

Global and Indian Steel Industry

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Contact:

Madan Sabnavis
Chief Economist
madan.sabnavis@careratings.com
+91-22- 6837 4433

Author
Rashmi Rawat
Deputy Manager – Industry Research
rashmi.rawat@careratings.com
91-22-6837 4405

Mradul Mishra (Media Contact)
mradul.mishra@careratings.com
+91-22-6837 4424

The basics

Steel is an alloy of iron and carbon. It contains iron concentration of 98-99% or more. The remainder is carbon, manganese and trace amounts of silicon, phosphorus, sulphur and oxygen. Due to its high corrosion resistance, immense strength and low cost, Steel is extensively used in engineering and construction work. It is used in wide variety of sectors like construction, housing, transportation, automobiles, engineering, consumer goods, machinery etc.

Globally, steel is produced via two main routes - the blast furnace-basic oxygen furnace (BF-BOF) route and Electric route which includes Induction Arc Furnace (IAF) and Electric Arc Furnace (EAF) route. The key difference between the two routes is the type of raw materials they consume. The BF-BOF route, consumes iron ore, coal, and recycled steel, while the EAF route produces steel using mainly sponge iron or Direct Reduced Iron (DRI), recycled steel or scrap and electricity.

Worldwide about 71% of steel is produced using the BF-BOF route. In this method, iron ores are first reduced to iron, which results in pig iron. Pig iron is then converted to steel and then after casting and rolling, the steel is delivered as coil, plate, sections or bars.

EAF route melts sponge iron, recycled steel or scrap using electricity. Additives, such as alloys, are used to adjust to the desired chemical composition. About 29% of steel is produced via the EAF route.

The share of EAF has increased to 29% in 2017 after remaining relatively constant at 25-26% during 2013-16.

There are two types of steel producer – Integrated steel producers and Secondary steel producers.

Integrated Steel Producers have strong backward and forward linkages from mining of iron ore, coal to the manufacturing and marketing of finished steel products. They mainly use the BF-BOF method to manufacture Steel.

Secondary steel producers are smaller manufacturers who produce steel from sponge iron and scrap. They use electricity to manufacture steel.

Steel can be classified based on its composition into five broad group's viz. Carbon Steels, Alloy Steels, Stainless Steel, Tool Steels and Galvanized Steels.

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Steel can also be classified based on shapes and applications into Flat Steel and Non-flat or Long Steel products. Flat steel includes plates, sheets, coils, and strips. These are mainly used in automotive parts, appliances, packaging, shipbuilding, and construction. Non-Flats include bars, rods, rails, wires, angles, pipes, and shapes and sections. These products are commonly used in the automotive and construction sectors

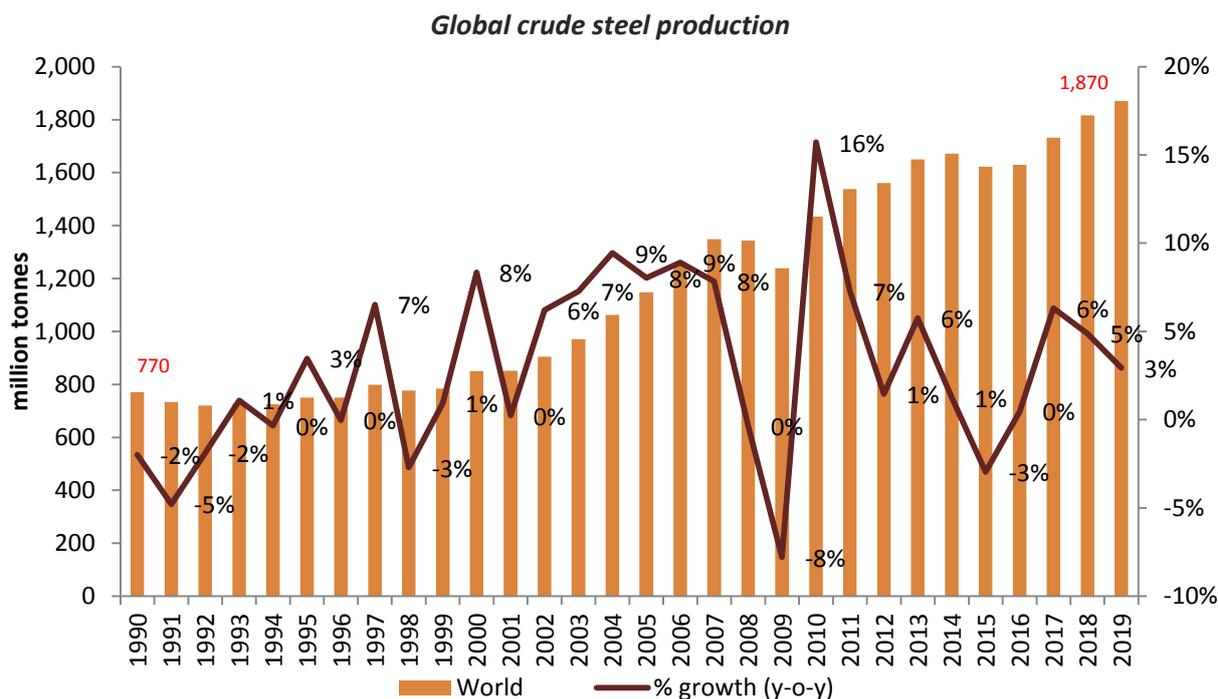
Steel is used in almost every aspect of our lives from cars to refrigerators to washing machines to roads, bridges, ships, airplanes etc. Therefore, production and consumption of steel can be directly linked to the socio-economic development of a country. Steel has played a crucial role in the development of many large economies. There exists a robust steel industry in all major industrial economies.

Contours of this study

In this report we will study the trend in the global and Indian steel industry during the period 1990-2019. We will look at the trend in global steel production, consumption and capacity and the movement in prices of steel and raw materials over this period. The study further dwells into the problem of global overcapacity of steel and measures taken by the countries to address the same. We will also look at the measures taken by the Indian government to contain the flow of cheap imports into the country, resolve the NPA problem and policies measures that helped in growth of Indian steel industry.

Global Overview

Trend in global crude steel production from 1990 to 2019



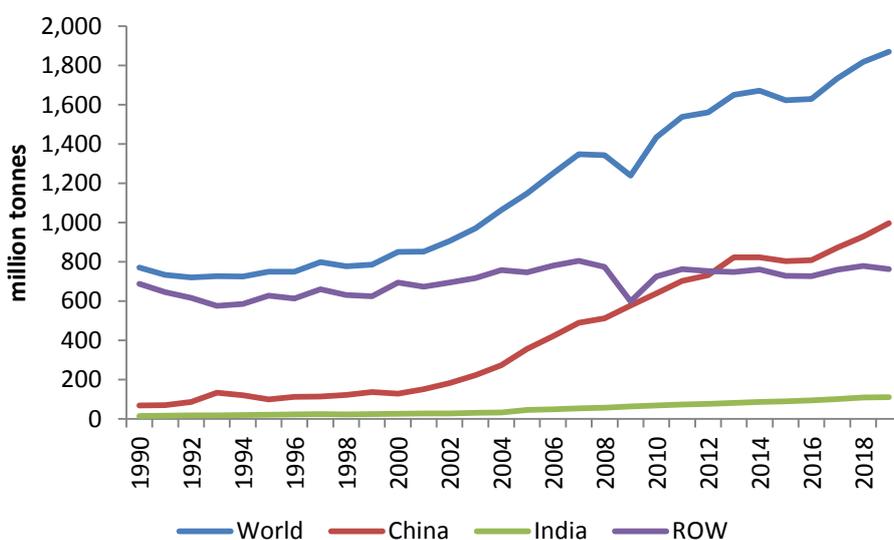
Source: World Steel Association

The above figure illustrates that global crude steel production grew gradually through 1990 to 1999. It grew from 770 million tonnes in 1990 to 785 million tonnes in 1999 and then accelerated rapidly from 2000 to reach 1,348 million tonnes in 2007. Steel production dropped in 2008-09 and recovered in 2010. Global crude steel production again dropped in 2015 and thereafter steel production has moderated and reached 1870 million tonnes in 2019.

Global crude steel production grew at a CAGR of just 0.2% during 1990-1999. However, over the next 7 years, from 2000 to 2007, global crude steel production grew at a CAGR of 6% before slowing down again to 2.8% during 2008 to 2019.

During 1990 to 1999, global crude steel production grew at a CAGR of 0.2%. This was due to subdued demand from the developed economies like US and Japan as they entered a period of low growth. USA and Japan were the two largest steel producing countries of that time. Crude steel production from US grew at a CAGR of 0.8% while Japan registered negative CAGR of 1.9% during 1990 to 1999. This was offset by higher growth in steel production from the emerging economies like China and India. Crude steel production from these two countries grew at a CAGR of 7.2% and 5%, respectively during 1990 to 1999. Steel production from China and India picked up during this period as their economy industrialised and urbanised thereby creating more demand for steel.

Trend in steel production of world, China, India and ROW (1990-2019)



*ROW – World; excluding China & India

Source: World Steel Association

The above chart illustrates that global crude steel production accelerated from CY 2000 onwards, with China being the driving force in global steel supply.

After growing by meagre 0.2% during 1990 to 1999, global crude steel production accelerated at a CAGR of 6% from 2000 to 2007. China’s steel production accelerated at a CAGR of 18%, while the steel production in the rest of the world grew at a CAGR of 2%. Crude steel production from US registered negative CAGR of 0.5% and Japan’s production grew by just 2%. Apart from China, another country that registered impressive performance was India. India’s steel production grew at a CAGR of 9% during this period. China underwent rapid infrastructure development during 2000 to 2008, as the Chinese government eased their economic policy in 2000 to make China a global manufacturing hub. China overtook Japan to become the world’s largest steel producer in 1996. China has since held the number one position.

Having grown very rapidly since the start of the decade, steel output fell by 0.4% and 8%, respectively in 2008 and 2009, hit by the global financial crisis. The global financial crisis forced several developed economies into recession. Crude steel production in US and Japan plunged 25-35% in 2009. Growth in steel production from China and India also slowed down in line with the global downturn.

