China calls the shots

The rest of the world is now contaminated

Towards a new balance in 2018

**PANORAMA** 

April 2016

## **Steel sector:** produce at all costs?

COFACE ECONOMIC PUBLICATIONS

By Coface Group Economists



the 2000s, which were marked by the commodity boom and China's massive appetite as it became the largest producer and consumer, the steel sector is finding the aftermath of the party difficult. Eight years after the 2008 crisis, it is still suffering from significant overcapacity. The structural slowdown in the Chinese economy is obviously one of the main reasons for this development, but other factors are also at work - including the contraction and tertiarisation of activity in the rest of the world and the correlation of steel prices with other non-renewable commodities, which are also falling.

fter the heady days of Against this backdrop of sluggish demand, China's steel production capacity increased from 660 million tonnes in 2008, to 1.12 billion in 2015. The country is therefore flooding the rest of the world with its surplus steel, at the risk of causing bilateral tensions, as each country is concerned about protecting its national industries. Given listless domestic demand and foreign competition, financial problems are piling up for companies in this sector, which are among the most highly leveraged and least profitable in the world.

> After the 2.2% fall in 2015, global steel production is expected to contract by a further 2.5% in 2016, according to

Coface. The first reduction in Chinese production capacity (of 40 million tonnes in 2015) and the very difficult situation encountered by steel manufacturers, are confirming this scenario.

Steel demand is likely to remain sluggish in 2016 (0%), following a fall of 2.5% in 2015, due to the Chinese effect. But there are glimmers of hope in the longer term. Coface expects global demand to grow by 1% in 2017 and then by 2.5% on average over the following years, thanks to the positive outlook for urban population growth in emerging countries.



**APRIL 2016** 

# Steel sector: produce at all costs?



**Guillaume BAQUE** Economist



Paul CHOLLET Head of sectors and insolvencies

«Steel producers' solvency weaker than ever. There is no improvement in sight before 2018».



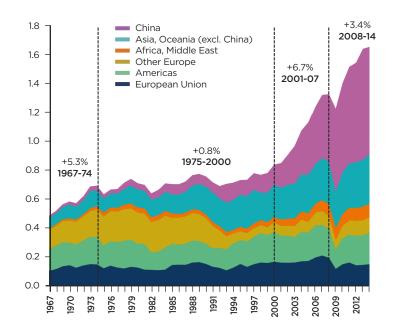
Graph n°1

### CHINA CALLS THE SHOTS

## Global demand driven by Chinese appetite between 2000 and 2007...

Global appetite for steel grew after the turn of the century. Between 2001 and 2007, global demand increased by 6.7% per year on average (see graph n°1). To meet this sharply increasing demand, which followed a long period of sluggishness between 1975 and 2000, companies in the sector began an unprecedented investment

Demand for crude steel (M tonnes, average annual growth)



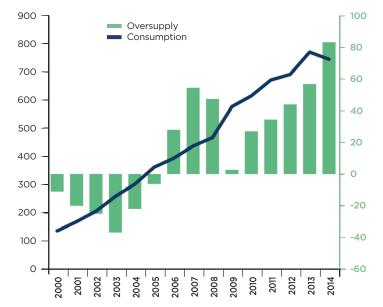
Source: World Steel Association

cycle to increase production capacity. The acceleration in steel demand caused tensions throughout the entire supply chain. The price per tonne of nickel rose from USD 6,700, on average, between 1990 and 2000, to USD 16,000 between 2001 and 2007. China was by far the largest contributor to this growth in the sector. Over the same period, its demand grew by an annual average of 13.1%. In 2014, the country accounted for 45% of the global demand for steel, 60% of iron ore, 50% of copper, 48% of aluminium and 45% of nickel.

GDP growth increased by more than 10% on average between 2000 and 2011, driven by high investment levels. Rapid urbanisation created huge demand for infrastructures and construction. By 2014, 54% of the country's population lived in cities, compared to 36% in 2000. This represents an increase in the urban population of 290 million inhabitants. Per capita GDP, in terms of purchasing power parity (PPP), was virtually quadrupled between 2000 and 2015, from USD 2,900 to USD 14,100 dollars. The abundance of liquidity made it possible to finance this development. This was underpinned by the savings glut of Chinese households (which rose from 30% to 40% of available income between 2000 and 2012) and by low interest rates. These positive financing conditions fostered unproductive investments, disconnected from the trend in demand, which led to a significant rise in China's surplus steel production (see graph n°2, page 3).



