IN 5 MINUTES

THE IMPACT OF SLOWER GROWTH ON THE STEEL INDUSTRY

The strength of the global economy is a key concern in 2019. Highly cyclical industries are the most vulnerable in a decelerating economy. Of these, steel is very much at the core of the issue, as steel products are needed by many industries, such as construction, automotive and other manufacturing sectors. In this document, we explain the impact from the slowdown in global growth on the profitability of the steel industry.

INTRODUCTION

STEEL PRODUCTS AND THE PRODUCTION PROCESS

In order to understand the drivers of the steel industry, we must begin at the beginning, i.e the types of steel products and the steel production process.

Steel products are usually separated between flat and long products. Flat steel products tend to generate more value-added than long products. Flat steel includes slabs, hot-rolled coil, cold-rolled coil, coated steel products, tinplate, and heavy plate. They are used in cars, heavy machinery, pipes and tubes, construction, packaging, and appliances. Long products include billets, blooms, rebars, wire rod, sections, rails, sheet piles, and drawn wire. Long products are used in construction, mechanical engineering, energy, and in less-value added steel products in the automotive industry.

Steel is not a metal but an alloy, produced either in blast furnaces (70% of the total), or in electric arc furnaces (the remaining 30%, World Steel Association).

Blast furnaces (or Basic Oxygen Furnace)

With this technique, iron ore is the main raw material. Integrated steel producers mine coal, transform it into coke and then into iron. The iron is combined with varying amounts of steel scrap (less than 30%) and small amounts of flux. Adding oxygen, the temperature rises to 1700°C. As a result, the scrap melts, impurities are oxidised, and the carbon content is reduced by 90%, leaving liquid steel.

Electric arc furnaces

The electric arc furnace process (also called mini-mill) does not involve iron-making. The main material is scrap steel. This method operates on the basis of an electrical charge between two electrodes providing the heat for the process. Power is supplied through electrodes placed in the furnace, which produce an arc of electricity through the scrap steel (of around 35 million watts), causing the temperature to rise to 1600°C, melting the scrap.

1 - Description of both methods is inspired by the World Coal Association.
INVESTMENT INTELLIGENCE

BLAST FURNACES VERSUS ELECTRIC ARC FURNACES

Source: World Coal Association, Indosuez Wealth Management

STRUCTURAL DRIVERS OF STEEL CONSUMPTION

Emerging countries should be the source of most of the growth in demand, as apparent steel use per capita remains much lower there than in mature countries (with the notable exception of China, the largest steel producer and consumer in the world). In Africa, use of finished steel products per capita stood at 28 kg in 2017, against 319 kg in the European Union and 301 kg in the US, all eclipsed by China’s 523 kg/person. One can expect emerging countries to progressively catch up with mature countries’ per capita consumption.

However, the catch-up will be limited. Over the course of countries’ development, per capita steel consumption tends to increase, peak, and then start declining before plateauing, as a recent study from Accenture has showed. Moreover, technology advancements have caused per capita steel consumption to peak at lower levels of GDP per capita, and disruption factors (such as reduction in demand for a product, increase in useful life, and a change in steel intensity) might cause demand to peak at lower levels. For example, ArcelorMittal—the largest steel producer in the world—pointed out that “in many applications, steel competes with other materials that may be used as substitutes, such as aluminum (particularly in the automobile industry), concrete, composites, glass, plastic and wood”.

While Accenture does not expect global steel demand to peak before 2035, the growth rate for steel demand could decrease from the projected 1.4% per year to 1.1%, to 1.87 billion tonnes in 2035 (against a baseline projection of 2 billion tonnes in 2035). Automotive and capital equipment markets are expected to experience the largest reductions in demand.

Source: World Steel Association, Indosuez Wealth Management

APPARENT STEEL USE, KG PER CAPITA, 2017

Source: World Coal Association, Indosuez Wealth Management

3 - ArcelorMittal, 2017 Annual Report.
**A Very Fragmented Industry Ruled by China**

The steel industry is very fragmented. We have retrieved the market shares for 46 companies involved in crude steel production and calculated the Herfindahl-Hirschman Index (HHI), a metric for industry concentration, to be at 101.6 for the industry.

World steel production has more than doubled since 2000 (+122%), and most of that growth came from China. When China’s steel output declined in 2015, the global crude steel output contracted for the first time since the global financial crisis. The country’s global market share in world steel production reached 53% in November 2018, up from 15% in 2000, with production boosted by construction – the sector accounts for more than half of the nation’s, and the world’s, steel consumption. China is also the first producer of pig iron (63% of world production in November 2018). Given its dominant position in the market, China is the global price setter for steel.

**World Steel Production by Country, % of Total**

![World Steel Production by Country Chart](source: Bloomberg, Indosuez Wealth Management)

**The Current State of the Steel Market**

The steel industry is heavily influenced by protectionism and the decelerating GDP growth outlook, that weigh on demand for steel and steel prices, thus hurting profitability.

**Protectionism**

China has long been subjected to anti-dumping measures as well as tariffs on steel. On 1 March 2018, President Trump announced his intention to impose a 25% tariff on steel and a 10% tariff on aluminium imports. These are now effective, and only approximately 25% of imported steel is not subject to the tariff. While steel producers initially benefitted from the measure, the rise in prices has been short-lived. Indeed, China is the global price setter and therefore, regional prices cannot deviate too much from Chinese prices. Steel is a global product that can be transported, and if domestic US are too high, prices would make imports more competitive, even after tariffs and freight costs are taken into account. This would in turn increase supply and reduce prices. As shown in the chart below, the price differential between hot rolled coil Chinese export prices and US domestic prices exceeded USD 400 per tonne in July 2018. The price differential has cooled down at around USD 300/Tonnes today.