However, global crude steel production recovered in 2010, once again led by China. In late 2008, the Chinese government announced a large-scale fiscal stimulus package of USD 586 billion over two years or 13.4% of GDP focused on public infrastructure and housing construction, which boosted China’s GDP growth substantially in 2009 and generated significant demand for steel from China. India also extended fiscal stimulus of Rs 30,700 crore in 2009 to steer the economy away from slowdown. The package mainly comprised of additional spending and excise duty cuts aimed at boosting domestic consumption.

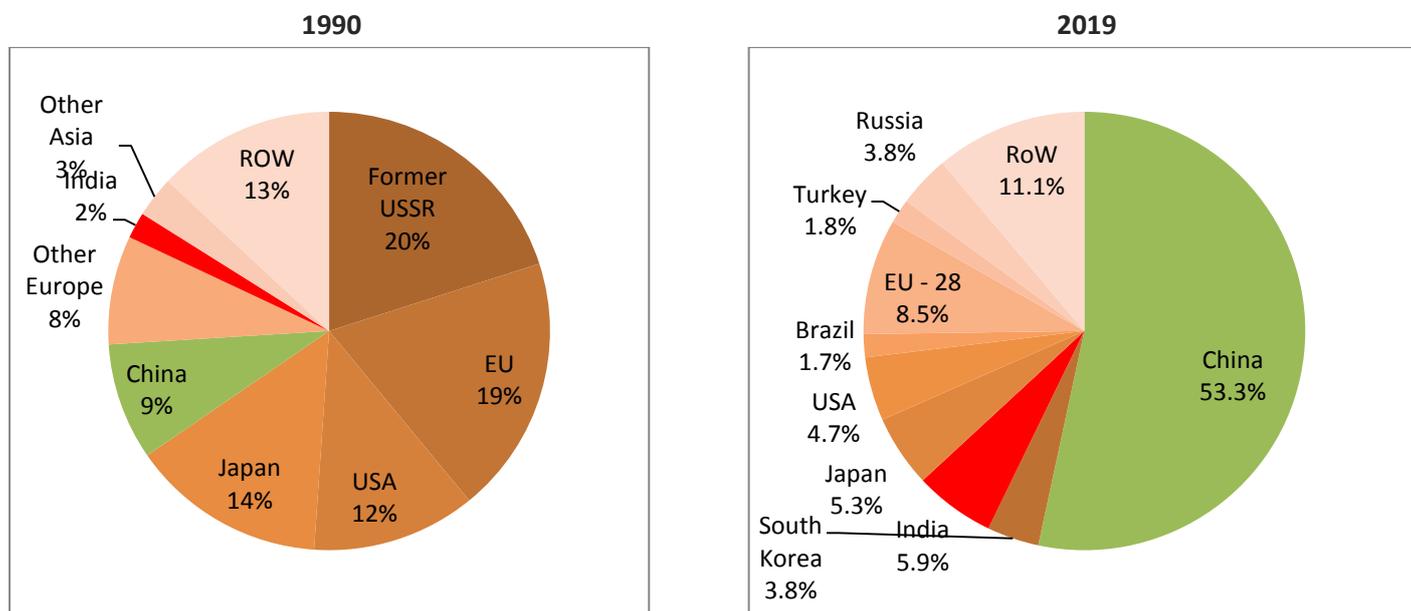
The government initiatives ensured a demand revival. In 2010, global crude steel production registered growth of 16%.

However, as demand and government stimulus measures subsided, the pace of global crude steel production slowed down from 2014 onwards. In 2015, China’s steel production fell for the first time in two decades by 2% due to slowdown in their domestic demand. Consequently, global steel production fell by 3% in 2015.

China’s economy grew at a slower rate of 5% CAGR during 2013-2018. China has begun to move away from a model of centrally planned investment, relying on the metals sector as a driver of economic growth, to a new model of sustainable growth based on demand.

Global crude steel production which was growing at an accelerated pace since the last three decades backed by boom in Chinese economy has now entered a period of moderate growth. Chinese steel demand and production reached their peaks and have now stabilised. Steel production in China which had grown at double-digit rates during 2000-13 grew at an average annual rate of 3% in the last six years.

Share of world crude steel production 1990 and 2019



Source: World Steel Association

China has emerged as a major economic power in the last three decades and its steel industry also witnessed rapid expansion. China’s crude steel production grew from a meagre 68 million tonnes in 1990 to 996 million tonnes in 2019. From a 9% share in world steel production in 1990, China now produces more than half of the world’s steel. India’s steel production has also witnessed an upward trend from 15 million tonnes in 1990 to 111 million tonnes in 2019. India surpassed US to become the third largest steel producer in 2015 and in 2018, it surpassed Japan to become the second

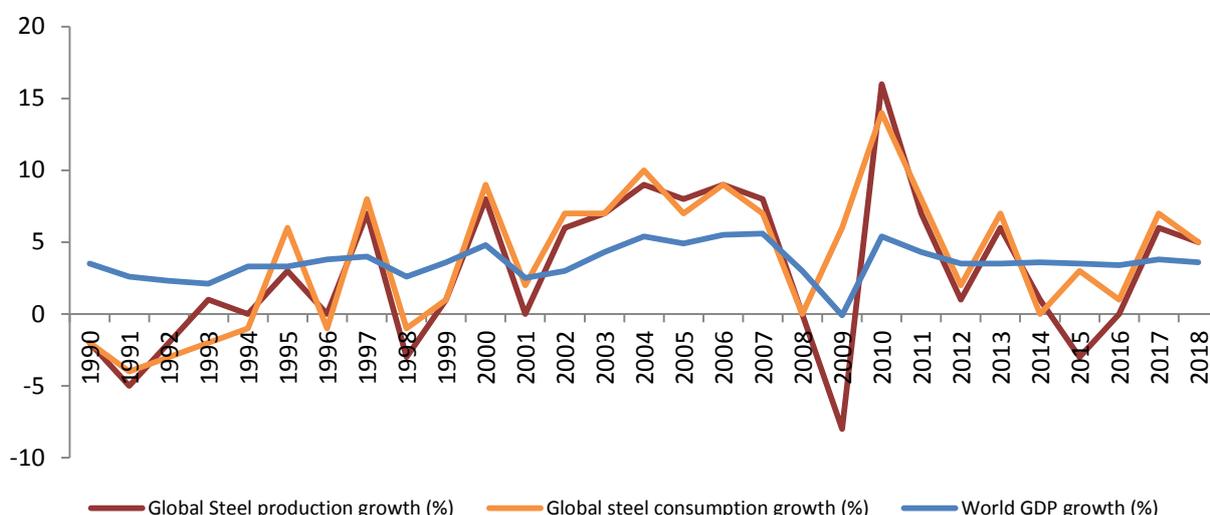
largest steel producer in the world. Though India is the second largest steel producer, it is far behind China as China’s steel production is nearly eight to nine times higher than that of India.

While these two countries emerged as the top two steel producers, Japan, US and EU slipped in their rankings. US’s crude steel production fell from 90 million tonnes in 1990 to 88 million tonnes in 2019. Japan’s steel production also dropped from 110 million tonnes in 1990 to 99 million tonnes in 2019. European Union which had a share of 19% in total global steel production in 1990 saw its share drop to 8.5% in 2019.

Global steel production, consumption and GDP growth

Steel consumption significantly depends on the overall performance of the economy (GDP) and more specifically on investments made in infrastructure like railways, ports, roads, airports and housing. Steel is also used in the production of capital goods and automobiles.

Global steel production, consumption and GDP growth (% y-o-y)



Source: World Steel Association, IMF

The above chart illustrates that broadly a positive economic growth rate is accompanied by a growth of crude steel production in the same sense and vice versa. At the global level 3.6% growth in GDP for the period of around three decades was associated with 3% growth in steel consumption.

The GDP of India grew from 1990 to 2018 at 6.6% and its steel consumption grew by 6% in the said period. Similarly, Japan’s economy grew by just 1.1% in the last 28 years and consequently its steel consumption declined by 1% in the same period.

% Growth in GDP and steel consumption from 1990-2018

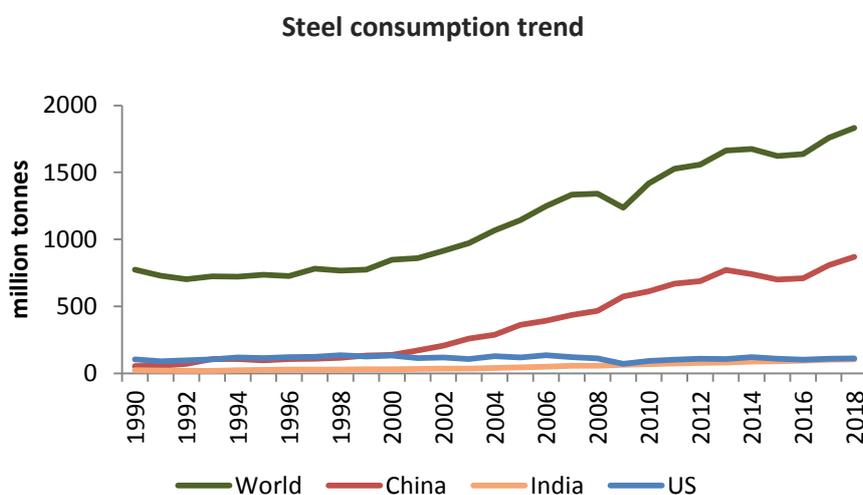
	World	India	China	Japan	United States
GDP growth	3.6	6.6	9.3	1.1	2.5
Steel consumption growth	3.0	6	10	-1	0.3

Trend in global crude steel consumption (1990 to 2018)

During 1990-99, global apparent steel consumption (Production + net direct imports) grew at a CAGR of just 0.8%. Global consumption of steel accelerated from CY 2000 onwards growing at a CAGR of 6% during 2000 to 2007.

In 2008, the global steel consumption was hit by the financial crisis. Steel consumption grew by just 0.4% in 2008 and it fell by 6% in 2009. This was mainly driven by a sharp fall in steel consumption by non-Asian countries. Steel consumption by US and Japan fell by 33% and 37% respectively in 2009. On the other hand, steel consumption by China and India remained steady even during this period. These two countries consumed 23% and 13% more steel in 2009 compared to the previous year.

While many emerging economies were hit badly by the financial crisis, countries like China, India, Egypt and Indonesia reported positive growth or a small adverse during the crisis because of large domestic markets and less reliance on international trade.



