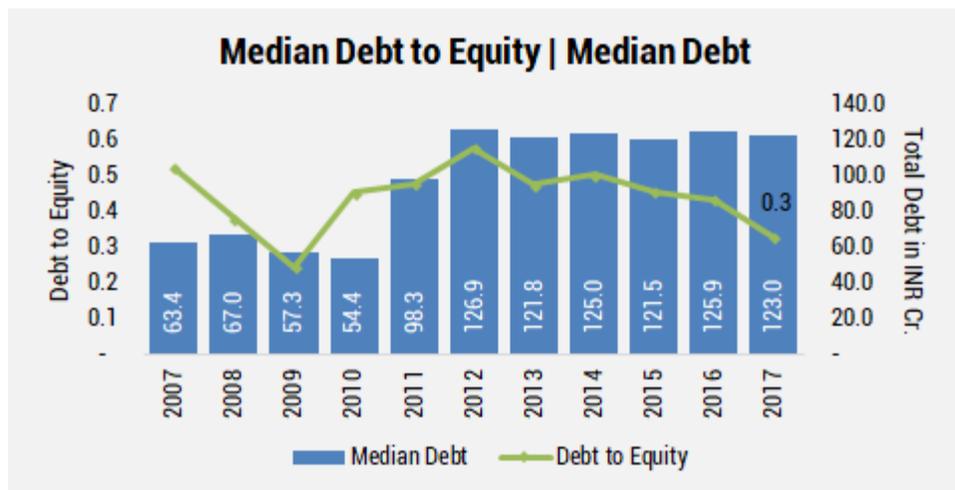
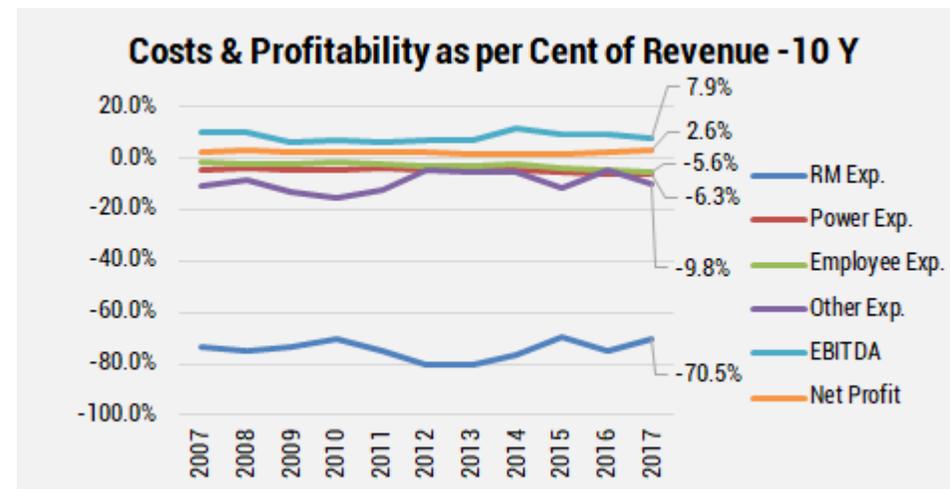
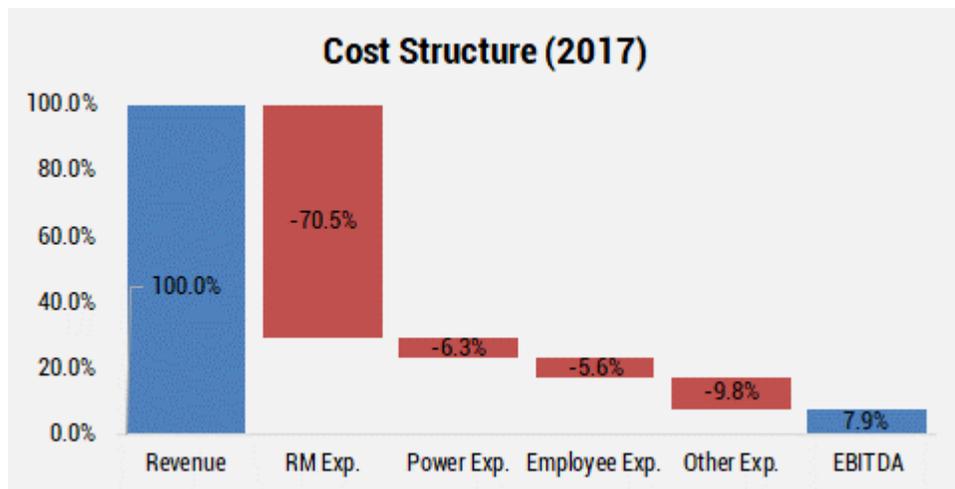


