



# German steel set to benefit from global growth

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The period up to 2025 offers the German steel industry good prospects for a stable and economically sound future. Germany will not become a low-wage economy in the future and it will be adversely impacted by its shrinking potential workforce. However, in our principal forecast scenario, we have assumed that policymakers will take a reasonable approach to regulations imposed on the steel industry in the context of energy procurement and the further development of climate policy. In addition, we have anticipated that there will be a more moderate expansion in steel capacity worldwide, particularly in China, and this is likely to enable the innovative domestic steel industry in Germany to break even with an annual increase in production.

On the other hand, the prospects for the German steel industry would be much less favourable if lawmakers were to tighten the regulatory framework with adverse consequences and/or, as in the recent past, global steel capacity were to continue to grow faster than demand. In the worst-case scenario, Germany would potentially suffer a 'double hit' from huge losses in steel output and an adverse impact from high energy costs and climate policy measures. This scenario would also affect the steel industry's customers, especially the automotive industry and parts of the engineering sector.

In the medium term, the steel industry is faced with all sorts of challenges, from the structural crisis in Europe caused by significant overcapacity to the prospect of progressively greater competition from non-ferrous metals and plastics as substitute materials. Rising pressure from imports, notably from China (and currently also from Russia), at the very least also requires a level playing field for European steel companies operating in Asia, i.e. there should be the same regulatory conditions and freedoms as in Europe. The European Union (EU) should therefore think twice before hastily dismantling its existing trade protection instruments.

We are upbeat about the German steel industry in 2015 in view of the trend in inventories over the last year, continued optimism about the prospects for the construction industry, our latest estimates for the global economy and therefore also our assessments for the automotive and engineering industries, key customer sectors in Germany. In 2015, it ought to be possible to increase production in the highly innovative iron and steel industry by approximately 2% in real terms.

Nevertheless, the German steel industry will continue to have to cope with two counteracting forces in the current year. The favourable trend in terms of volume will still be offset by considerable downward pressure on steel prices, the two main factors being overcapacity in Europe and a further rise in the volume supplied by China. However, German steel producers enjoy a particular advantage in this regard derived from their product strategy, which has always focused on innovation and new grades of steel.



## German steel set to benefit from global growth

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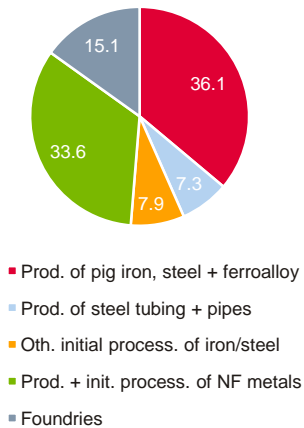
## German steel set to benefit from global growth

### Steel is a key component in the metals industry

#### Breakdown of the German metal industry

1

Proportion of total revenue for the metal industry accounted for by individual segments, 2014, %, Germany



Sources: Destatis, Deutsche Bank Research

In Germany and the wider world, the term metal industry covers a very wide variety of metals. The industry has two core segments, namely ferrous metals (iron and steel) and non-ferrous (NF) metals. In Germany, both of these segments together account for around 70% of the revenue generated from metals production. The other 30% comes from the manufacture of steel tubing, other iron and steel processing (such as wire manufacture) and foundries (ferrous and non-ferrous metals). At global level, iron/steel and non-ferrous metals account for similar proportions of revenue, i.e. together approximately 70% of revenue from metal production. If the manufacture of metal products is included in addition to actual metals production, the metal industry is far greater in size and therefore economically much more significant. The gross value added derived from the manufacture of metal products is more than double that from metals production itself, but in terms of revenue, the two parts of the industry are roughly the same size.

### Steel business is fundamentally more challenging than non-ferrous metals business ...

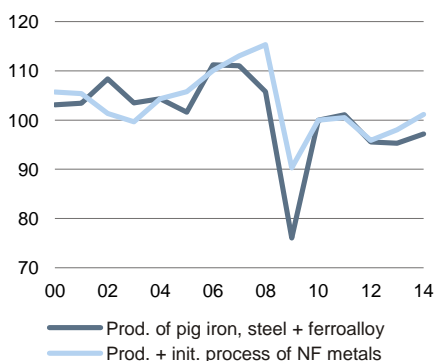
Iron and steel differ from non-ferrous metals in a variety of respects, and not just because of their respective physical and therefore technical properties. From an economics viewpoint, the specific metal prices in each case are of particular interest. These prices reflect the market situation for each individual metal, i.e. the supply and demand. However, they also mean that the metals can be compared from an economic perspective, which is particularly interesting if different metals can be put to the same use and are therefore in competition with each other as potential substitutes.