Source: World Steel Association

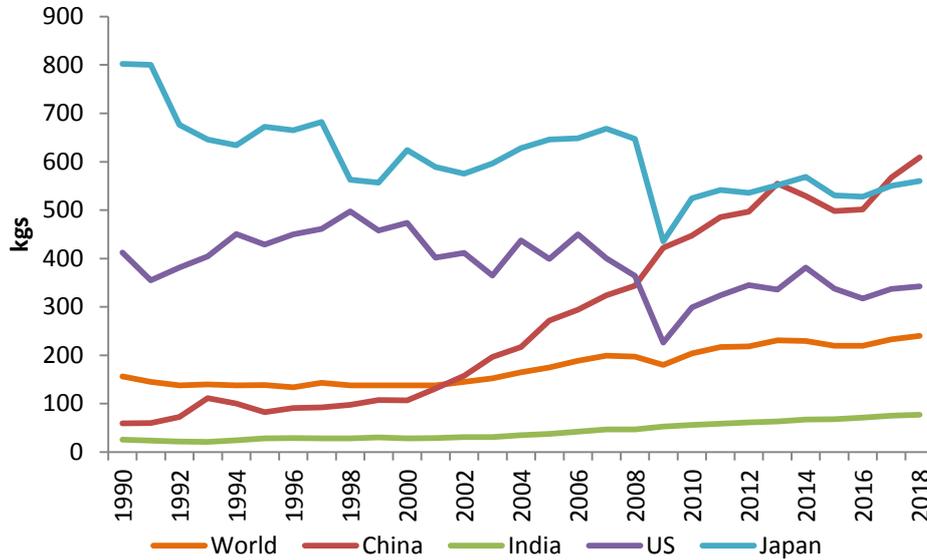
Global consumption of steel returned to the high growth path in 2010, up 14%. However, consumption of steel has moderated from 2013 onwards due to slow growth in Chinese consumption and overcapacity of steel which led to rising steel exports from China into the world markets. During 2013-18, global steel consumption registered a CAGR of just 2%. There was a decline in steel consumption globally in 2015. Steel consumption in major steel producing nations like China, Japan, United States, and Russia fell in 2015, whereas India saw a growth of 4.5% in comparison with the previous year. However, in India most of the increased demand was met through imports as imports jumped 40% in 2015. Global steel consumption which fell by 3% in 2015 and remained flat in 2016 picked up in 2017 and 2018, albeit at a slower rate of 5-6%.

Per Capita Steel Consumption

India is the third largest finished steel consumer in the world and is likely to surpass US to become the second largest in 2019. However, the per capita consumption of crude steel in India stood at just 77kgs in 2018 against the world average of 240 kgs. This is consistent with India's low income per capita. India's low steel consumption partly reflects its limited urbanisation but also indicates the high potential that exists given that it has potential to grow by 8-9% per annum given

the lacunae in the infra space. This strong growth potential can be reached in terms of consumption, although the speed of this increase will largely be determined by the rate at which India urbanises and industrialises.

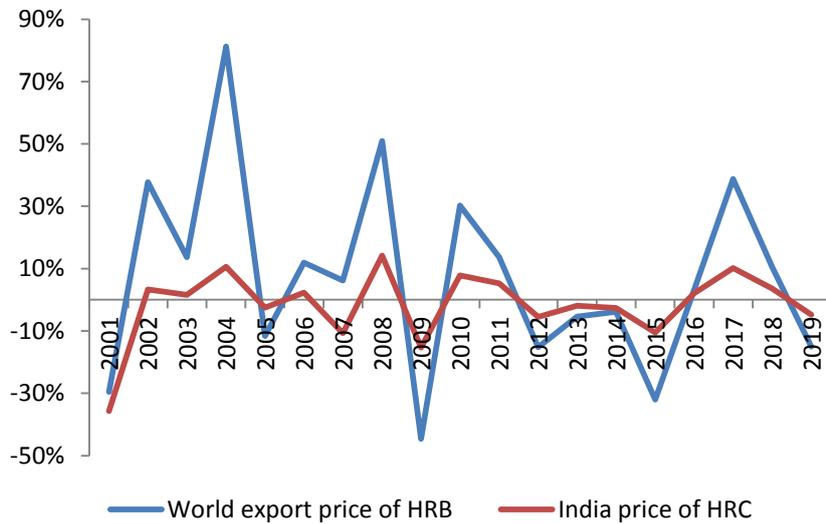
Trend in per capita steel consumption of countries



Source: World Steel Association

Steel Prices

Trend in Global and Indian steel prices (% growth y-o-y)



Source: Steelbenchmark

The above chart depicts that domestic steel prices have moved in line with the international prices.

Global steel prices spiked 38% in 2002 and 81% in 2004. Around early 2002 the Chinese government moved towards a policy of very strong growth. China mandated public works projects and freed up some of the banking regulations for new

construction and industrial projects. The rapid growth of both steel production and demand in China during this period was a major factor contributing for the increases in both steel prices and input materials.

Steel prices peaked in 2008 to USD 859 per tonne due to a sharp rise in cost of key raw material -coking coal. Benchmark Australian coal prices shot up 93% in 2008 on the back of tighter supplies due to flooding in Australia that curbed supply of some 25% of total coal through seaborne route for up to six months. Australia is the world’s largest exporter of coking coal. Raw material prices normalised the following year as supplies from Australia resumed and demand for steel contracted due to the global recession led by the financial crisis. Steel prices again gained momentum in 2010 and 2011, growing by 22%. This was sparked by a demand recovery in China and India on the back of fiscal stimulus announced by the government.

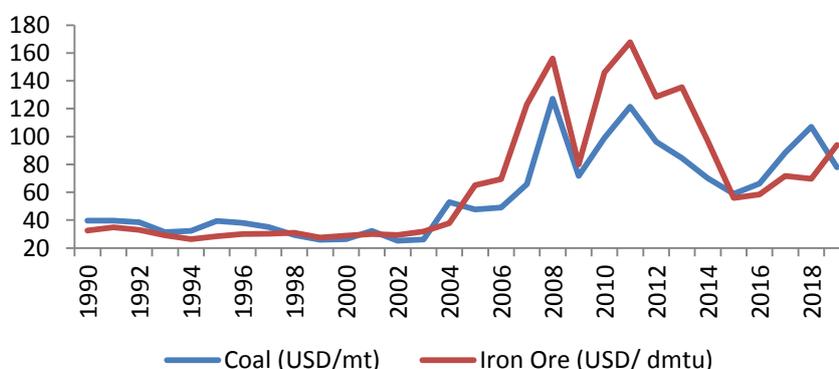
The demand for steel started to falter with moderation in China’s growth from 2013 onwards, however capacity growth continued to take place right until 2015. This led to a situation of overcapacity in the steel market. China which alone accounts for half of the excess steel capacity of the world began to dump its excess steel production into other countries, mainly India. This severely impacted steel prices.

Cheap exports from China flooded the global markets and steel prices went on a downward trajectory from 2012 till 2015. In 2015, steel prices plunged to its lowest level since 2001 to USD 370 per tonne. Raw materials cost also declined due to poor demand and sustained supply from low cost mines in Australia. Coking coal prices fell from USD 121 per tonne in 2011 to USD 59 per tonne in 2015.

US-China trade war: In view of the above, US adopted protectionist measures in 2018. The country started by imposing tariffs on import of washing machines and solar panels into US in January 2018. It further imposed 25% tariffs on all steel imports from all suppliers in March 2018. In retaliation, China imposed tariffs of up to 25% on 128 US products including airplanes and soybean in April 2018. On 15 June 2018, US imposed 25% tariffs on about USD 34 billion, with effect from 6 July and announced 25% tariffs on additional USD 16 billion of goods. China responded with tariffs on USD 34 billion of US goods.

The trade war between the two large economies slowed down the pace of global economic growth and consequently, demand for steel. Steel prices which had tanked in 2015 due to dumping from China recovered in 2017 and 2018 to average USD 530 per tonne due to rise in price of coking coal. Benchmark Australian coal prices shot up 34% and 21%, respectively due to cyclone `Debbie` which disrupted shipment of coal from the country. However, in 2019 steel prices average lower at USD 498 per tonne due to slowdown in demand from China and India.

Global iron ore and coking coal price trend

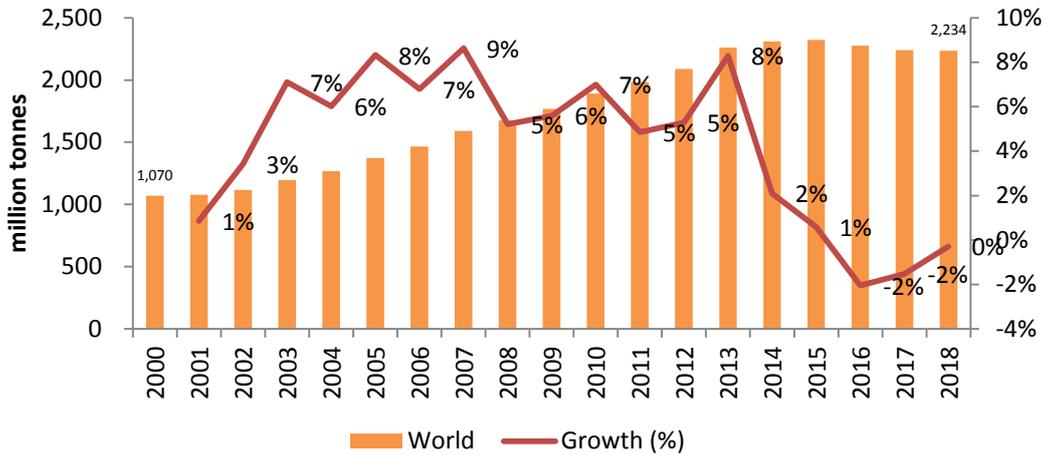


Source: World Bank

Steelmaking capacity addition

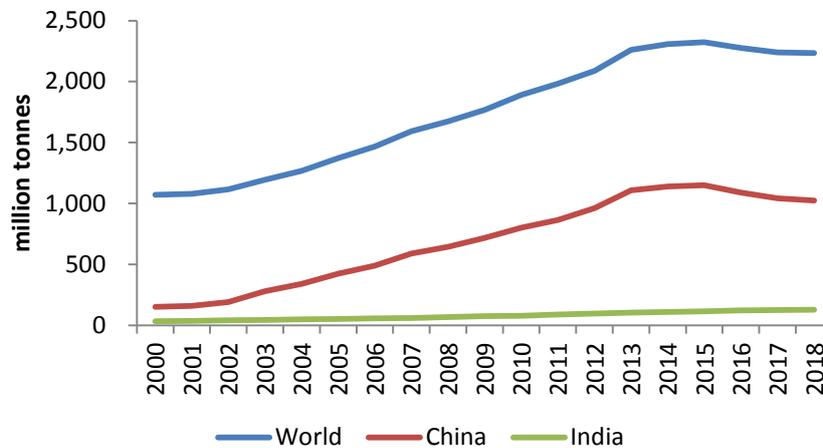
Global steelmaking capacity has significantly increased over the last three decades. It grew from 1,070 million tonnes in 1990 to 2,234 million tonnes in 2019. The gap between total capacity and demand has also widened and excess capacity stood at 418 million tonnes in 2018. The largest amount of excess capacity is in China.