Cost Structure: Sponge Iron Manufacturers



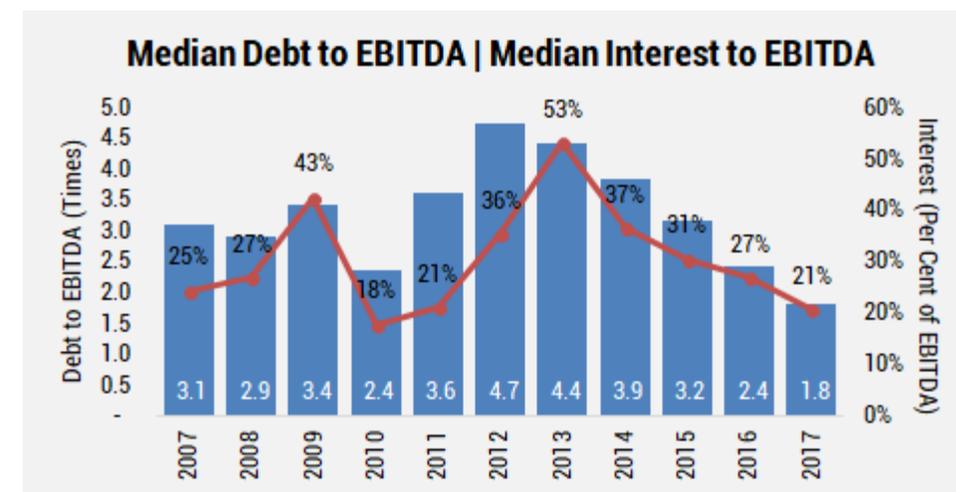
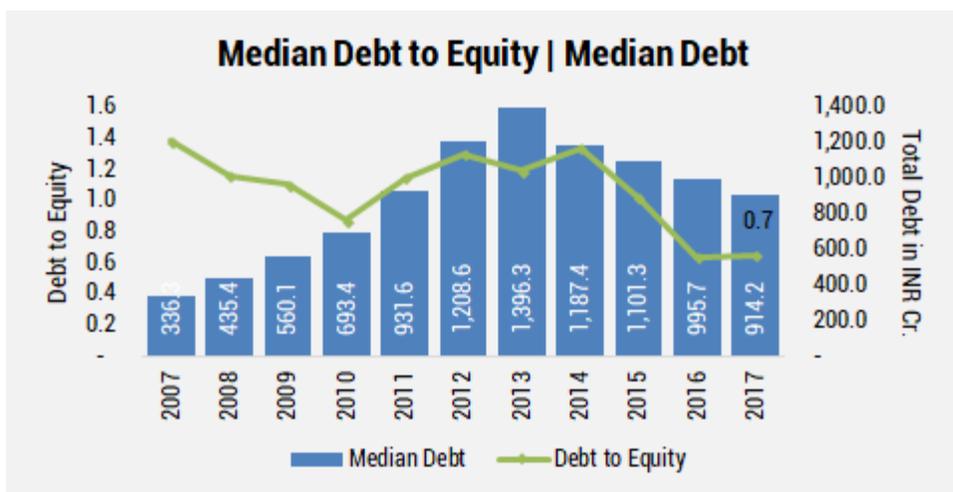
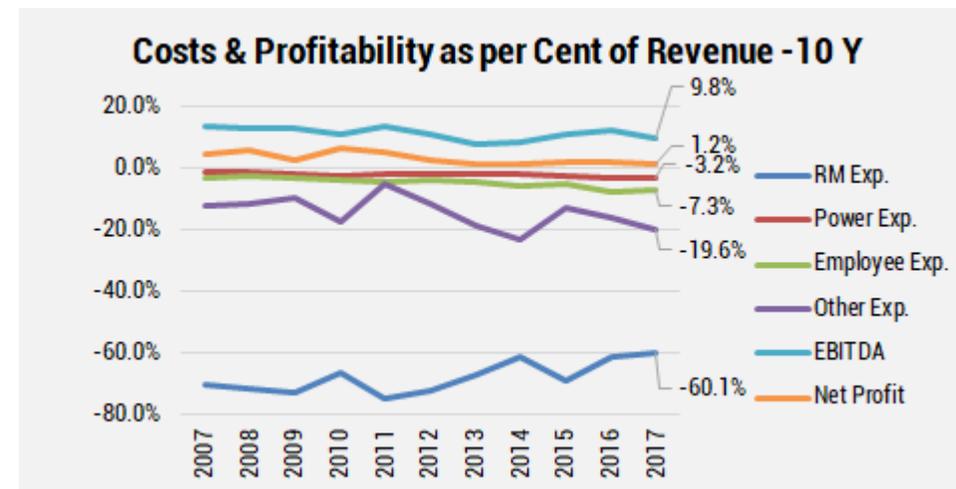
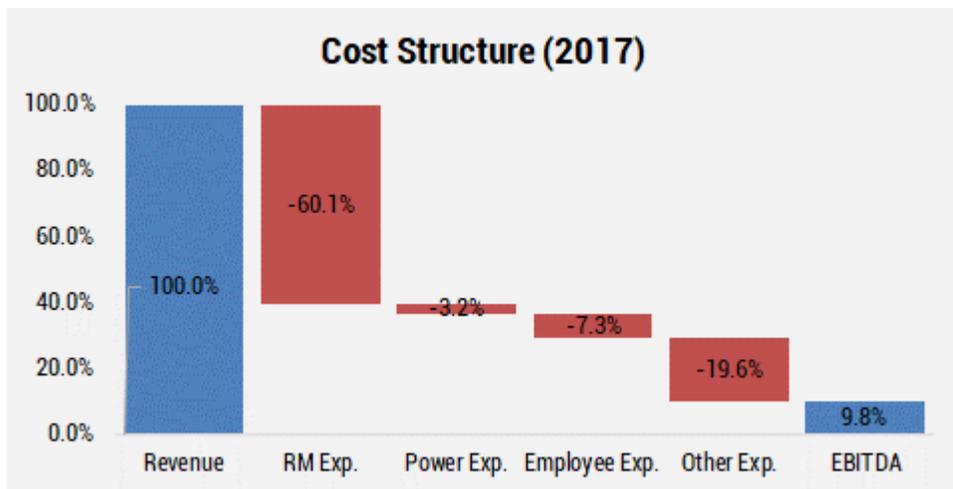