A significant point in this regard is that very different pricing mechanisms have become established for the two main product groups in metals production, iron and steel on the one hand and non-ferrous metals on the other. These mechanisms represent a clear differentiation in the way that the individual metals markets operate. For example, important non-ferrous metals such as the light alloy aluminium and heavier metals such as lead, copper, nickel and zinc are typically traded on international metal exchanges. In Europe, these metals have been traded on the London Metal Exchange (LME) for well over 100 years. To support trading, the market has established standard quality specifications and the specifications turn each non-ferrous metal into a commodity. The commodity specification increases price transparency. This has a number of implications for potential buyers and sellers. Ultimately it sets price differentiation limits when producers or suppliers market metals because the high degree of market transparency enables potential buyers to compare prices between products that are the same.

#### Important segments of the metal industry with similar production trends

2

Production indices, 2010=100, Germany



Source: Destatis

### ... because steel pricing is much more varied due to the range of different products

In contrast, price discovery for the diverse grades of iron and steel is much more complex. The reason for this is that – compared with the small number of non-ferrous metal standards, which have been well defined for the purposes of trading on exchanges – iron and steel is available in a large variety of quality specifications, with new types or grades appearing all the time as a result of technical progress. In turn, the huge and constantly expanding range of products is not compatible with the volumes necessary to ensure effective exchange trading because a liquid exchange market fundamentally depends on the availability of tradable volumes and associated contracts. The steel business



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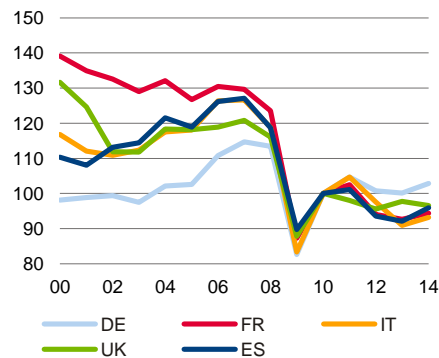
is therefore particularly challenging because, overall, there is no one specific grade of steel that can be traded as a commodity on the LME.

### Steel industry stronger again at the end of 2014

#### German metal industry relatively stable

3

Production volume index, metal industry, 2010=100,



Source: Eurostat

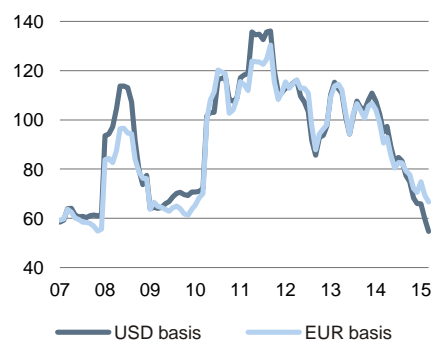
Given even brighter general economic prospects initially on the horizon at the start of 2014, notably in key customer industries such as the automotive, engineering and residential construction sectors, the German steel industry began the year in rather optimistic mood. However, the persistent economic weakness in the eurozone, the industry's principal market, forced steelmakers to rein in their forecasts markedly. Over the whole twelve months, the industry did not quite achieve the growth envisaged at the beginning of the year. Nevertheless, steel output in 2014 still grew by an inflation-adjusted rate of 1.8% year on year, one of the factors being a surprisingly steady fourth quarter. Viewed over the year as a whole, the key driver did in fact turn out to be the significant growth in the production segments covering metal products (up by 3.4%), the automotive industry (up by 4.5%), engineering (up by 1.2%) and construction. In 2014, the German steel industry therefore expanded production for the first time since 2011, output having contracted in the previous two years (2013 down by 0.2%, 2012 down by 5.5%). The growth in output determined from the production index published by the German Federal Statistical Office is not far removed from the actual value from the German Steel Federation (WV Stahl), which reported crude steel output in Germany at 42.95 million tonnes in 2014, equating to volume growth of 1%.<sup>1</sup>