Global steel capacity growth



Source: OECD

Total world and country-wise capacity addition (2000-2018)



Source: OECD

China's steel production has increased rapidly in the last decade. But its capacity has expanded at an even higher rate than production, leading to growing excess steel capacity. While demand for steel moderated, global steel capacity kept expanding right until 2015 as the projects which were already in the pipeline came on stream. Consequently, global steel capacity utilisation dropped to 70% in 2015 from their peak utilisation levels of 85% in 2007. Steel companies enjoyed a period of exponential growth in revenue and profits during 2000 to 2008. Higher profits allowed steel companies to boost steel production by expanding their capacities. The result has been that steel capacity currently exceeds demand by 418 million tonnes.

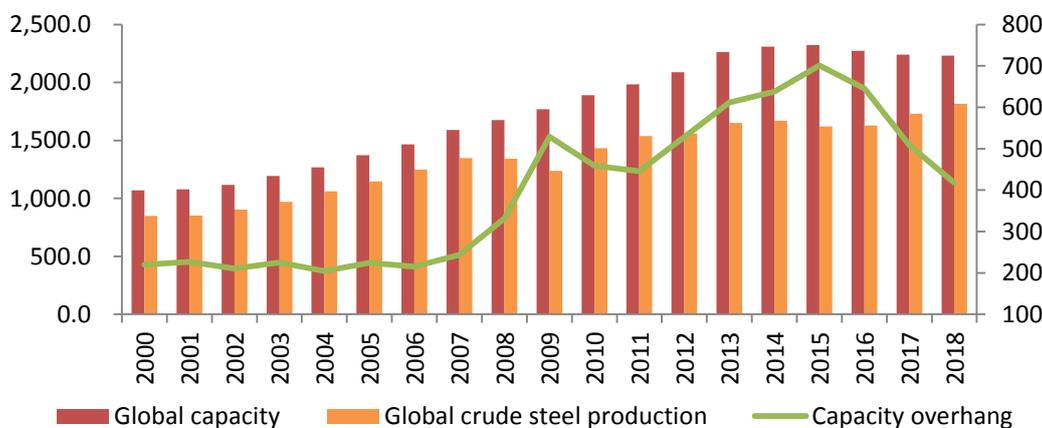
Due to slowdown in demand and protectionist measures adopted by countries, the growth in capacity additions started to decline from 2013 onwards, even falling by 2% in 2016 and 2017, each. No new capacities were added in 2018. There was slowdown in China’s investments in steelmaking capacity. China which has been dumping its excess production in the world market has been under immense pressure to cut down its excess capacity and improve environmental performances. According to the data published by China’s Ministry of Commerce, about half of the anti-dumping and anti-subsidy investigations against China in 2016 were related to steel and China has been under more anti-dumping and anti-subsidy investigations than any other countries for twenty consecutive years.

In late 2015, the Chinese authorities launched a policy to reduce capacity in the coal and steel industries under the wider effort of Supply-Side Structural Reforms. It planned to reduce steel capacity by 45 million tonnes within the year. The government also announced that, within “three to five years”, steel capacity would be reduced by 100-150 million tonnes

China has shut down aged blast furnace and replaced them with cleaner furnaces in the past few years. China has cut down its capacity in the last three years from 1,150 million tonnes in 2015 to 1,023 million tonnes in 2018. USA and Japan have also cut their capacities during the period. India, on the other hand, saw its capacity increasing steadily over the years. India’s capacity expanded from 114 million tonnes in 2015 to 128.1 million tonnes in 2018 led by anticipation of potential growth in domestic steel demand.

As the global capacity declined from 2,322.2 million tonnes in 2015 to 2,233.7 million tonnes in 2018, capacity utilisations improved from 70% in 2015 to 81% in 2018.

Global crude steel production, capacity and capacity overhang (in million tonnes)



Source: OECD

Consolidation in Steel sector

In order to solve the problem of excess capacity in the steel industry, the Chinese government has set out to consolidate the sector. In November 2019, Shougang Group, the nation's sixth-largest steelmaker, announced it will transfer a 15% stake in the company to Baowu, the largest, for free. Both Baowu and Shougang are state-owned enterprises.

In September 2019 Baowu tookover Magang Group, the ninth-largest steel producer in China. More such mergers are likely to be on the pipeline.

Indian steel industry

History

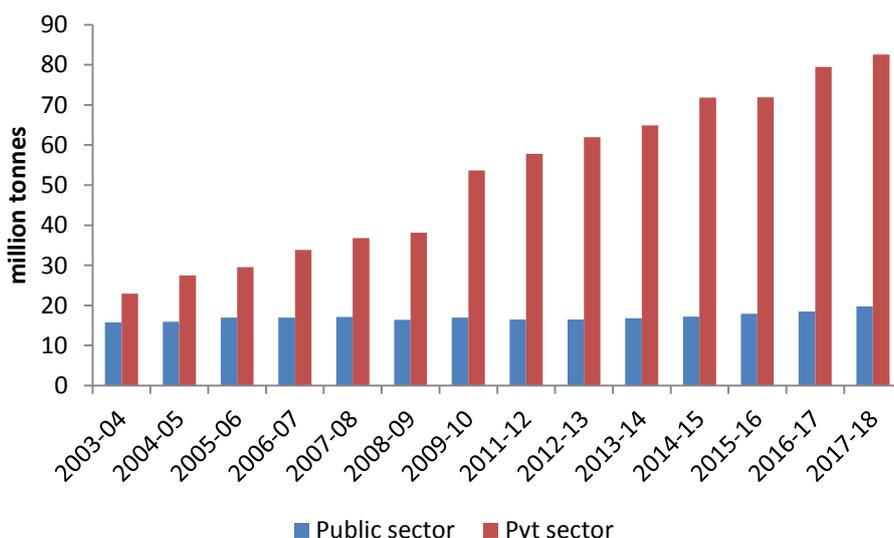
Steel has played an important role in the development of Indian economy. India’s crude steel consumption rose from 22 million tonnes in 1990 to 105 million tonnes in 2018. The Indian Steel companies enjoy some inherent advantages in terms of ample availability of iron ore – key raw material to make steel in the domestic market and low cost labour apart from the presence of a strong domestic steel market. According to the Ministry of Steel, the steel sector contributes around 2% of the country's GDP and employs around 25 lakhs persons in steel/allied sectors. Steel industry is important for the country because it has one of the highest economic linkages in overall GDP. Steel has an output-multiplier effect of around 1.4 times on GDP. This implies that if steel industry grows by 1% its proportionate impact on GDP would be 1.4 %. Employment-multiplier effect of steel is around 7 times, that is, with increase in output, steel industry has the potential to create 7 times the job opportunities, in upward and downward industries.

Though usage of steel in India dates to ancient times, modern steel making began only during the 19th century with the establishment of the Bengal Iron and Steel Company in 1875. The company employed modern methods in the manufacturing of pig iron which was a first in India. Tata Iron & Steel Company (TISCO) in Bihar was founded in 1907. Public sector, SAIL was established in 1973.

Indian Steel industry was de-licensed and de-controlled in 1991 & 1992 respectively. Until then the iron and steel sector was largely dominated by the public sector, the sole exception being TISCO. After liberalization, substantial private investments flowed in and the public sector share in the total production started declining. Large scale producers in the private sector brought with them world class technologies and capacities (viz. Corex technology for iron making, twin shell electric arc furnace and thin slab casting compact strip mill, energy optimising furnaces).

The share of public and private sector in the production of crude steel during 1990-91 was 46% and 54% respectively, while during 2017-18 the same was 20% and 83% respectively, according to Ministry of Steel. This change was brought about by de-regulation and de-control of the Indian iron and steel sector in 1991.

Crude steel: Trends in Production, Private/ Public Sector

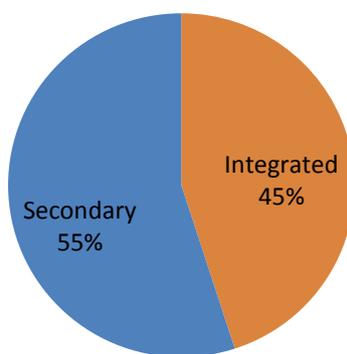


Source: Ministry of Steel

Price regulation of iron & steel was abolished in 1992. Since then steel prices in India are determined by the interplay of market forces. The market for steel transformed from a sellers’ to a buyers’ market. Currently, GST of 18% is applicable on steel and there is no export duty on steel items. Iron and steel can be freely imported and exported from India.

Industry Structure

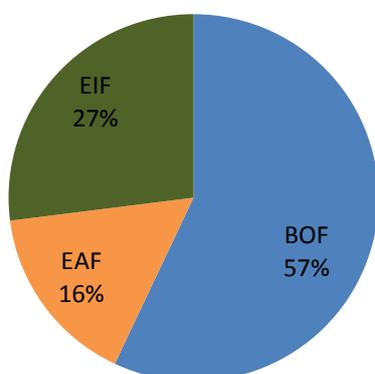
In India six steel companies together account for 60% of the total crude production. These are Steel Authority of India (SAIL), Rashtriya Ispat Nigam Limited (RINL), Tata Steel (TSL), Essar Steel Ltd (ESL), JSW Steel & Power (JSPL) and JSW Steel Ltd. In India, the share of Integrated Steel Producers in total steel production is 45% and that of secondary steel producers is 55%. Integrated steel producers have strong forward and backward linkages and use iron ore to make steel using the BF-BOF route.