Cost Structure: Rolled Steel Manufacturers



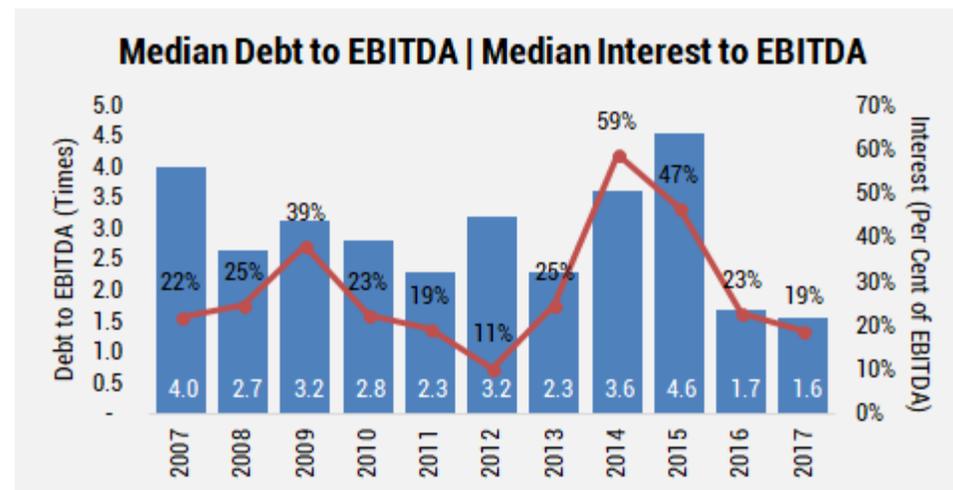
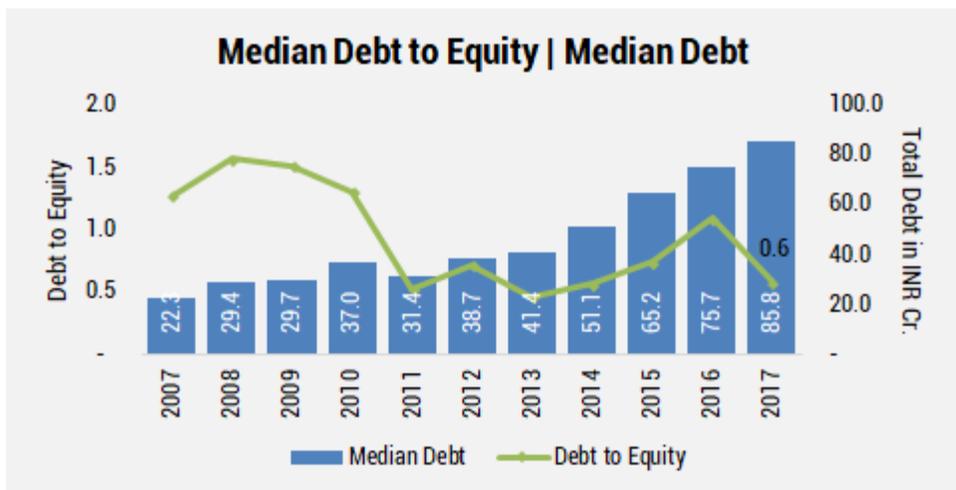
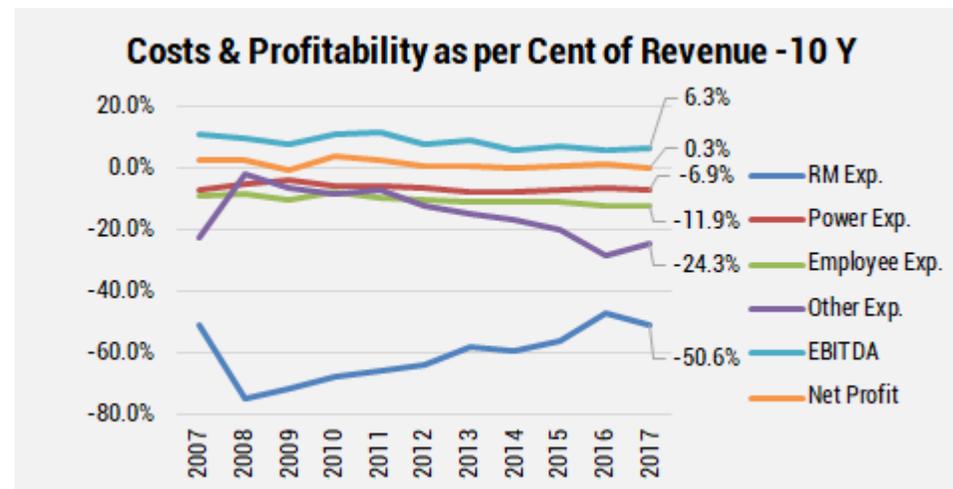
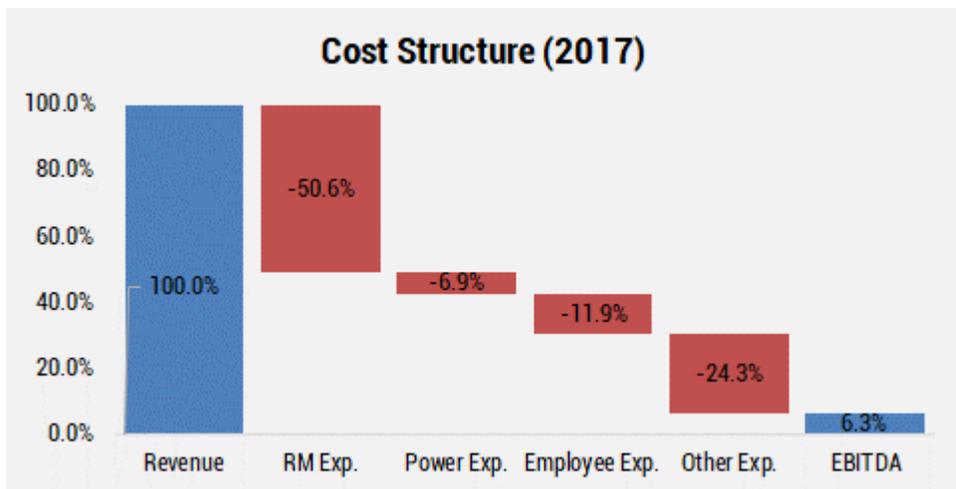