Graph n°2 Crude steel production and consumption in China (M tonnes)

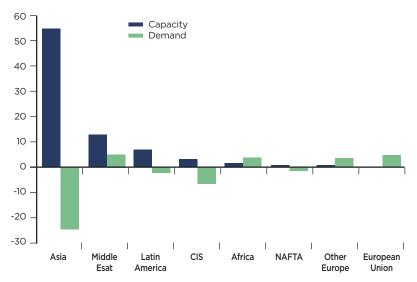


Source: World Steel Association

## ... before the Lehman crisis changed the situation

In response to the Lehman crisis, in November 2008, the Chinese central government presented an economic stimulus package of 4,000 billion renminbi (EUR 460 billion) to boost growth through investment, particularly in infrastructures. Immediately after this, in March 2009; a plan specifically dedicated to the steel industry was also ratified. Its objective was to

 $\mbox{Graph } \mbox{n}^{\circ}\mbox{3}$  Change in steel production capacity and consumption by region in 2015 and 2016 (M tonnes)



Source: OECD calculations

keep production in check, by eliminating obsolete production capacity. These were the first government measures aimed at addressing excess capacity in the Chinese iron and steel industry which, by 1996, had already become the largest steel producer in the world. However, the objective of reducing production to 460 million tonnes in 2009 was exceeded by far, with 569 million tonnes produced that year. 800 million tonnes were produced in 2015.

In addition to the massive economic stimulus packages for investments in infrastructure, the central government came up against regional and local resolve to retain employment and tax revenues linked to steel production (Inset n°1, page 4). In spite of the measures initiated in 2009, steel production capacity increased from 660 million tonnes in 2008, to 1.16 billion in 2014. The implementation of the central government's directives clashed with the regional interests of the 34 Chinese provinces. Each of them fought to keep employment and optimise its tax revenues, thus delaying plant closures. While the market share accounted for by the 10 largest companies increased until 2011, to 49.2%, it subsequently declined to 36.6% in 2014 (the Ministry of Industry did not announce this data in its annual overview for 2015). So while production capacity fell to 1.12 billion in 2015, this was mostly due to large, mainly public, enterprises and not the result of a concentration in the sector, or of more rational behaviour among smaller private companies.

The time that elapses between the planning of an investment and its execution also partly explains this persistent overcapacity. Despite public determination to restrict Chinese steel production, 2,037 new investment projects were recorded in 2014 - only 215 fewer than in 2013 (1). For Asia as a whole, while domestic demand should decline by more than 20 million tonnes, iron and steel production capacity could increase by another 55 million tonnes, according to the OECD (2) (see graph  $n^{\circ}3$ ). The slowdown in demand is an incentive for companies to curb their investments and maximise their profits, but the high costs involved in stopping production lines may discourage or delay capacity reduction. It is actually less costly to continue producing than to stop production, and the latter also enables companies to continue paying their debts (3). Structural goals, such as reduced external dependence, may also boost production.

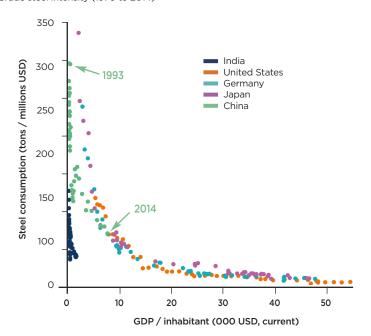
## China has already reached its consumption peak

The fall in Chinese demand, the first since 1995, explains most of the decline in Asian steel consumption in 2016. Global demand for finished steel has slowed down sharply, with a growth rate of only 0.8% in 2014, while it contracted by 2.5% in 2015 according to Coface. The two previous episodes of falls were triggered by global growth shocks: during the financial crisis in 2009 (-7.5%) and the Asian and Russian crisis in 1998 (-1.4%). While the slowdown in Chinese growth has been pronounced since 2012, stronger signals were observed in 2015, with the fall in local equity markets and a GDP growth rate of 6.9%, the lowest since 1990.