### Lower metal ore prices relieve the pressure in 2014

#### Prices for iron ore and steel scrap down markedly

4

Global market prices, 2010=100



Source: Hamburg Institute of International Economics (HWWI)

In 2014, the metal industry benefited from some relief caused by lower prices for metal ores imported into Germany, one of the consequences of continued slow growth in the global economy. For example, 2014 prices for imported iron ore were down by 17% compared with 2013, with prices for imported non-ferrous metal ores showing a 6% year-on-year fall. However, the global drop in ore prices in 2014 also meant that the prices of metals imported into Germany remained below the 2013 prices, 2% down in the case of both the pig iron and steel segment and the non-ferrous metals segment. At the same time, it is clear that competition has become somewhat fiercer for two other reasons:

- Firstly, there are persistently weak levels of economic growth in many European countries, which ultimately means that steel producers in these countries are looking for opportunities in neighbouring countries where they can sell significant volumes. One attractive sales territory for European producers – some of whom also enjoy a degree of government 'assistance' – is of course currently Germany, based on its geographical proximity, its size, the importance of its steel-based customer industries and, not least, its present economic strength.
- Secondly however, the slowdown in economic growth in China – which has now been evident for some time – is also leading to greater competition in European and German steel markets. In the past decade, China was initially the main driver behind the international demand for iron and steel, and for metal commodities in general. However, in the move towards greater industrialisation and population relocation – for example, with the development of modern automotive production facilities (frequently in partnership with foreign manufacturers) and the creation of state-of-the-art housing developments and workplaces – the country then also built up more

<sup>1</sup> See Stahlkonjunktur: Aussichten 2015 (Steel industry: outlook for 2015). Stahlmarkt magazine (2015a). No. 3, p. 8.



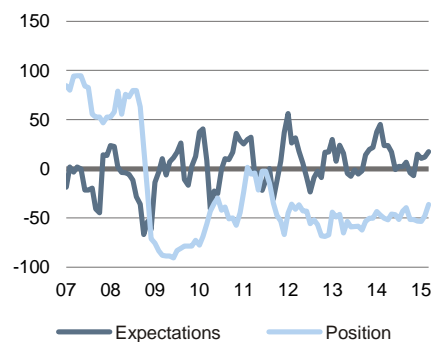
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and more of its own steel production capacity to meet the rising demand at home. The somewhat slacker pace of growth in China is now leading to a situation in which Chinese steelmakers are increasingly looking for and successfully finding sales opportunities abroad, even in the distant European market.

### Steel industry on the up in 2015

#### Steel industry: Cautiously optimistic 5

Net result from positive and negative company reports, Germany



Sources: ifo Institute of Economic Research, German Steel Federation

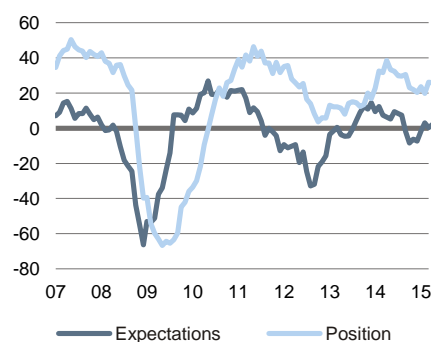
The upturn in the German steel industry is likely to continue in the current year. This forecast is supported by a number of factors. Although production in the domestic metal products segment will probably only expand slightly by approximately 0.5% over the whole of 2015, we are more optimistic about the automotive and engineering industries, the key customer segments, which are expected to see production growth in real terms of 2%. The prospects for the construction industry are also favourable. Since mid-2013, demand in residential and commercial construction has been boosted by the comparatively buoyant domestic economy in Germany. Further stimulus has come from the historically very low interest rates, the net immigration enjoyed by Germany for some time and from the noticeable lack of investment alternatives to the domestic construction industry.