Cost Structure: Tubes & Pipes Manufacturers





Cost Structure: Steel Wire Manufacturers



Steel Outlook

Outlook

Global Steel Outlook



The global outlook for all major commodities is dominated by the economic activity in China. The past few years have been testing times for the steel industry worldwide with stagnation in demand exacerbated by the steep fall in steel prices. Demand for steel grew at a CAGR of 1.4 per cent in 2013-2016 as against 3.7 per cent in 2007-2013 and has remained flat in 2014-2016 due to the tepid economic conditions globally. Many companies that undertook capacity expansion on expectations of increased demand from Asia have seen underutilized capacities resulting in poor economics.

China & the World

China witnessed a slowdown in business activity which caused its domestic steel consumption to fall to 88.0 per cent of production in 2013-2016 as against 94.0 per cent in 2007-2013, while steel production in China fell by 1.7 per cent in 2013-2016 as against a CAGR of 9.0 per cent in 2007-2013.

Due to the weakness in the Chinese economy, the excess production was exported from China. Between 2013-2016 Chinese exports grew at a CAGR of 21.0 per cent as against -2.3 per cent in 2007-2013. Exports in 2014 alone grew by 51.0 per cent over 2013, highlighting the imbalance in the Chinese domestic supply and demand.

The domestic producers in other countries could not compete with China on pricing and local demand shifted towards cheaper Chinese imports. Consequently, numerous protectionist measures have been undertaken by governments to counter China's dumping of steel in the international markets to protect the local industry.

Demand-Supply Situation

The steel industry is currently experiencing overcapacity with supply outstripping demand. China has committed to cut production capacity by 20.0 per cent all the way till 2020 to less than 1 Bn. tonnes, however, it is likely that the oversupply in the market will persist. The current capacity utilization of 68.1 per cent is estimated to improve to ~76.0 per cent going forward but will remain significantly below the 83.0 per cent utilization 10 years ago at the industry's peak.

The demand for the metal is estimated to grow slowly at 0.8 per cent per year on an average through 2025 to 1,629 MT from 1,517 MT in 2016. The premise is that China, which has been the hinge of global demand for the metal since 2000, has rapidly urbanized and industrialized with per capita consumption at 1.6 times that of the developed world at 485.2 kilograms. The infrastructure boom in China has most likely reached its peak as the country transforms into a services dominated economy.

Steel Prices & Raw Materials

The flooding of the market with cheaper Chinese steel impacted the international prices of the metal which fell from USD 700 per tonne in 2011 to USD 320 per tonne in 2015. As of 2018, the prices have still not recovered to the levels prior to 2011.