Given Coface's growth forecast of 6.5% in 2016, the slowdown of the world's second largest economy is continuing. The slump in Chinese demand is an indication of a growth paradigm shift. The weight of industry in GDP fell from 47% of GDP in 2005, to 43% in 2014. Conversely, the weight of services increased during the same period. Industrial production growth gradually declined and recorded +5.4% at end-February 2015, versus +7.9% in 2014. Similarly, real estate investment fell from +10.5% in 2014, to +1.0% in 2015. In other words, Chinese demand for steel, which fell by 40 million tonnes in 2014 and 2015, is likely to continue its decline in 2016.

Chinese demand will nevertheless remain sustained in the longer term, particularly to meet the needs for infrastructures linked to the growing

**Graph n° 4**Crude steel intensity (1970 to 2014)



Sources: World Steel Association, Banque mondiale, Coface

urbanisation, but it will increase at a lower rate than before the crisis. This slowdown in steel demand, which accompanies the slowdown in GDP growth, has been seen in the past in Europe, the United States and Japan. An emerging country's convergence towards high wealth levels is accompanied by a reduced need for infrastructures, relative to its population, and an erosion of industry to the profit of services. The importance of the steel industry therefore begins to decline when the economy attains a certain level of development <sup>(4)</sup> (see graph n°4).

Steel consumption per capita GDP tends to be similar for countries of the same wealth levels. In 1970, Germany's steel intensity (239 tonnes per USD million) was similar to Japan's in 1971 (247 tonnes), for a similar level of development, with a per capita GDP of USD 2,751 and USD 2,234 respectively. Similarly, China's steel intensity in 2014 was identical to that of the United States in 1975, of Germany in 1977 and of Japan in 1978, for equivalent per capita wealth levels. Only India is an exception. Its development process, which is more based on services and agriculture than industry, is a possible explanation for this peculiarity.

#### Inset not

The Chinese government's successive measures to reduce excess iron and steel capacity

In March 2009, a plan was adopted that aimed to restructure the Chinese steel industry (5). The government was concerned about the excessive fragmentation of the industry limiting its supervision and profitability. There were around 1,200 companies, of which 70 produced more than 100 tonnes per year. The goal of this first plan was to concentrate the sector around giants, such as Baosteel, the second largest steel producer in the world, in order to eliminate obsolete capacity. The announced objective at the time was that the five largest actors should concentrate 45% of the production, versus 43.5% for the ten largest in 2009.

In October 2013, China's central government published general directives to solve the problem of excess capacity in the industry <sup>(6)</sup>. It then called for a reduction in production capacity of the steel industry of 80 million tonnes by 2017 and introduced a ban on approving new iron and steel projects for the regions.

In February 2016, a new statement <sup>(7)</sup> from the central government announced the objective of reducing production capacity by between 100 to 150 million tonnes by 2020. In parallel, it also announced an initial reduction in production capacity to 1.12 billion tonnes, down 3.4%.

<sup>(4)</sup> Page 6, «The situation in the East Asian steel industry», OECD, April 1998

<sup>(5) «</sup>Steel and Iron Industry Restructuring and Revitalization Plan», http://www.gov.cn/jrzg/2009-03/21/content\_1264930.htm, mars 2009

<sup>(6) «</sup>Guideline to resolve serious overcapacity», http://www.gov.cn/gongbao/content/2013/content\_2514934.htm, octobre 2013

<sup>(7) «</sup>Curb to be placed on metal overcapacity», State Council of China, February 2016





### THE REST OF THE WORLD IS NOW CONTAMINATED

The extended period of overcapacity has weakened the sector's solvency. As of end-February 2016, only 66.2% of global production capacity was used, *versus* 70.2% in 2014 <sup>(8)</sup>. In other words, 33.8% of production lines remain shut down. As steel manufacturers are struggling to find domestic demand for their products, exports are a short-term solution. Finally, the fall in companies' profitability is more significant than during the previous crisis of the late 1990s <sup>(9)</sup>.

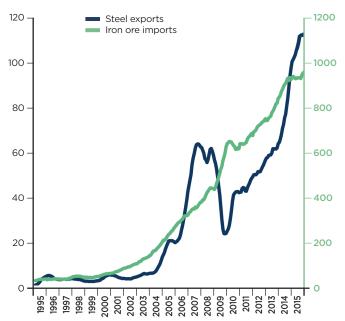
## Exports as a growth driver, but at what cost?