#### Fall in the value of the euro increases cost of iron ore – but overall provides a boost

Although the expansionary monetary policy of the European Central Bank (ECB) and the accompanying weakening of the euro make it more expensive to procure basic commodities on international markets, particularly iron ore, this only applies of course on the assumption that everything else remains the same. Currently, this assumption is not really valid. In fact, over the last few years there has been massive capital investment at a global level in developing new iron ore mining sites. This investment paid off in the beginning, thanks to the initial increase in demand for ore, mainly in China. However, circumstances have now changed, the pace of growth in China – the world's largest consumer of steel and ore – has slowed markedly and consequently the global market is burdened by considerable excess supply.<sup>2</sup> As there do not appear to be any immediate efforts (such as a rapid market adjustment on the supply side) to address the causes at the moment, prices for iron ore will remain under pressure with little prospect of them rising.<sup>3</sup> To a certain extent, the low or lower ore prices – which naturally vary (greatly) from case to case – will thus offset the otherwise upward movement caused by the euro devaluation. At the same time, the weakness of the euro is significantly improving the growth prospects of major German customer industries such as the motor vehicle industry in key regional markets outside the eurozone. The net result in 2015 is that, overall, the domestic steel industry ought to be boosted by the currency movement.

#### Metal products: Position better than forecast 6

Net result from positive and negative company reports, Germany



Source: ifo Institute of Economic Research

<sup>2</sup> For details, see Synagowitz, Bastian et al (2015a). Steel-Making Materials. Deutsche Bank Markets Research. Commodities Quarterly. March 31, pp. 92-113, 122. According to this analysis, global demand for iron ore may fall slightly in 2015 for the first time since 2009. It is therefore entirely possible that iron ore prices could fall below USD 50 per tonne in the second and third quarters.

<sup>3</sup> See also Synagowitz, Bastian (2015b). Negative momentum in iron ore and US prices continues. Deutsche Bank Markets Research. Steel Price Tracker. March 31.



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### Oil price correction and increase in inventories also favour steel industry

In addition to the above, the drop in the price of oil is also likely to have a clear net positive benefit for the steel industry. Although steel producers are not direct customers of oil suppliers to any significant extent, they will nevertheless benefit. The decrease in household outgoings resulting from lower fuel and/or heating costs will lead to unplanned savings. This is likely to stimulate consumer spending in 2015, in turn benefiting goods with metal content.

In addition to the factors specified above, the marked reduction in inventories in the steel industry in the last quarter of 2014 will have a positive impact on steel output in Germany in the current year. As both metalworking businesses and dealers began 2015 with relatively low inventories of iron and steel they will probably have to adjust these levels upwards during the course of the year – especially in anticipation of an improving economic situation.

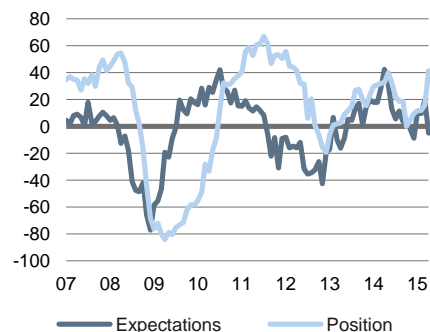
The steel industry still faces some risks of course in 2015. These risks range from the uncertain progress of the present conflict between Ukraine and Russia to the potential for a surprising about-turn in current OPEC policy, although the latter is not (yet) anticipated at the moment.

### Countervailing forces in steel industry despite volume growth

Automotive industry: Mood significantly more optimistic

7

Net result from positive and negative company reports, Germany



Source: ifo Institute of Economic Research

We are rather upbeat about the prospects for the steel industry in the current year in view of the trend in inventories in 2014, our latest principal forecast scenario for growth in the global economy and therefore also in the relevant domestic industrial sectors and the construction industry. Ultimately, having also taken into account current trends in new orders and the latest business forecasts, we believe it is likely that production in the iron and steel industry could increase in real terms by approximately 2% in 2015. Specifically in terms of crude steel output, this equates to probable volume growth of 1% to 43.3 million tonnes, which is also the forecast for 2015 projected by the German Steel Federation.<sup>4</sup>

However, the comparatively good performance in straightforward volume terms must be seen in the context of other factors. In particular, the competition from other important European countries remains significant. Although the economies of these countries are likely to recover somewhat, this will not fully compensate for the weak growth over the last few years. As a consequence, producers will probably still be pushing a substantial quantity of steel into both the German market and other steel markets that would otherwise be taking a greater volume from Germany. The situation is further exacerbated by the sustained high level of steel production in China and the lack of corresponding demand in the country's domestic market, which will continue to result in additional competition and therefore downward pressure on prices in international markets for iron and steel.