Steel prices are estimated to remain muted in the near future due to the underlying oversupply. The recent price increases is believed to be a short-term phenomenon and periods of volatile steel prices is expected. The volatility is a consequence of global protectionist measures undertaken by various governments to preserve their respective domestic steel industry, which has temporarily skewed the pricing internationally.

However, at a unit level, steel prices are a consequence of the cost of primary raw materials - coal and iron ore, and the ability of steel producers to efficiently transform the raw materials to finished steel with a positive net margin. The current overcapacity, underutilization and economic inefficiencies will continue to bear more weight on the steel price dynamics, although the cost of raw materials is expected to remain muted in the near future.

Going ahead

The common themes that are expected to play out in the global market include consolidation by the larger players, as witnessed by the Tata-ThyssenKrupp and ArcelorMittal-Ilva transactions, as well as closures of inefficient facilities globally.

Major steel players are also moving up the value chain by manufacturing specialized products in close association with their user industries to offset the weak demand in the commoditized steel markets to shore up margins.

Outlook



India Steel Outlook



The growth in the Indian economy has fuelled the infrastructure, industrial manufacturing, automobile, and consumer durables sectors in the country, which have in turn led to significant increase in steel demand. The domestic steel industry grew in line to meet the steel demand from a modest capacity of 22.0 MT and production of 17 MT of crude steel in 1992, the industry has grown by over 400.0 per cent to reach a capacity of 128.3 MT and a production level of 97.9 MT in 2017.

China Factor

The decline in demand in China and the subsequent supply glut in the international market since 2013, has led to dumping of steel products in the only major growing steel market in the world - India. Steel imports into India grew by 40.2 per cent in FY 2015 as the cheap Chinese imports started substituting the domestic demand and led to slowdown in growth of domestic production. The government responded through the imposition of minimum support prices and anti-dumping duties in 2016 which saw the steel imports reducing by 25.4 per cent in 2016.

Insolvency & Opportunities

The Indian banking system has been battling a chronic case of non-performing assets. The steel industry tops the list with the highest non-performing assets. The top 5 steel companies in stress cumulatively owe INR 1.5 lakh crore to banks. The situation is an aftermath of the oversupply from China and sustained weakness in steel prices and have crippled several large steel players including Essar Steel, Bhushan Steel, Monnet Ispat and Electrosteel which are facing bankruptcy.

The rapid capacity expansion in anticipation of demand, from 75.0 MT in 2010 to 125.8 MT in 2016, witnessed the capital intensive industry leverage their balance sheet to an average 2.4x debt to equity against the historical average of 1.7x. Although the demand stayed true, prolonged weakness in prices due to China caused these producers with over leveraged balance sheets and underutilised capacities to default on interest and principal payments.

The introduction of the Insolvency & Bankruptcy Code, 2016 has provided larger players with the opportunity to consolidate their position by acquiring stressed steel companies referred for resolution. Larger players, both domestic and global, have taken note of the value in buying stressed steel assets to rapidly increase existing capacities, introduce new value added business lines, and avail synergistic benefits. Bids have been received on Essar Steel and Bhushan Steel with finality on the transactions expected in the near future.

Going Forward

In spite of the sectoral stress, Indian consumption story remains intact and India remains a bright spot in the global steel industry. The GDP for India is estimated at 6.6 per cent in FY2018 and estimated accelerate to 7.3 per cent in FY2019 and 7.6 per cent in FY2020.

The Indian steel industry also enjoys an inherent advantage in terms of availability of high grade iron ore and non-coking coal – the two critical inputs of steel production. In addition, it also has a vast and rapidly growing market for steel, a strong MSME sector and a relatively young work force with competitive labour costs making the globally sector competitive.

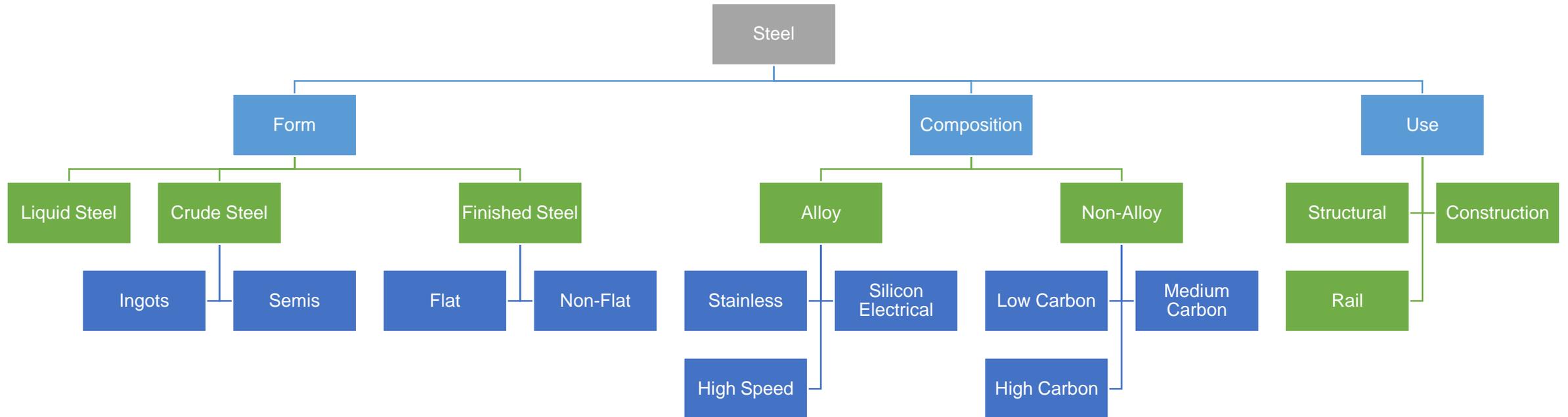
It is estimated that India will require INR 50.0 lakh crore in infrastructure spending through 2022. The National Steel Policy, 2017 envisages total reliance on domestic steel production by 2030. The push from government through various policy measures including 'Make in India' scheme and budgetary allocation of INR 6.0 lakh crore for the infrastructure sector in FY2019 (up 20.0 per cent over FY2018) is expected to create demand for the metal. In the light of the preceding, the Indian steel industry is estimated to perform better after the lull in the past few years to grow at a health pace of 6.0 per cent through 2022.