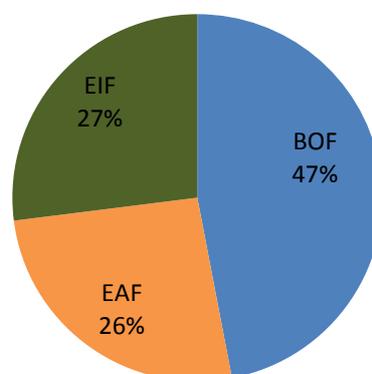
Source: FICCI

The share of steel production through EAF and EIF route has gone up considerably since 1990 while share of steel produced through the BF-BOF route has contracted. In 2018-19, about 53% steel was produced through the Electric Furnace route of which about 27% steel was produced through the EIF route and 26% from EAF route. About 47% steel was produced through the conventional integrated route of BF-BOF route as against the world average of around 70%. However, much of the steel produced by electric furnaces in India uses direct-reduced iron rather than scrap metal, so iron ore is still used as an input for most of the crude steel produced in India.

2003-04



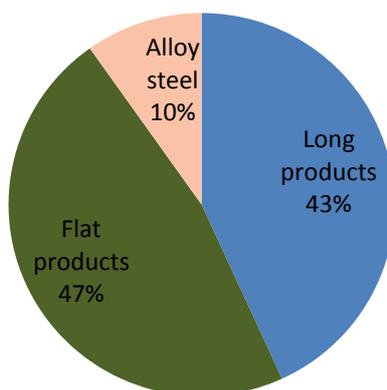
2018-19



Long Steel and Flat Steel

Finished steel production is divided into two broad categories - long and flat products. In addition to these two prime segments, finished steel output also includes alloy steel. It can be observed from the below chart that among these product segments, flat steel products accounted for the largest share. Flat products on an average are expensive to long products.

Share of long, flat and alloy steel in FY19



Long Products:

Long products are generally available in straight length/cut length barring wire rods which are normally available in irregularly wound coils. These finished steel products are normally produced by hot rolling/forging of bloom/billets/pencil ingots into usable shapes or sizes. This product segment includes products like bars & rods, steel structural and railway materials. Long products are generally used for construction, mechanical engineering and energy.

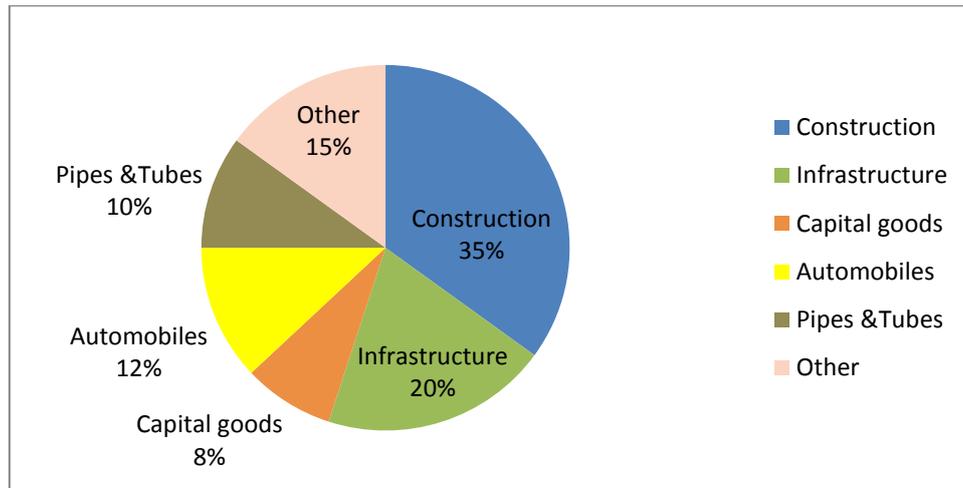
Flat products:

These are finished steel products that are produced from slabs/thin slabs in rolling mills using flat rolls. These are supplied in Hot Rolled (HR), Cold Rolled (CR) or in coated condition depending upon the requirement. This product segment involves Galvanised Plain/Galvanised Corrugated (GP/GC) sheets, Hot Rolled (HR) coils/sheets, Cold Rolled (CR) sheets/coils, pipes, electrical sheets, tin plates and plates. Flat products are generally used for automotive and truck wheel frames and body parts, heavy machinery, pipes and tubes, construction, packaging and appliances.

The large integrated steel companies in India mainly produce flat steel products whereas the small steel players manufacture long steel products. The flat product segment accounted for about 71%-73% (in terms of quantity) of the total finished steel sold by the top two Indian steel companies during FY18 while long steel products accounted for around 23%-27% of the total steel sold by these companies.

Construction and Infrastructure sector together account for 55% of steel consumption. These sectors mainly consume long steel products. They are followed by automobiles sector which mainly consumes flat steel products. Manufacturing sector mainly consumes flat steel products.

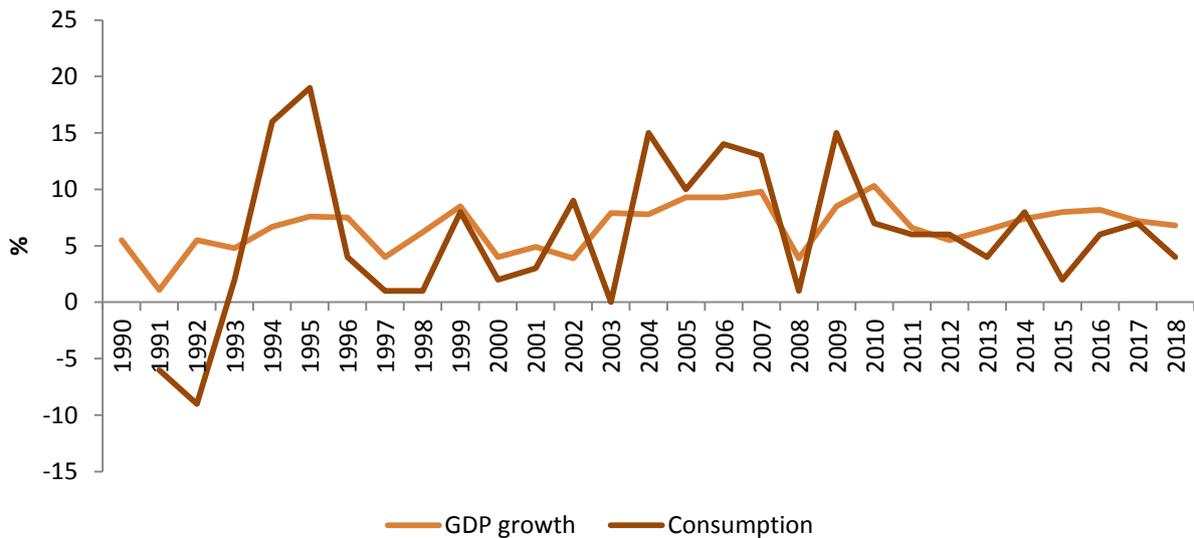
Sector-wise steel consumption in India



Source: FICCI

Steel production, capacity:

GDP growth and Steel consumption trend



Source: IMF, World Steel Association

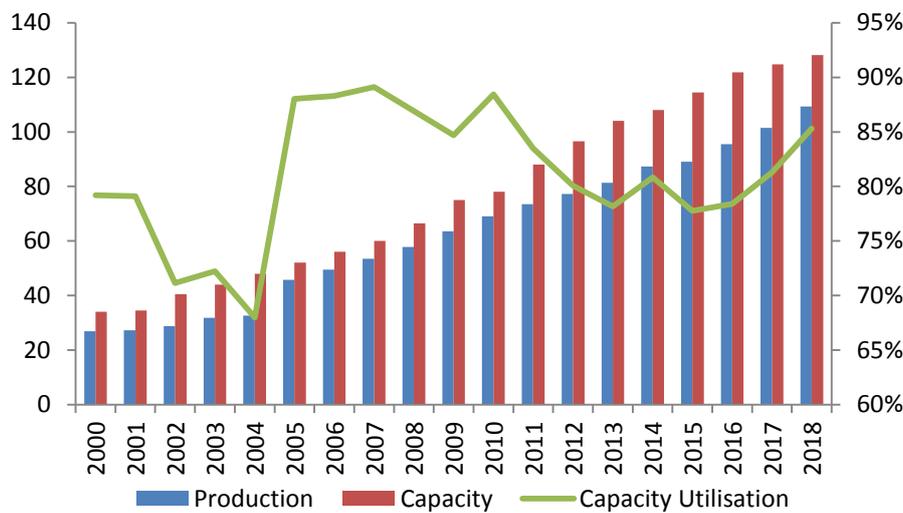
The above chart depicts that the growth in India’s finished steel consumption has largely moved in line with the GDP growth. In 2015, though GDP growth was 8% steel consumption grew by just 2% due to flood of cheap imports from China.

After de-licensing of Indian iron and steel industry and as a result of the steps taken for creation of additional capacity in the private sector, steelmaking capacity in India has increased steadily from 34 million tonnes in 2000 to 128 million tonnes in 2018. India’s crude steel production has registered growth in all but one year during 1990 to 2019. Entry of private players led to acceleration in steel production from 1990 onwards. During 1990-99 steel production growth averaged around 10%. India’s crude steel production dropped 4% in 1998 impacted by the Asian currency crisis and the collapse of the Soviet Union but soon came out of it with help from the government. The Finance Minister agreed to Rs 8,454 crore

package for SAIL, which offered VRS to 40,000 employees and banks were asked to recast loans of troubled companies. The sector continued to expand at a relatively rapid pace in the early 2000s. Government announced India's first National Steel Policy in 2005 to guide the future development and growth of the sector. The policy projected that India's domestic steel production would grow in line with GDP to reach 100 million tonnes by 2019-20. However, India has surpassed this target much earlier in 2017.

Capacity utilisation level which hovered around 85-88% during 2005-2010 due to strong growth in domestic demand, started to drop from 2010 onwards. It fell from 88% in 2010 to 78% in 2013. India had turned a net importer of steel during this period due to huge rise in imports from China, South Korea and Japan. Capacity utilisation levels again started to move upwards from 2016 when MIP was introduced on steel products which helped in curbing imports and India turned into a net exporter of steel during 2016-18. Capacity addition remained above 80% in the last two years.