Given the evident countervailing developments in the steel industry in terms of volume and prices, all current and foreseeable trends in connection with the steel business are of huge interest and great importance to the German steel industry. There is therefore some sense at this point in including a medium-term forecast for the German iron and steel industry in a discussion of key questions of the day, the specific answers to which could influence the future opportunities for important German industries.

<sup>4</sup> See Stahlkonjunktur: Aussichten 2015 (Steel industry: outlook for 2015). Stahlmarkt magazine (2015a), p 10. Kerkhoff, Hans Jürgen (2015b). Robuste Mengenkonzunktur (Robust volume growth). German Steel Federation. Press briefing. Hannover. April 13, 2015, pp. 3, 9.



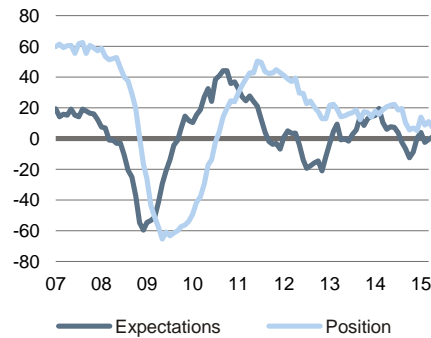
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### Great challenges ahead in the medium term

#### Engineering relatively stable

8

Net result from positive and negative company reports, Germany

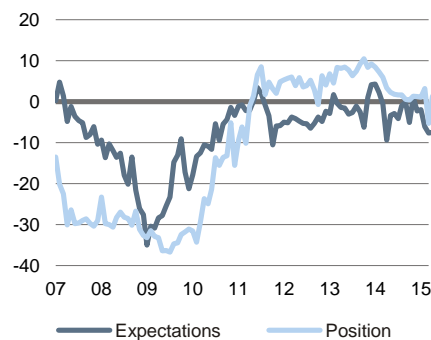


Source: ifo Institute of Economic Research

#### Building construction still at stable level

9

Net result from positive and negative company reports, Germany



Source: ifo Institute of Economic Research

In the medium term, the German steel industry is faced with a variety of challenges, some of which have very different origins. It will be essential to overcome these challenges to ensure the future prosperity of the industry. The following issues appear to be of particular interest in the medium run: Is the pressure from imports experienced over the last few years likely to continue? Will the structural crisis in Europe continue or is a solution in sight? In view of the highly idiosyncratic energy and climate policy pursued in Germany for a number of years, will the issues of energy costs and uncertainty about future energy policy remain a particular challenge in the future? Will there be even fiercer competition between steel and substitute materials in the future, which in the worst-case scenario would represent one of the greatest challenges faced by steel producers?

#### Challenge of rising pressure from Chinese imports persists ...

Over the next few years, China will remain one of the critical players in the global steel market, if not *the* most critical player as far as major changes in steel trading are concerned. This is because, in recent years, China has achieved growth as a steel-exporting country on an unprecedented scale. In year one following the financial crisis at the end of 2008, i.e. 2009, which saw a sharp downturn in the global economy and not least also in industrial output in the established industrialised nations, China exported 24 million tonnes, 'only' roughly as much as the comparably large steel exporting countries South Korea, Russia and Ukraine. However, the figures for last year, i.e. 2014, underscore the magnitude of the changes that have taken place over the last few years. In 2014, China exported 92 million tonnes, some 9 million tonnes or 11% more steel than the combined exports (83 million tonnes) of the aforementioned countries – South Korea, Russia and Ukraine – who are also individually among the top ten steel-exporting countries in the world.<sup>5</sup>

China expanded its steel exports by 51% or 31 million tonnes in 2014 alone, thereby contributing around four-fifths of the growth in global steel exports (up by 9% to just over 440 million tonnes). This was attributable, not least, to two countervailing trends; firstly, China continued to expand its steel output capacity, a trend that it has sustained; secondly, the ongoing expansion in capacity has been taking place during a period in which domestic demand for steel has no longer been rising at the rapid pace of previous years owing to the strategic realignment of economic policy in China. Little wonder then that China's steel exports have continued to climb markedly in the first two months of 2015 (up by 60%).