Overall economic growth and more specifically accelerated spend in infrastructure sector including roads, railways and ship building, anticipated growth in defence sector and the automobile sector are expected to create significant demand for steel in the country. In addition to this, favourable demographics, improvement in various socio-economic indicators, increasing penetration of steel in rural areas, and increased usage of steel in bridges, crash barriers are also expected to contribute positively to steel demand. The focus on the Make in India initiative is overall expected to give a fresh boost to steel consumption through defence and shipbuilding.

Annexures

Annexures

Steel Classification Chart



Annexures

Production Ranking Movement	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
China	1	1	1	1	1	1	1	1	1	1	1
Japan	2	2	2	2	2	2	2	2	2	2	2
India	5	5	3	4	4	4	4	4	3	3	3
United States	3	3	5	3	3	3	3	3	4	4	4
Russia	4	4	4	5	5	5	5	6	5	5	5
South Korea	6	6	6	6	6	6	6	5	6	6	6
Germany	7	7	7	7	7	7	7	7	7	7	7
Turkey	11	11	10	10	10	8	8	8	9	8	8
Brazil	9	9	9	9	9	9	9	9	8	9	9
Italy	10	10	11	11	11	11	11	11	11	11	10
Ukraine	8	8	8	8	8	10	10	10	10	10	11
Taiwan	12	12	12	12	12	12	12	12	12	12	12
Iran	20	19	16	17	16	15	15	14	14	14	13
Mexico	15	15	14	13	13	13	13	13	13	13	14
France	13	14	15	15	14	14	14	15	15	15	15

Consumption Ranking Movement	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
China	1	1	1	1	1	1	1	1	1	1
United States	2	2	2	2	2	2	2	2	2	2
India	5	5	3	3	3	3	3	3	3	3
Japan	3	3	4	4	4	4	4	4	4	4
South Korea	4	4	5	5	5	5	5	5	5	5
Germany	6	6	6	7	7	7	7	7	7	6
Russia	7	7	7	6	6	6	6	6	6	7
Turkey	10	10	10	10	8	8	8	8	8	8
Mexico	15	12	12	13	12	11	11	10	9	9
Italy	8	8	8	9	9	10	10	11	10	10
Vietnam	20	24	17	19	22	19	19	16	13	11
Thailand	19	17	18	16	15	14	14	14	15	12
Iran	12	15	11	11	11	12	12	12	12	13
Taiwan	13	13	15	12	13	13	13	13	14	14
Brazil	11	9	9	8	10	9	9	9	11	15

Indian Exports

EXPORTS	FY2014	FY2015	FY2016	FY2017	% Share	CAGR
Non-Alloy						
Semi-finished Steel	0.5	0.6	0.6	1.2	11.9%	34.7%
Non-Flat Finished Steel	0.7	0.5	0.4	0.9	8.8%	10.2%
Flat Finished Steel	4.9	4.4	3.0	6.7	67.4%	11.4%
Alloy/Stainless Steel						
Semi-Finished	0.0	0.0	0.0	0.0	0.1%	56.7%
Non-Flat Finished Steel	0.2	0.3	0.2	0.2	1.9%	-5.8%
Flat Finished Steel	0.2	0.4	0.4	0.5	4.7%	23.4%
Other						
Pig Iron	0.9	0.5	0.3	0.4	3.9%	-25.7%
Sponge Iron	0.1	0.1	0.1	0.1	1.3%	20.8%
Other Steel Items	-	-	-	-	0.0%	0.0%
Total Exports	7.5	6.9	5.1	10.0	100.0%	9.9%