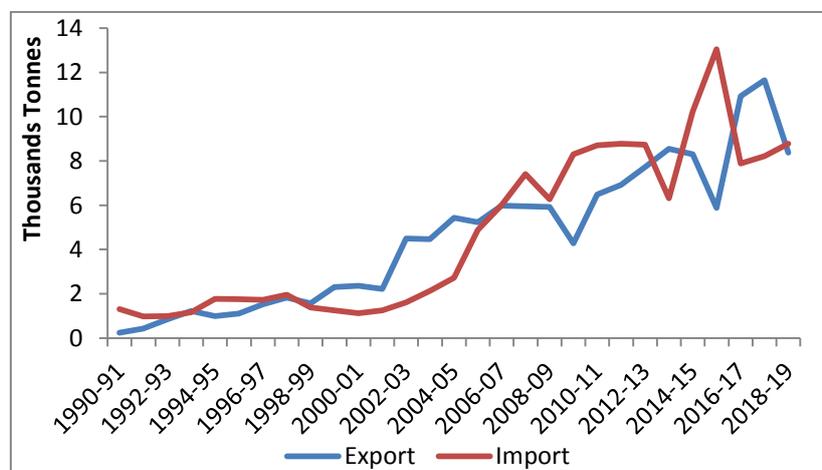
Trend in steel production (mn t), capacity (mn t) and utilisation levels



Source: OECD, World Steel Association

Trade:

Trend in export and import of finished steel

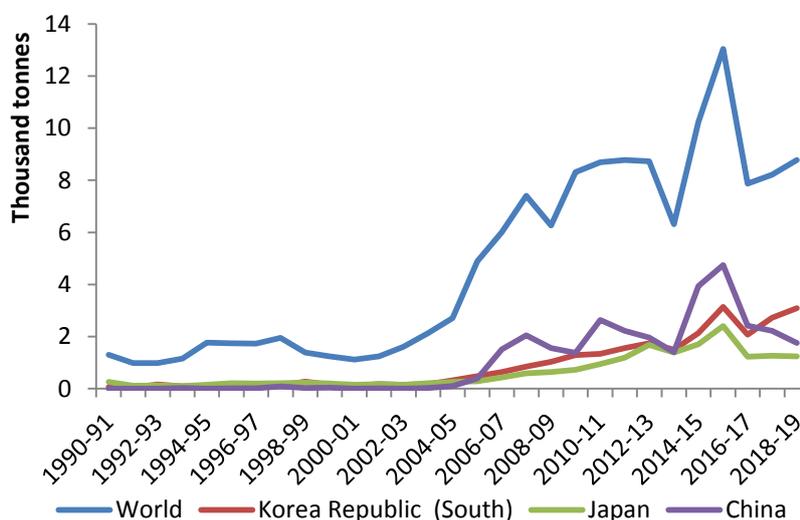


Source: DGCIS

During 1990 to 1998, India was a net importer of finished steel as domestic demand outpaced supply. From 1998-2007, India turned into a net exporter of steel as domestic steel production growth accelerated to 9% during this period after growing by 5% in 1990-98. Improvement in technology and capacity additions helped to increase steel production during this period. India’s steelmaking capacity doubled to 60 million tonnes in 2007, compared with 2000.

After remaining a net steel exporter for nine years, steel imports increased during 2007-13 even though India had sufficient domestic availability of steel. This is because of surge in imports from China. Global steel market which was going through a golden period due to boom in Chinese economy began experiencing a situation of overcapacity as demand from China moderated. China which had the highest steelmaking capacity in the world began dumping its excess production into the world market, mainly India. Steel imports from China which remained below 400 thousand tonnes increased sharply to 1.5 thousand tonnes in 2006-07 and above 2 thousand tonnes over the next few years. Imports from China peaked in 2015-16 to 4.7 thousand tonnes. China was dumping its products at below the production cost which was making domestic steel uncompetitive.

Country-wise import of finished steel



Source: DGCIS

Apart from the above, India had signed Free Trade Agreements (FTAs) with South Korea and Japan under CEPA (Comprehensive Economic Partnership Agreement) in 2010 and 2012 respectively. Due to the FTA, there has been a steady increase in the share of duty-free imports from these two countries. South Korea’s share in total imports grew from 15% in 2009-10 when the FTA was signed to 35% in 2018-19. Japan’s share in total imports grew 13% in 2011-12 to 14% in 2018-19. In 2018-19, imports from China fell by 21% but this was negated by increased imports from South Korea, Vietnam and Indonesia.

In March 2018, USA imposed 25% and 10% import duty on foreign made steel and aluminium, respectively. The imposition of import duty diverted steel exports from South Korea to India. USA had imported about 10% of its steel requirements from South Korea in 2017.

Steps taken by government to curb imports:

In view of the increased imports from China, a slew of measures have been taken by the Government to check the same:

- 1) Imposition of a 20% safeguard duty (minus any existing anti-dumping duty) in September, 2015 till September, 2016 following which it will be reduced to 18% till March 2017, then brought down to 15% till September 2017 and eventually to 10% by March 2018.
- 2) In December, 2015, an anti-dumping duty in the range of 5.3%-57.4% was levied on imports of cold rolled flat products of stainless steel citing continued dumping of the subject goods.
- 3) The Directorate General of Foreign Trade came out with a Minimum Import Price (MIP) in February 2016 on 173 steel products, providing the much needed relief to the industry. The Government imposed MIP on a large spectrum of steel products ranging between USD 341 and USD 362 on semi-finished steel, between USD 445 and USD 500 for hot rolled products, USD 560 for cold rolled products and up to USD 752 on some coated or treated products.
- 4) An anti-dumping duty of USD 474-557 per tonne was imposed on 'hot-rolled flat products of alloy or non-alloy steel' import from China, Japan, South Korea, Russia, Brazil and Indonesia.

These measures arrested the rise in imports to a large extent. Steel imports from China which had peaked in 2015 fell by 49% in 2016-17. They have since been on a downward trajectory. Steel imports from China have fallen in the last three years.

The government discontinued with the extension of Minimum Import Price (MIP) on steel imports in February 2017 but had given extension to MIP on 19 colour-coated steel products. Government later discontinued it in January 2018. The Steel Minister said that the protectionist measures like MIP and anti-dumping duty cannot continue indefinitely.

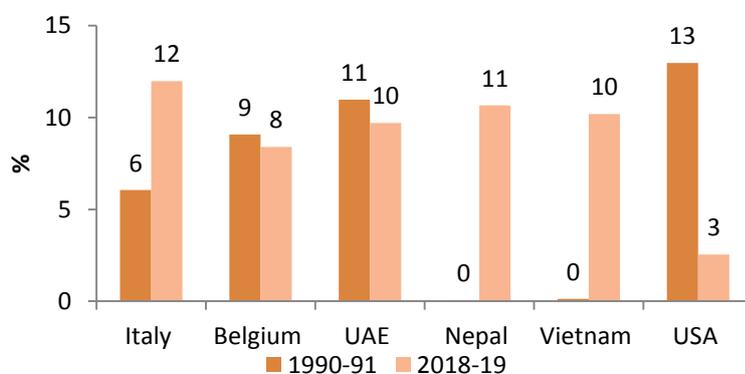
Export of finished steel

Italy is the largest destination for Indian steel exports followed by Nepal. Around 10% of exports go to oil-producing countries in the Middle East due to lower shipping costs owing to the relative proximity of India to this region. We mainly export steel pipes suitable for oil and gas pipelines to the Middle East countries. While exports to Italy, Nepal and Vietnam grew exponentially in the last 30 years, those to USA, which was once a major export destination dropped significantly. This is because of protectionist measures adopted by USA.

Top finished steel exporting countries in FY19

Countries	Qty ('000 tonnes)	% share
World	8,368	
Italy	1,001	12%
Nepal	891	11%
Vietnam	852	10%
UAE	812	10%
Belgium	702	8%
Spain	382	5%

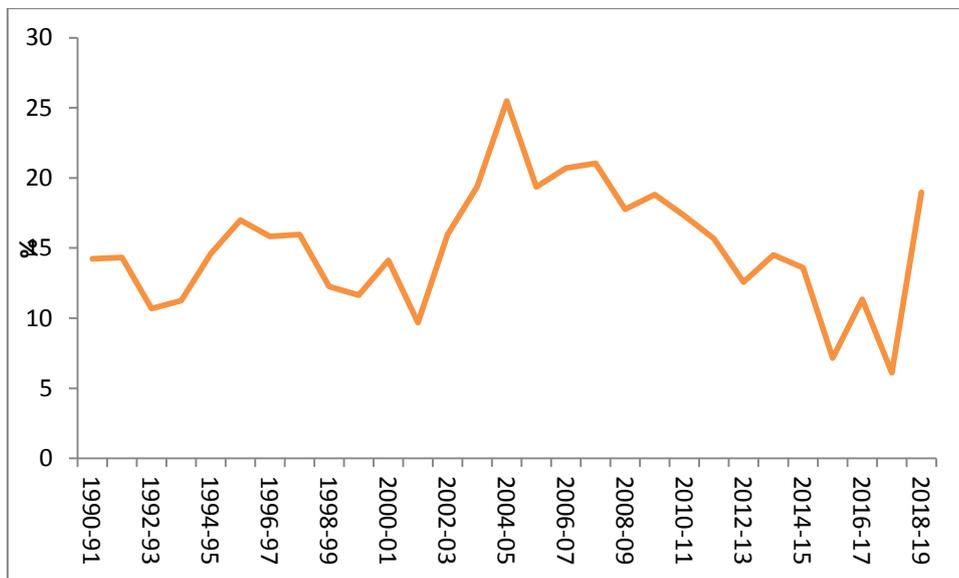
Change in share of top exporting countries



Source: CMIE

Finance:

Financial performance: Operating margin of domestic steel companies



Source: CMIE

The steel industry experienced a period of expansion in their profit margin during 2001-05 led by healthy demand. The Industry’s operating margin has contracted sharply from FY05 onwards. Operating margin as a percentage of total income stood at 6.1% in FY16, sharp contraction from 25% in FY06. Profit margin improved in FY19.

In 2008-09 when domestic steel demand slowed down impacted by the global financial crisis, slowing demand from China and excess steel capacity many steel companies in India were unable to fulfil their debt obligations. 23 steel companies with total debts of nearly INR 302 billion were approved for the Scheme for Corporate Debt Restructuring (CDR).

Consolidation in Indian steel industry

Steel companies had made huge investments in capacity addition anticipating continued momentum in demand however as the global steel sector entered a low price cycle from 2013 onwards steel companies were unable to pay the debts they had taken.

As per RBIs list, out of 12 default companies, five belonged to steel sector.