The slowdown in the global economy, which began in 2008, has hampered steel demand. In China, the weakening of consumption in the manufacturing sector has forced steel manufacturers to find new growth drivers outside their domestic market. Exports of Chinese steel thus increased substantially from 2012 and grew by 50.4% in 2014, to 93.8 million tonnes (see graph  $n^{\circ}5$ ). As at February 2016, 112 million tonnes of Chinese steel had been exported over a one year period, i.e. a growth rate of 11.8%. In the same month, the Chinese Ministry of Industry noted that the price competitiveness of exported steel remains strong (10), so exports will continue to be high this year.

Chinese steel, which is more competitive, can be used to replace local production. The impacts on the local iron and steel landscapes in many countries can therefore be significant. In the United States, for example, steel imports increased by 37.9% in 2014, before contracting under the impact of the introduction of anti-dumping taxes (Inset n°2). As of end-February 2016, domestic production had fallen by 10.3% in one year. In the same way, European Union (EU) imports of Chinese steel increased sharply in 2015 (see graph n°6).

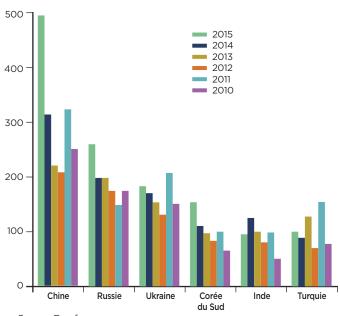
However, China is not the only country to increase its exports. Exports to the EU from Russia, Ukraine and South Korea have also increased. Steel manufacturers' foreign trade is benefiting from the decline in freight costs. The Baltic Dry Index (BDI), which measures the average cost of maritime transport of dry bulk, has hit its lowest levels since the index was created in 1985. As an example, the cost of shipping 10,000 tonnes of steel from China to Spain was USD 30 per tonne in 2013, versus USD 18 in 2015 (11). Global maritime transport capacity has never been so large. According to UNCTAD it doubled beween 2004 and 2015, to 1.8 billion tonnes Barring a sudden rise in oil prices, which is not Coface's core scenario, transport costs are likely to remain low in the short term. Lastly, some countries, such as Russia and Ukraine, have benefited from temporary positive effects due to the depreciation of their currencies against the dollar.

**Graph n°5**Exports of crude steel and imports of iron ore in China (12 months, M tonnes)



Source: Chine Customs

Graph n°6
Origin of the EU-28's steel imports\*
(thousand tonnes)



Source: Eurofer

(9) Page 11, F.Silva and A. De Carvalho, «Evaluating the financial health of the steel industry», OECD Steel Committee, January 2016

<sup>\*</sup> Hot Rolled Wide Strip, Coated sheets, Cold rolled sheets, Quarto Plate, Merchant Bars

<sup>(8) «</sup>February 2016 crude steel production», World Steel Association, March 2016

<sup>(10) «2015</sup>年钢铁行业运行情况和2016年展望», MIIT, February 2016

<sup>(11)</sup> A. Duddel, «Global steel and logistics: to exist in abnormal normality», SteelOrbis, March 2016

While Chinese steel producers are increasingly exporting their overcapacity, most of their outlets remain domestic. In 2014, Chinese steel exports accounted for 21% of the volume exported worldwide (versus 7% in 2005), but only 11% of domestic production (see graph n°7). In 2015, despite the record growth in exports, this rate reached 14%. In contrast, the iron and steel industries in France, Ukraine, the United Kingdom and Germany seem to be more export-oriented. When deducting flows that have been imported to be re-exported, Germany (79%), Ukraine (75%), South Korea and France (68%) are the countries that exported the largest proportion of their steel production in 2014.