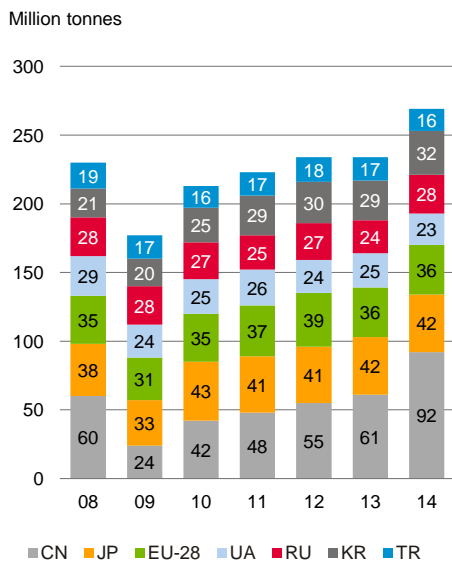
Even though most of the rising volume of steel from China does not (yet) come directly to Germany, and often does not match the quality of the steel produced in Germany, the Chinese output and exports still have an overall impact on German producers. Firstly, if the steel is of similar quality (which is not yet usually the case) and is offered in third-party markets in which German producers are also active, this has a negative impact on German sales in terms of volume and/or price. Secondly, steelmakers from other countries that are also suffering from China's export boom are now increasingly attempting to resolve their problems by penetrating the German market, which is attractive because of its relatively high volume consumption. Thirdly, it is becoming tougher than before to sell German metal products in Chinese markets because of the rise in domestic supply in China. The adverse impact on metalworking companies is naturally also felt in turn by domestic steel producers in Germany.

<sup>5</sup> For quantities, see Stahlkonjunktur: Aussichten 2015. Stahlmarkt magazine (2015a), p. 10.



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Steel exports for selected countries –  
Chinese exports continue to rise



Sources: Official foreign trade data, German Steel Federation

### Russia is ranked fourth in the list of steel-exporting countries

Looking ahead, China's rising domestic output will remain a serious challenge because even greater steel exports from China to Europe and the rest of the world can be expected in the future. As Europe is the main sales territory for German producers and will probably remain so, these producers have a legitimate interest in ensuring that, at the very least, the competition with Asian providers is subject to the same regulatory conditions – and that this applies not only to the European but also to the Asian market. However, until there is a level playing field both in Europe and in Asia, the EU should not rush to dismantle its existing trade protection instruments under any circumstances. Any unilateral relaxation on the part of Europe, especially with regard to standard quality specifications without any equivalent concessions in return, would pave the way for cheap exports to Europe, particularly from Chinese steelmakers. The objective of European trade policy should therefore remain reciprocal market liberalisation with equal opportunities both in Europe and in Asia.

### ... and rising steel exports from Russia also probable

In terms of trading, China will be the key trendsetter in the global steel business over the medium term. Nevertheless, there are other developments currently on the periphery that also represent a challenge. These include first and foremost the current political conflict between Russia and the West. In 2014, the conflict and the further weakening of economic activity in Russia caused by the conflict had already caused Russia to rise to fourth in the list of the leading steel-exporting countries worldwide, a ranking that was even ahead of Germany. Furthermore, fully one quarter of the steel exported by Russia went to one of the 28 EU countries, a fact that increased the current tension. If the other European countries are included in the equation, more than two-fifths of Russia's steel exports are destined for Europe – i.e. the main target market for German steelmakers. As there is no end to the conflict in sight at the moment, the pressure from Russian exports on the global steel market is only likely to increase. There are a number of reasons for this, not least the current weakness of the rouble, which is helping Russian exports. In addition, the economic weakness of Russia itself is leading to noticeably lower domestic demand for steel (for example, because of falling local output in the automotive industry), releasing greater quantities of steel for export. As if all this was not enough, new steel capacity is currently still coming on stream in Russia. Moreover, the lower cost of labour caused by the exchange rate is giving a further boost to the international competitiveness of Russian steel.

Only if the current Russia conflict were to be resolved during the course of the year is it likely that the problem of rising Russian steel exports would recede. In particular in this positive scenario, German and other European producers would find it easier to cope with the 'Russia problem' than with the challenge of future increasing steel exports from China, which we believe is much more of a stable trend over the medium term. Of course, there are barely any indications at all at the moment that the Russia crisis could actually come to an end very soon. The competitive pressure from both countries will therefore not only continue – at least initially – but will probably become even more noticeable in the coming months.