Company	Amount admitted (Rs crore)
Bhushan Steel Ltd	56,022
Bhushan Power and Steel Ltd	47,158
ElectroSteel Steels Ltd	13,175
Essar Steel India Ltd	49,473
Monnet Ispat and Energy Ltd	11,015
Total	1,76,843

Source: IBC

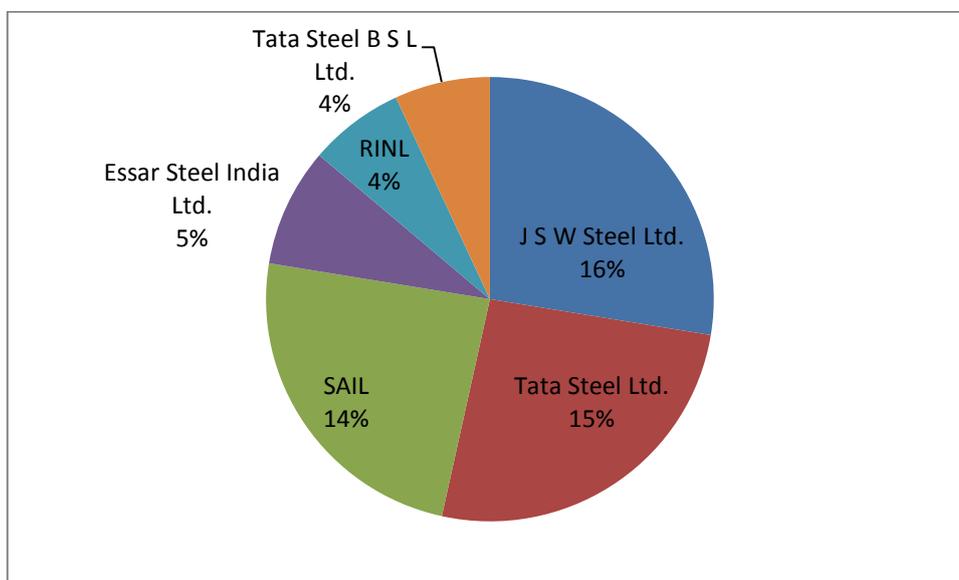
These companies were easily picked-up by the larger companies as it is relatively cheaper to buy existing company assets than build a Greenfield one which has significant time and cost over-runs.

The process of consolidation began with lenders approving Tata Steel as the most eligible bidder to take over Bhushan Steel Limited (BSL) for Rs 35, 200 crore. Vedanta emerged as the highest bidder for the acquisition of Electrosteel Steels for Rs 5,320 crores. JSW Steel emerged as the sole bidder for the acquisition of Monnet Ispat & Energy Ltd (MIEL) for Rs 2,870 crores and was also the bid winner for Bhushan Power and Steel at Rs 19,700 crores.

The size of steel industry reduced from 17 players to 4 players – JSW Steel, Tata Steel, SAIL, and JSPL.

JSW Steel and Tata Steel have emerged as the undisputed market leaders with the acquisition of MIEL and BSL, respectively. Vedanta’s acquisition of Electrosteel Steels has led to its forward integration.

Share of top 6 companies by revenue FY19



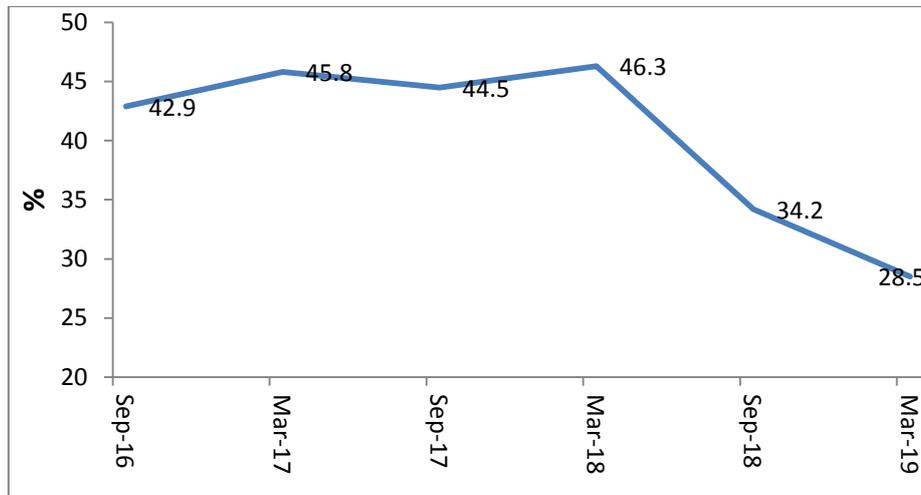
Source: CMIE

NPAs in steel sector

The stressed advance ratios of basic metals sub-sector which includes steel sector have been improving since March 2018. Stressed advances take into account NPAs and restructured standard advances. From 46.3% in March 2018, the stressed advance ratio of the basic metals sector has come down to 28.5% in March 2019. This was a sector that has been impacted significantly during the phase of AQR as a large quantum of such assets was recognized. This was also the period when the industry went through some challenging times.

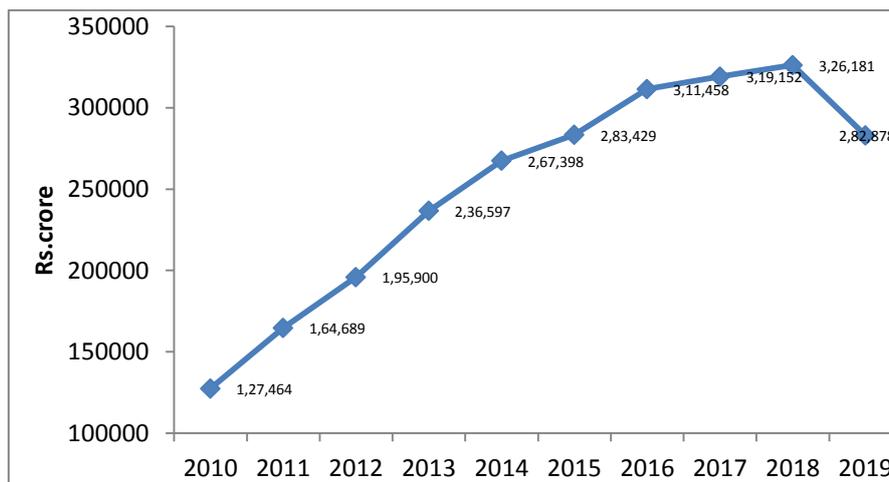
The annualised slippage ratio (new accretion to GNPA) of basic metals and their products stood at 2.5% in the September 2019 quarter.

Movement in stressed advance ratio



Source: RBI

Movement in bank credit to Iron & Steel sector in last 10 years



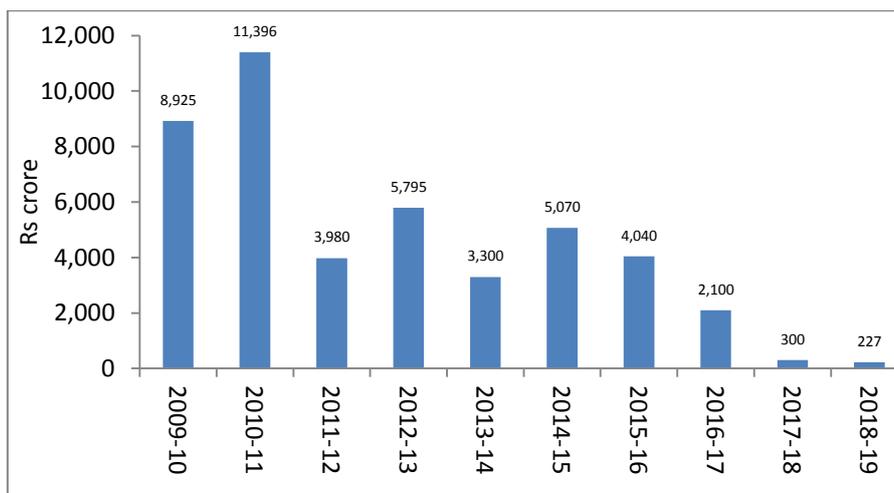
Source: RBI

Bank credit to Iron & Steel sector rose sharply from Rs.1.27 lakh crores in 2010 to Rs.3.26 lakh crores in 2018 which is a CAGR of 12.5%. In 2019, it dropped for the first time since 2004 to Rs.2.82 lakh crores. Growth had been high during the early part of the decade mainly as capacities were increased during the boom phase of the economy. The slowdown witnessed in the last two years is more due to the high NPA levels which have also restricted bank lending on the supply side besides demand for finance which was also lower given the slower growth in the economy as well as some of the big companies being held up in the IBC proceedings.

Borrowings from Debt market:

Steel sectors borrowing from debt market has come down to Rs 227 crores in FY19 from Rs 8,925 crores in FY10. Borrowings sharply reduced in the last two financial years.

Steel sector's borrowing from debt market in last 10 years



Source: CMIE

The bond market picture reveals that the industry has been more dependent on banks for funding than the debt market as the issuances have been much lower than incremental bank credit across the time period. Therefore there has been preference for direct borrowing from banks than from the market.

Steps taken by government to boost domestic steel industry:

The Government has recently rolled out two national landmark policies

- (i) Levy of series of anti-dumping duties and import duty on import of steel products. (Refer above)
- (ii) Coal Deregulation
- (iii) National Steel Policy 2017
- (iv) Policy on Preference to Domestically Manufactured Iron & Steel Products.
- (v) Steel Scrapage Policy

(ii) Coal Deregulation

The Union Cabinet on 8 January 2020, opened up coal sector for commercial coal mining to firms other than those in the steel and power sectors and removed end-use restrictions on the fuel. The ordinance allows any India-registered company to bid and develop coal blocks. This was done by approving the promulgation of Minerals Law (Amendment) Ordinance 2020 to amend Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act) and Coal Mines (Special Provisions) Act, 2015 and Mines and Minerals Development Act, 1957 (CMSP Act).

The ordinance will amend the current provision that allows only companies engaged in iron and steel, power and coal washing sectors to bid for coal mines. Also, earlier, coal produced from coal mines could be used only for the designated captive purpose and was not allowed to be traded in the open market. These restrictions have now been removed. The amendment to the CMSP Act will allow companies that do not have plants to consume the coal to bid for the coal mines.