## A sector among the most highly indebted and least profitable in the world

The global steel industry has been unable to solve its overcapacity problems in the aftermath of the 2008 crisis, amid a slowdown in global demand. If we add the competition from imports of Chinese steel, the financial situation of companies in this sector is becoming very strained. Out of 40,368 listed companies across the world, the steel sector is one of the least profitable (12). The EBIT/sales ratio, which is an indicator of profitability, was 2.6% at the end of the third quarter of 2015, ranking it 90th out of 94 sectors (see graph)  $n^{\circ}8$ ). The situations of companies in China and the United States are the most difficult, with negative ratios of -0.5% and -5.2%, respectively. The differential between EBIT and EBITDA measures asset amortisation and impairment. Its magnitude is an

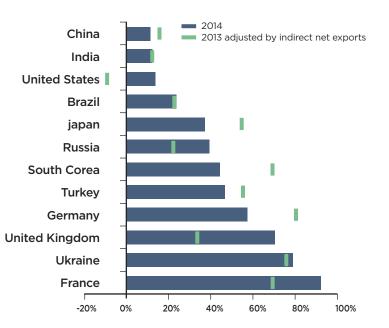
indication of the scale of the balance sheet corrections underway in the metals sector, especially in the United States and China.

The lacklustre demand for steel is causing an increase in corporate debt. In China, financial debts reached 50.7% of equity capital, *versus* 46.0% for all listed companies, all sectors taken as a whole. If we look at all companies in the metals sector, including unlisted ones, the ratio was 70% in 2015  $^{(13)}$ , according to the Chinese Ministry of Industry. Furthermore, the short-term debt of steel manufacturers worldwide is continuing to grow and has reached 44% of the total, versus 38% in 2006. This indicates growing funding problems  $^{(14)}$ . The sector's financial situation, worldwide, is therefore noticeably deteriorating (*Table n°1*).

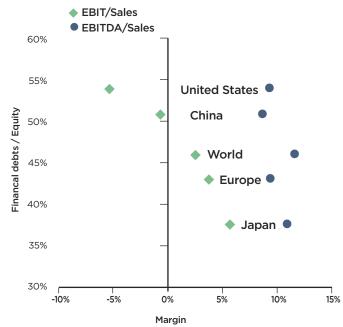
Table n°1 Coface sectoral assessments in the first quarter of 2016

Metals	
Western Europe*	
Emerging Asia	
North America	
Latin America	
Central Europe	
Middle Esat + Turkey	
Source: Coface Low risk	Medium risk
* European Union 15 Hight risk	Very hight risk

Graph n°7
Crude steel exports (% of production)



Graphi n°8
Financial data of listed companies in the third quarter of 2015



Source : data Aswath Damodaran

(12) Excluding banks, http://pages.stern.nyu.edu/~adamodar/

Source: World Steel Association

- (13) http://www.miit.gov.cn/n1146285/n1146352/n3054355/n3057569/n3057572/c4636541/content.html
- (14) Page 14, F.Silva and A. De Carvalho, "Evaluating the financial health of the steel industry", OECD Steel Committee, January 2016

Inset n°2

### Anti-dumping measures against Chinese steel

The surge in Chinese steel exports has triggered an increase in bilateral trade tensions. China is, by far, the country the most affected by protectionist measures, with 2,015 measures applied against it as at end-February 2016. Of these, 447 (i.e. 22%), are for the metals sector (15). These tensions have been increasing since 2014. In 2015 alone, 82 measures were adopted worldwide concerning Chinese metals (27% of all procedures in the year), versus 54 in 2014.

Recent measures in Europe

A complaint lodged in June 2012 by the European Steel Association (Eurofer) with the European Commission led to the introduction of a 32.1% anti-dumping tax on imports of stainless steel cables from India. A complaint lodged in June 2014 drove the European Commission to adopt, in March 2015, a 25.2% tax on imports of stainless steel cold-rolled flat products (SSCR) from China and 12% on imports from Taiwan. Then, in February 2016, three new anti-dumping

investigations brought the total currently being examined to nine. Taxes have also been introduced on imports of cold-rolled steel from China (13.8% to 16%) and Russia (19.8% to 26.2%). Out of the 37 anti-dumping measures on iron and steel products currently enforced by the European Commission, 16 concern China.