Indian Imports

IMPORTS	FY2014	FY2015	FY2016	FY2017	% Share	CAGR
Non-Alloy						
Semi-finished Steel	0.3	0.7	0.9	0.7	4.7%	43.0%
Non-Flat Finished Steel	0.3	0.9	0.7	0.5	3.3%	15.2%
Flat Finished Steel	4.0	5.8	8.1	4.8	30.7%	7.0%
Alloy/Stainless Steel						
Semi-finished	0.0	0.0	0.0	0.0	0.1%	12.8%
Non-Flat Finished Steel	0.2	0.8	1.1	0.5	3.0%	25.5%
Flat Finished Steel	0.9	1.7	1.9	1.4	8.8%	15.0%
Other						
Pig Iron	0.0	0.0	0.0	0.0	0.2%	-0.1%
Sponge Iron	0.0	0.0	0.0	0.0	0.0%	-43.7%
Other Steel Items	8.8	8.8	9.3	7.7	49.2%	-4.1%
Total Imports	14.5	18.8	22.0	15.7	100.0%	2.7%

Annexures

Sub-Sector	Count
Steel - Large	7
Steel - Pig Iron	3
Steel - Sponge Iron	13
Steel - Rolling	11
Steel - Tubes / Pipes	9
Steel - Medium / Small	54
Steel - Wires	6

Company Name	Industry
Tata Steel Ltd	Steel - Large
Uttam Galva Steels Ltd	Steel - Large
Steel Authority of India Ltd	Steel - Large
Bhushan Steel Ltd	Steel - Large
Electrotherm (India) Ltd	Steel - Large
JSW Steel Ltd	Steel - Large
Jindal Stainless Ltd	Steel - Large
Tata Metaliks Ltd	Steel - Pig Iron
Sathavahana Ispat Ltd	Steel - Pig Iron
Kirloskar Ferrous Industries Ltd	Steel - Pig Iron
Tata Sponge Iron Ltd	Steel - Sponge Iron
Lloyds Metals & Energy Ltd	Steel - Sponge Iron
Suraj Products Ltd	Steel - Sponge Iron
Monnet Ispat & Energy Ltd	Steel - Sponge Iron
Nova Iron & Steel Ltd	Steel - Sponge Iron
Ashirwad Steels & Industries Ltd	Steel - Sponge Iron
Jindal Steel & Power Ltd	Steel - Sponge Iron
Jai Balaji Industries Ltd	Steel - Sponge Iron
MSP Steel & Power Ltd	Steel - Sponge Iron
S.A.L Steel Ltd	Steel - Sponge Iron
Janki Corp Ltd	Steel - Sponge Iron
Ankit Metal & Power Ltd	Steel - Sponge Iron
Vaswani Industries Ltd	Steel - Sponge Iron
Kalyani Steels Ltd	Steel - Rolling
Prakash Industries Ltd	Steel - Rolling
Sharda Ispat Ltd	Steel - Rolling
Mahamaya Steel Industries Ltd	Steel - Rolling
Ahmedabad Steelcraft Ltd	Steel - Rolling
Shri Bajarang Alloys Ltd	Steel - Rolling
Bhagwandas Metals Ltd	Steel - Rolling
Gopal Iron & Steels Co. (Gujarat) Ltd	Steel - Rolling
National General Industries Ltd	Steel - Rolling
Rishabh Digha Steel & Allied Products Ltd	Steel - Rolling
Mahindra Steel Service Centre Ltd	Steel - Rolling
Remi Edilstahl Tubulars Ltd	Steel - Tubes / Pipes
Oil Country Tubular Ltd	Steel - Tubes / Pipes
Man Industries (India) Ltd	Steel - Tubes / Pipes
Srikalahasthi Pipes Ltd	Steel - Tubes / Pipes
PSL Ltd	Steel - Tubes / Pipes
Crimson Metal Engineering Company Ltd	Steel - Tubes / Pipes
Welspun Corp Ltd	Steel - Tubes / Pipes
APL Apollo Tubes Ltd	Steel - Tubes / Pipes
Technocraft Industries (India) Ltd	Steel - Tubes / Pipes