- The opening up of coal sector for commercial coal mining is expected to encourage private players to participate in the auctions to be held to reallocate the captive coal blocks that were cancelled by the Supreme Court in 2014. This could however be limited in the longer term by the move towards clean energy which can evoke constrained interest by new players.
- 204 coal blocks meant for captive use were cancelled by the Supreme Court in 2014. So far, out of 204 only 29 coal blocks have been auctioned. End-use restrictions were believed to be the reason for low participation in the auction process of these coal mines. With the removal of these restrictions, the Centre proposes to start with the first phase of commercial coal auctions within this financial year.
- The move is likely to boost domestic coal production and reduce imports. Despite having the fourth largest coal reserves in the world, India's coal imports has been rising to meet the growing demand. Production for first 9 months of the year was 480 mn tonnes as against 498.5 mn tonnes last year. Coal imports rose from 190 million tonnes in FY17 to 235 million tonnes in FY19. They were 144 mn tonnes in the first 7 months of FY20.
- This will be beneficial to all the user industries too.

(iii) National Steel Policy

National Steel Policy 2017 aims to develop a globally competitive steel industry by enhancing the steelmaking capacity to 300 million tonnes by 2030. The current capacity is 138 million tonnes. This will be achieved by increasing the contribution from the IAF/EAF route to about 35-40%.

The Indian government has indicated that the following objectives of the National Steel Policy, 2017:

1. Increase the crude steel production capacity from current 138.1 million tonnes (mt) to 300 mt by FY 2031
2. Increase crude steel production from 106.6 mt to 255 mt in 2031, at 85% capacity utilisation.
3. Production of finished steel to reach 230 million tonnes.
4. To export 24 million tonnes of steel annually and imports to be nil.
3. Increase per capita consumption of steel from the present 69 kilograms to 160 kg by 2030.
4. 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
5. Reduce dependence on imported washed coking coal to 65% from the current 85% by FY 2031
6. Adopt energy efficient technology in the smaller steel players to improve productivity and reduce energy consumption
7. Meet the demand for high grade automotive steel, electrical steel and other special steels and alloys through domestic production by FY 2031
8. Reduce dependence on imports and become a net exporter of steel by FY 2026.

The steel industry is highly dependent on raw materials. One tonne of steel produced through the blast furnace route requires more than 2.8 tonnes of raw materials – of which iron ore and coal together account for 2.3 tonnes. To achieve a finished steel production level of 230 million tonnes by FY 31, NSP 2017 has projected iron ore and coking coal requirements of 437 and 161 million tonnes, respectively. NSP 2017 aims to promote the development of globally competitive steel manufacturing capabilities in India inter alia by ensuring domestic availability of iron ore and coking coal.

The National Steel Policy, 2017 aims to make India self-sufficient in steel production by 2030. In order to reach 255 million tonnes of crude steel production by 2030–31, production needs to grow at a CAGR of about 7.2% which is achievable provided demand remains intact.

The government plans to create demand for steel through various policy measures including ‘Make in India’ scheme. The budgetary allocation for infrastructure sector was also increased to INR 6 lakh crore in FY 2019, up 20% over FY 2018. The demand for steel is expected to remain intact given the low per capita consumption of steel and overall economic growth. Increased spending on 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.

(iv) Policy on Preference to Domestically Manufactured Iron & Steel Products

Further in order to protect the domestic industry from imports to meet the accelerated demand growth, the government has announced another policy which provides preference to domestically manufactured iron & steel products for government procurement with immediate effect. This policy excludes procurement of grades of steel not manufactured in India or where demand cannot be met through domestic sources.

(V) Scrap Recycling Policy

In the National Steel Policy-2017, the importance of scrap was realised. This Scrap Policy only furthers the role envisaged in the NSP-2017 to ensure scrap segregation (quality wise), collection, processing and recycling. The policy is to provide a framework for carrying out the activities in a scientific manner to have assured and regular supply of processed scrap for the downstream industry.

Steel scrap comes from various sources such as mill scrap, used structural items like beams, reinforced steel & plates, plant and machineries including pipes, tubes, old vehicles, domestic goods, automotive scraps, ship building industry, railways etc. The present policy deals with automobile, household, structural, railways, industrial etc. but exclude specific industries like ship breaking which are covered under separate act / policy.

The use of every ton of scrap shall save 1.1 ton of iron ore, 630 kg of coking coal and 55 kg of limestone. Savings in energy is estimated around 16-17%. It will also reduce water consumption and GHG emission by 40% and 58%, respectively.

Most of the major steel producing countries like Japan, USA, and China are continuously increasing scrap-based steel production with proportionate reduction from primary route. In 2017, out of 1688 million tonnes global steel production, around 475 million tonnes was produced from secondary route (using scrap). The main countries adopting primarily EAF as secondary route are USA (68.4%), Italy (80%), Spain (66.5%), Iran (93.5%), Mexico (76.3%) and Middle East (93.5%).

The availability of scrap is a major issue in India and in 2017 the deficit was to the tune of 7 million tonnes. This was imported at the cost of more than Rs 24,500 crores (approx.) in 2017-18. The efficient use of scrap for steel production becomes very crucial for India as 35-40% share has been envisaged from scrap-based steel production in the journey of 300 million tonnes per annum by 2030. This shall increase requirement of steel scrap from present level of around 30 million

tonnes to more than 70 million tonnes by 2030. Thus, this policy aims to help all stakeholders engaged in collection, dismantling, processing, transportation, etc. so that sustainable development of scrap-based steel industry can be ensured. It is expected that the implementation of this policy shall make country self-reliant in terms of availability of scrap and thus will give boost to imports substitution's initiatives and creating large employment opportunities.

Key Recommendations:

1. To achieve expected demand of 230 million tonne (mt) in 2030-31 as per the National Steel Policy, steel demand will need to grow at a CAGR of around 7-7.5 per cent during the period against a CAGR of 3.5-4% over the last 5 years which is achievable given India's low per capita income and increased spending on infrastructure.
2. The government should seek not just growth in steel production, but also qualitative improvement to enhance the global competitiveness of the domestic steel industry. India significantly depends on overseas supplies for value-added steels due to lower availability in the domestic market. India needs to increase the share of value-added steel products. As per NSP, government aims to reduce import of steel to nil by 2030. This is only possible with increase in domestic production of value-added products as India imports these in large quantities.
3. The government plans to increase the steel capacity to 300 mt by 2030-31. In order to achieve this, the government will have to focus on improving the availability of resources namely, infrastructure, raw material, finance etc. Land acquisition, infrastructure access and infrastructure bottlenecks are some of the major problem facing metals and mining sector in India. Major steel players have shelved or abandoned projects primarily due to problems in acquiring land and delays in obtaining environmental and forest clearances. In 2005, Posco, the world's fourth-largest steelmaker, signed a memorandum of understanding with the Odisha government to set up a 12 million tonnes capacity steel project at USD 12 billion. This project had the potential to set Odisha on a high-growth trajectory and make India a steel superpower. However, the project was abandoned 12 years later due to public resistance and regulatory hurdle. Therefore, in order to achieve the goal of creating 300 million tonnes of steel capacity by 2030 as envisaged by the government in the National Steel Policy, the government will have to focus on providing faster clearances and remove regulatory bottlenecks.
4. Dependence on import for coking coal – key raw material to make steel - While India has large reserves of relatively high-quality iron ore, its reserves of coking coal are limited and mostly unsuitable for steelmaking. Therefore Indian steelmakers import much of the coal required for producing steel. Australia is a major source of India's coking coal imports. Domestic coking coal has high ash content therefore India will have to import coking coal to meet its domestic requirements and cannot rule out imports of the mineral. The National Steel Policy, 2017, envisages that only 65% of India's coking coal requirements will be met through imports by 2030–31.
5. The basic customs duty on met coke was enhanced from 2.5% to 5% with effect from 1 March 2015. An additional anti-dumping duty had also been imposed on its imports from 25 November 2016. As a result, the cost of this (met coke) vital input in steel manufacturing has gone up.
6. High taxes, logistic cost and raw material and energy cost as compared to competitor countries have restricted the growth of Indian steel industry. As per a report by Niti Aayog, Indian steel companies have a cost disadvantage of USD 80-100 per tonne as compared to their counterparts due to the taxes and duties levied. The cost of steel production in India is around USD 320 – USD 340 per tonne in comparison with USD 400 per ton in China and

Japan, whereas the global average is around USD 390 per tonne. However, the number of duties levied on import of raw material, high freight cost and taxes makes Indian steel uncompetitive in the global market. An import duty of 2.5% on coking coal and a coal cess of Rs 400 per tonne is levied, it is argued by met coke and steel manufacturers that the combined effect of import duty and coal cess is more than the 5% import duty on met coke, which makes the domestic met coke unviable. The royalty on iron ore at 15% is one of the highest in the world, whereas the global average is in the range of 3-7%. The government should improve efficiency parameters to bring down the cost of production.

7. High finance cost - The borrowing cost in India is significantly high compared to its competitor, China. Indian manufacturers pay around 12-15% bank lending rates annually, the highest among the emerging market economies. Many steel companies faced bankruptcy proceedings in 2018 because of which the financial sector has become wary of lending to the steel sector. Getting access to finance at reasonable rates by steel companies, especially the secondary small scale producers may be difficult. This is likely to pose a risk in fulfilling the vision outlined in the National Steel Policy to reach 300 million tonnes capacity by 2030-31.

Steel demand in India is expected to grow driven by various government led initiatives in affordable housing and infrastructure sector, coupled with robust growth in automotive and capital goods segments. Also, the NSP is expected to encourage domestic production of steel and reduce imports. This is expected to benefit the domestic steel companies. Lower exports from the world's second largest steel producer are a cause of concern. The domestic steel industry has the potential to be a net exporter. This is possible if the government looks at rationalising the cost structure, develop efficient logistics and infrastructure, and make funding available at cheaper rates. As China enters a phase of moderate growth in steel demand, India is expected to have healthy domestic demand for steel given its low per capita steel consumption and low income per capita and scope for urbanisation.

CARE Ratings Limited

Corporate Office: 4th Floor, Godrej Coliseum, Somaiya Hospital Road, Off Eastern Express Highway, Sion (East), Mumbai - 400 022. CIN: L67190MH1993PLC071691

Tel: +91-22-6754 3456 | Fax: +91-22-6754 3457

E-mail: care@careratings.com | Website: www.careratings.com | CIN: L67190MH1993PLC071691

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