#### and in the rest of the world

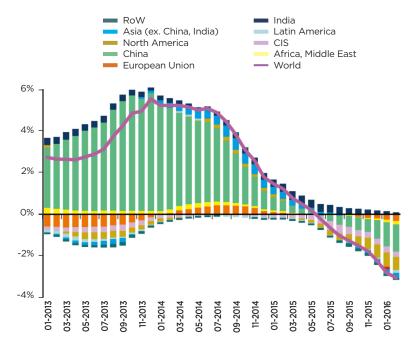
In September 2015, India imposed a 20% tax on steel from China. Many countries in Latin America have also been imposing anti-dumping taxes since 2015. The increase in imports, particularly from China, is at the expense of local production, as it replaces it. Intra-zone trade fell from 39% to 17% between 2005 and 2012 (16). The United States is the most active with, in particular, a series of anti-dumping taxes introduced in 2015 against steel imports from Brazil, India, Japan, Russia, the United Kingdom, Australia, Turkey and the Netherlands. In May 2016, a 265.79% anti-dumping tax was imposed on imports of cold-rolled steel from China.

3

### **TOWARDS A NEW EQUILIBRIUM IN 2018**

Global production has been declining since mid-2015 (-2.2% year-on-year, see graph  $n^{\circ}9$ ). The negative contributions of China and North America to this growth are the main reasons for the fall. As of end-February 2015, only Indian production is continuing to grow (1.8% at an annual average). North-American steel production declined by 8.4% in the same period. It suffered from the marked slowdown in investments in the oil and gas sector, which had accounted for as much as 10% of steel demand per year. The number of rigs drilling for oil fell from 1,882 in 2014, to only 532 in February 2015 (17). Moreover, Latin America is experiencing internal difficulties, reflected by a recession in the regional economy. In February 2016, steel production fell by 5.1% in the region. This reduction went handin-hand with the announcement concerning China's initial cuts in production capacity, - particularly in iron ore, equivalent to 8.0% of annual production (18). Iron ore prices picked up by 30% between January and March 2016. This movement is an indication of increased confidence in financial markets. Moreover, a sectoral demand study shows that the horizon is looking brighter.

 $\label{eq:Graph nonlinear} \mbox{Graph $n^\circ$9} \\ \mbox{Contribution of finished steel production to growth (annual average)}$ 



Source: World Steel Association

<sup>(15)</sup> Global Trade Alert, sectors 41 and 42, "red" and "amber" measures

<sup>(16)</sup> Page 4, "Global overcapacity: a growing risk for the Latin American steel industry", Alacero, December 2013

<sup>(17) «</sup>rotary rigs», Baker Hughes

<sup>(18)</sup> Page 1, «Commodity maters: production cuts, stacking up»; Morgan Stanley, October 2015

## 78% of steel production absorbed by three sectors

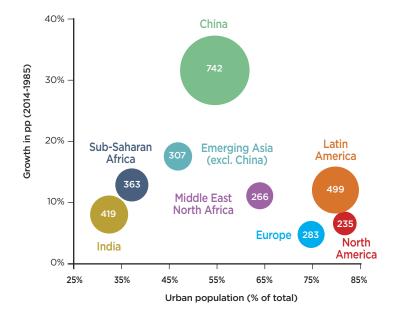
The momentum of demand is explained by an economy's wealth level, but also by the outlook for sectoral trends. At a global level, 78% of steel production is destined to three sectors of activity (19): construction (52%), the automotive sector (12%) and the mechanical industry (14%).

### Construction: expected upturn in housing begins!

The growth in urbanisation in emerging countries is likely to continue in the coming years. The reason is that, as at 2015, 80% of the inhabitants of high-income countries live in cities, versus 38% for the rest of the world.

The low urbanisation rates in India, Sub-Saharan Africa and emerging Asia point to a major chance of progression ( $Graph\ n^{\circ}10$ ). Regions such as Latin America, Europe and North America, in contrast, have high levels of urbanisation. In addition to this phenomenon of catching-up and the demographic trends in many regions, an increase in wealth also fosters urbanisation in order to meet the new needs of average households. According to Coface, by 2025, the number of urban dwellers should increase by 180 million in China, 80 million in India, 30 million in Brazil, 30 million in Indonesia and 10 million in Iran.