The European Union has also agreed on anti-dumping measures for Chinese steel producers, in the form of import quotas on Chinese steel.

**US Domestic Prices Versus Chinese Export Prices (Hot Rolled Coil), USD/Tonnes**

![US Domestic Prices Versus Chinese Export Prices Chart](source: Bloomberg, Indosuez Wealth Management)

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4 - A higher level indicates a high degree of concentration, and notably, a 1000 reading would correspond to a mildly concentrated industry.
THE MIXED MACRO-OUTLOOK WEIGHS ON STEEL DEMAND

As GDP growth is decelerating (we expect world real GDP growth to decelerate to be 3.2% in 2019, from 3.4% in 2018 and 3.6% in 2017), cyclical industries might have seen the peak in revenues. China’s Steel PMI index was in contraction territory at 45.4 in December, down from 48.55 in November and 55.76 in October. China has cut production but by less than anticipated and steel sentiment weakened in late 2018.

The World Steel Association expects global steel demand to grow by 3.9% in 2018, and to slow to 1.4% in 2019. Steel demand in developed economies is expected to increase by 1% in 2018 and 1.2% in 2019. In emerging economies excluding China, demand is likely to grow by 3.2% and 3.9% in 2018 and 2019, respectively. Regarding end-use markets, the Association’s outlook for steel demand in the construction and automotive sectors is mixed in many countries. The construction sector is expected to moderate in developed countries after the strong recovery seen in 2017, due to a high base and rising interest rates. The sectors should, however, continue to grow in most developing economies, notably in India, ASEAN (Association of Southeast Asian Nations), and MENA (Middle East and North Africa). Automotive markets have showed strong growth in developed economies, but are now softening. In developing countries, demand for automobiles is thought to continue to grow at a healthy pace, while the machinery sector in both the EU and the US continues to be supported by a strong investment phase.

2018 AND 2019 DEMAND ESTIMATES, %

Source: World Steel Association, Indosuez Wealth Management

THE SUPPLY SIDE: OVERCAPACITY

Structural overcapacity in the steel market weighs on steel prices. However, in 2017, global crude steelmaking capacity decreased for the second consecutive year to a level of 2,251.2 million tonnes (-1.3%) due to capacity reductions, notably in China, and slower capacity growth elsewhere. The reduction in global crude steelmaking capacity in 2017 has contributed to narrowing the gap between global capacity and production, which is now estimated at around 561,000 tonnes. According to the OECD, a number of new investment projects continue to take place around the world, and nearly 52 million tonnes of gross capacity additions are currently underway. Further 39 million tonnes are currently in the planning stages.

WORSENING INDUSTRY PROFITABILITY

Following a sharp price increase in 2016-2017, raw materials used in steel remain expensive. Iron ore prices bottomed in January 2016. Since then, iron ore prices have increased by half globally and by even more in China (although they remain lower than 2013 levels, when they reached 140-150 USD per tonne). Chinese scrap prices doubled since January 2016 (from USD 166.2 to 388.6/Tonnes), Chinese coke prices (contract prices) almost quadrupled over the same period, from USD 81/Tonnes to USD 309.8/Tonnes.

PRICES OF MAJOR RAW MATERIALS

Source: Bloomberg, Indosuez Wealth Management

As regards steel prices, hot rolled coil prices are falling from historical highs. In the US, domestic prices fell from USD 920/Tonnes in July 2018 to USD 740/Tonnes at the end of 2018 (-19.6%). European prices topped already in February 2018. In China, the pricing of both flat rolled and long steel products has been under pressure recently, while inventories decreased along with the seasonal trend. Steel and raw materials price trends have been correlated historically, but we have witnessed episodes of decorrelation that result in a “price-cost squeeze” situation for the steel industry. Moreover, as there might be several months between raw material purchases and sales of steel products, the risk for steel producers’ margins is exacerbated. Recently, we have seen steel spreads (the gross margin for steel producers) decrease for the second consecutive year to a level of 2,251.2 million tonnes (-1.3%) due to capacity reductions, notably in China, and slower capacity growth elsewhere. The reduction in global crude steelmaking capacity in 2017 has contributed to narrowing the gap between global capacity and production, which is now estimated at around 561,000 tonnes. According to the OECD, a number of new investment projects continue to take place around the world, and nearly 52 million tonnes of gross capacity additions are currently underway. Further 39 million tonnes are currently in the planning stages.

CHINA STEEL PROFITABILITY INDEX (CNY/TONNES)

Source: Bloomberg, Indosuez Wealth Management
Shares of global steel producers have underperformed the MSCI World Index since the end of 2009, with an episode of outperformance in 2017. In 2018, global steel producers have tumbled by 26.6% (TR), against -8.2% for the MSCI World Index (TR).

As regards valuation, the median price/earnings ratio (P/E) of global steel producers came down to 6 in the second half of 2018, lower than the previous low of 6.6 in late 2008. The average price/book ratio (P/B) was 1.3 at the end of 2018, just a tad higher than the 1.2 level witnessed in 2008. The enterprise value/EBITDA ratio, at 7, remains a bit higher than the 2008 level.

Shares of steel producers appear almost priced for a recession, but we think that further downside cannot be excluded given the current pressure on margins. Evidence of supply discipline, for example through new production cuts, and a rebound in steel spreads, although not common based on past experience on similar stages of the business cycle, would likely be necessary for the industry to outperform. Risks remain skewed to the downside.