Company Name	Industry
Mukand Ltd	Steel - Medium / Small
Surya Roshni Ltd	Steel - Medium / Small
Zenith Birla (India) Ltd	Steel - Medium / Small
Bajaj Steel Industries Ltd	Steel - Medium / Small
Uttam Value Steels Ltd	Steel - Medium / Small
Gandhi Special Tubes Ltd	Steel - Medium / Small
National Steel & Agro Industries Ltd	Steel - Medium / Small
Sunflag Iron & Steel Company Ltd	Steel - Medium / Small
Usha Martin Ltd	Steel - Medium / Small
Pennar Industries Ltd	Steel - Medium / Small
Sarda Energy & Minerals Ltd	Steel - Medium / Small
Rathi Steel & Power Ltd	Steel - Medium / Small
Ensa Steel Industries Ltd	Steel - Medium / Small
Chase Bright Steel Ltd	Steel - Medium / Small
Super Forgings & Steels Ltd	Steel - Medium / Small
Modern Steels Ltd	Steel - Medium / Small
India Steel Works Ltd	Steel - Medium / Small
Vallabh Steels Ltd	Steel - Medium / Small
Bloom Industries Ltd	Steel - Medium / Small
Shah Alloys Ltd	Steel - Medium / Small
Steelco Gujarat Ltd	Steel - Medium / Small
Kanishk Steel Industries Ltd	Steel - Medium / Small
Ratnamani Metals & Tubes Ltd	Steel - Medium / Small
Mahalaxmi Seamless Ltd	Steel - Medium / Small
Panchmahal Steel Ltd	Steel - Medium / Small
Gujarat Natural Resources Ltd	Steel - Medium / Small
Aditya Ispat Ltd	Steel - Medium / Small
Vardhman Industries Ltd	Steel - Medium / Small
Tamilnadu Steel Tubes Ltd	Steel - Medium / Small
Real Strips Ltd	Steel - Medium / Small
Surana Industries Ltd	Steel - Medium / Small
Tulsyan NEC Ltd	Steel - Medium / Small
Scan Steels Ltd	Steel - Medium / Small
Rajasthan Tube Manufacturing Co Ltd	Steel - Medium / Small
Goodluck India Ltd	Steel - Medium / Small
Garg Furnace Ltd	Steel - Medium / Small
Hisar Metal Industries Ltd	Steel - Medium / Small
AKC Steel Industries Ltd	Steel - Medium / Small
Bilpower Ltd	Steel - Medium / Small
Suraj Ltd	Steel - Medium / Small
Kamdheni Ltd	Steel - Medium / Small
Tata Steel Processing & Distribution Ltd	Steel - Medium / Small
Beekay Steel Industries Ltd	Steel - Medium / Small

Company Name	Industry
ISMT Ltd	Steel - Medium / Small
Aarti Steels Ltd	Steel - Medium / Small
Rathi Bars Ltd	Steel - Medium / Small
Godawari Power & Ispat Ltd	Steel - Medium / Small
Gallantt Metal Ltd	Steel - Medium / Small
Visa Steel Ltd	Steel - Medium / Small
Adhunik Metaliks Ltd	Steel - Medium / Small
Prakash Steelage Ltd	Steel - Medium / Small
Gyscoal Alloys Ltd	Steel - Medium / Small
Avon Ispat & Power Ltd	Steel - Medium / Small
Kridhan Infra Ltd	Steel - Medium / Small
Hindustan Wires Ltd	Steel - Wires
Gujarat Wedge Wire Screens Ltd	Steel - Wires
Rajratan Global Wire Ltd	Steel - Wires
Balaji Galvanising Industries Ltd	Steel - Wires
Indian Steel & Wire Products Ltd	Steel - Wires
Bedmutha Industries Ltd	Steel - Wires

Useful Links & Data Sources

- ❖ Ministry of Steel (Government of India): www.steel.gov.in
- ❖ World Steel Association: www.worldsteel.org
- ❖ American Iron & Steel Institute: www.steel.org
- ❖ Equity Master: www.equitymaster.com
- ❖ Joint Plant Committee (Government of India): www.pcindiansteel.nic.in
- ❖ India Brand Equity Foundation www.ibef.org
- ❖ OECD www.data.oecd.org
- ❖ World Bank www.data.worldbank.org/country/india
- ❖ ArcelorMittal <https://tinyurl.com/SteelIndustryGlossary>

Contact Us



Management:

Rajeev R. Shah | Managing Director & CEO

+91 79 4050 6070

rajeev@rbsa.in

Manish Kaneria | Managing Director & COO

+91 79 4050 6090

manish@rbsa.in

Gautam Mirchandani | Managing Director & Head (Business Initiatives)

+91 22 6130 6000

gautam.mirchandani@rbsa.in

Research Analyst:

Samir Shah

+91 22 6130 6064

samir.shah@rbsa.in

Abhishek Sundaram

+91 22 6130 6046

abhishek.sundaram@rbsa.in

India Offices:

Mumbai Office:

21-23, T.V. Industrial Estate, 248-A,
S.K. Ahire Marg, Off. Dr. A. B. Road, Worli,
Mumbai - 400 030
Tel : +91 22 6130 6000

Delhi Office :

9 C, Hansalaya Building,
15, Barakhambha Road, Connaught place,
New Delhi -110 001
Tel : +91 11 2335 0635/37
+91 99585 62211

Bangalore Office:

Unit No. 104, 1st Floor, Sufiya Elite, #18,
Cunningham Road, Near Sigma Mall,
Bangalore - 560052
Tel : +91 80 4112 8593
+91 97435 50600

Ahmedabad Office:

912, Venus Atlantis Corporate Park,
Anand Nagar Rd, Prahaladnagar,
Ahmedabad - 380 015
Tel : +91 79 4050 6000

Kolkata Office:

9th Floor, KAHM Tower,
13, Nellie Sengupta Sarani,
Kolkata – 700 087
Tel : +91 97243 44446

Global Offices:

Dubai Office :

2001-01, Level 20,
48 Burj Gate Tower,
Sheikh Zayed Road,
Downtown, PO Box 36615,
Dubai, UAE.
Tel : +971 4506 9418
Mob : +971 55 478 6464
Email: dubai@rbsa.in

Singapore Office:

6001 Beach Road,
#22-01 Golden Mile Tower,
Singapore-199 589
Email: singapore@rbsa.in