**Graph n°10**Evolution de la population urbaine entre 1985 et 2014
(taille de la bulle = population urbaine en 2014, en millions)



Source: World Bank WDI

## Automotive sector: gathering speed

This sector is a large consumer of quality steel. The rapid growth of the middle classes in emerging countries will probably continue to boost activity in the coming years. For example, in India, Indonesia and the Philippines, there were less than 100 cars per 1,000 inhabitants in 2014 (20), versus a ratio of 569 vehicles per 1,000 inhabitants in the EU and 808 in the United States. In the Middle East, this ratio is higher than in emerging Asia, but remains low, (e.g. in Iran, 170 vehicles). Lastly, among emerging countries, Latin American households post the highest ratio - for example Mexico, with 289 vehicles. Growth for the automotive sector will therefore mainly come from emerging Asia, but also from the expected renewal of European and US vehicles. The average age of the European fleet has risen continuously since the crisis, from 8.4 years in 2006, to 9.6 years in 2014. While sales of new vehicles increased by 3.9% in 2014 and by 9.9% in 2015 in the eurozone, they remain lower in volume terms than their pre-crisis levels, with 9.7 million new-car registrations, versus 11.6 million in 2007.

## Mechanical sector: automation will boost activity

Activity in this sector is closely linked to the trend in companies' investment in fixed assets. The erosion of the contribution of industry in the Chinese economy will weigh on the mechanical industry, which accounts for 18% of the domestic demand for steel, versus 14% worldwide. Moreover, the fall in oil prices (-46% in 2015) has caused a slowdown in investment projects in the oil sector worldwide, affecting pipeline manufacturing. While oil prices will remain low in 2016, they are likely to start rising slightly in 2017, towards USD 50 per barrel. As a result, investments in this sector will probably pick up somewhat. In the short term, other growth drivers are appearing in developed economies. Capacity utilisation rates in the manufacturing sector have been rising since 2013. They have reached levels comparable to those seen before the crisis in the eurozone and the United States. These increases will put more strain on production lines. which will require new investments. Despite the decline in industry in Europe, the automation of production apparatus is under way and is giving a boost to the mechanical sector.



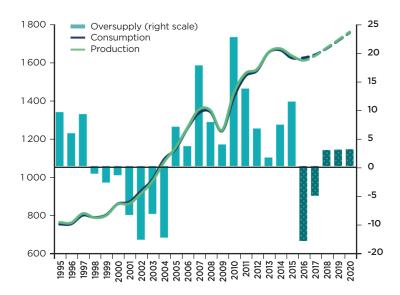
Table n° 2 10-year growth outlook for the main steel-consuming sectors

Metal	Weste Europ					North America		Latin America		Middle East + Turkey		
	2015	2025	2015	2025	2015	2025	2015	2025	2015	2025	2015	2025
Automotive	• 7	•	•		• :	7		<b>4</b>	•	<b>7</b> •		<b>7</b>
Construction	• 7	•		•		7		•	•	7 •		7 <b>•</b>
Engineering						71 <b>(</b>				7 •		

## A readjustment in 2016, with a return to normal from 2018

Global steel demand therefore seems to be cyclical, but it is also under the heavy influence of China's structural economic transition. The country, the world's largest steel consumer and producer, will nevertheless retain its leadership over the next decade. Demand for housing will continue to grow in China, driven by the needs of a new middle class to live in cities. India also appears to be a very promising market, as its convergence is likely to accelerate in the next decade, bolstered by its dynamic demography.

Graph n°11
Crude steel production and consumption (M tonnes)



Sources: World Steel Association, Coface

Steel demand is likely to remain listless in 2016 (+0%), after the 2.5% fall in 2015 due to the Chinese effect. The current situation seems particularly low in view of the future trends, especially as regards the automotive sector (Table no.2). This leads us to conclude that steel consumption could regain its momentum from 2017 (at +1.0%), subsequently followed by an annual average cruising speed of +2.5%, thanks to the good growth prospects for the three main steel-consuming sectors.

Global steel consumption grew 6.7%, on average, between 2001 and 2007. In the same period, annual global growth was 4.4%. Potential global growth is likely to be lower between 2020 and 2025 (+3.5%), due to the slowdown in the Chinese economy towards a growth rate of 5.0%, versus 2.0% in the United States and 0.9% in the EU <sup>(21)</sup>. The development levels of the main steel consumers have increased, lowering the intensity of their steel consumption intensity.

According to Coface, global steel production is expected to contract by 2.5% in 2016, following the 2.2% decline recorded in 2015. The first reduction in Chinese production capacity and the very difficult situation faced by steel manufacturers confirm this scenario. The market should therefore start to correct in 2016, be rebalanced in 2017 and return to normal from 2018. It should be able to create expectations of an increase in prices from 2017 (see graph  $n^{\circ}11$ ).

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