### Challenge of the as yet unresolved structural crisis in Europe adds to problems ...

In Europe, the increasing problems in the steel industry caused by the growing pressure from imports, particularly those emanating from China and Russia, are being exacerbated by the fact that they are hitting a steel industry that is already suffering an evident structural crisis. Over many years, Europe has failed to shut



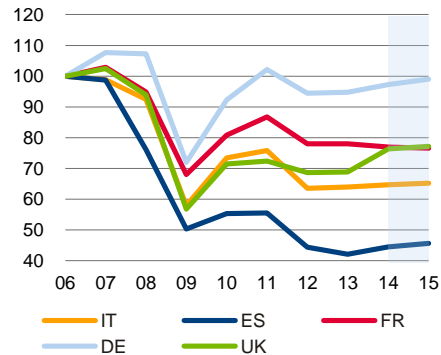


## German steel set to benefit from global growth

Market supply of rolled steel broken down by countries of EU-28

11

2006=100



Sources: Eurofer, German Steel Federation

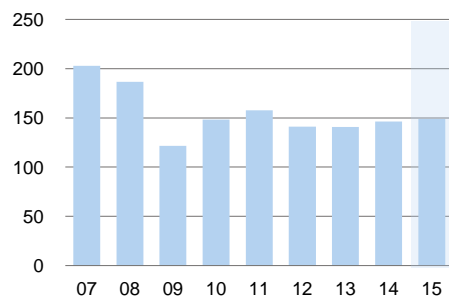
down surplus and/or obsolete steelmaking capacity that will probably not even be required in the future. Some of the main causes of this obvious overcapacity are changing industrial structures in major countries, resulting overall in a level of demand for steel that is much lower than was once anticipated. You only have to think of the gradual decline in the importance of the French or Italian automotive industries in the last few years. It is for this reason that the demand for steel in Europe recently reached just 145 million tonnes, a volume that is still around 30% below the last high in 2007.<sup>6</sup> Despite the odd plant closures that have taken place here and there in recent years, Europe still has steel capacity of some 210 million tonnes<sup>7</sup> that it could activate, i.e. way 'too much'. The consequence of all this is that even some of Europe's significant steelmakers have only been able to achieve capacity utilisation of up to 80% in the last few years.

Instead of addressing the identifiable structural crises in individual countries or across Europe, efforts have been laboriously focused on the symptoms. Furthermore, some countries have no compunction about interfering in ownership structures with the aim of preventing anything from overdue structural adjustments to plant closures under the pretext of implementing a (supposedly) employee-friendly industrial policy. However, if overdue consolidation required as a result of changes in economic structures is not carried out as a consequence of state intervention or even nationalisation, then the problems in Europe will only become greater, not smaller. The German steel industry is one of the main industries affected. Its companies are predominantly private sector enterprises, focusing on the quality of the steel and working closely with their key customers.

Rolled steel: Slight recovery in market supply in EU-28

12

Million tonnes



Sources: Eurofer, German Steel Federation

The rising level of competition from countries with few market economy structures, i.e. China and Russia, raises a number of fundamental questions regarding competitiveness and the issue of a level playing field in the international steel business. In addition, even now, there are the very different approaches in individual European countries in which consolidation that is actually well overdue is not implemented for what can be described as 'reasons of national economic interest'. This means in turn that uneconomic steel plants still survive, as has recently been seen in France and Italy<sup>8</sup>. However, this then hampers the steel business activities of those producers at home and abroad that are actually economically efficient, competitive and therefore in private ownership. In countries or economic areas with market economies, there should be no government intervention in overdue consolidation processes in industries with evident, persistent structural problems. If this requirement were given more consideration in Europe, it would benefit not least the German steel industry, which addressed its structural problems years ago – particularly after reunification – by implementing the necessary measures, including structural adjustments that went as far as plant closures. The remaining European steel manufacturers would also find it easier to make a new start after a period of consolidation.

### ... EU capital investment programme promises greater demand – but only temporarily!

In many places, the current crisis in the European steel industry is also (only) seen as a consequence of a European capital investment crisis. In March 2015, EU finance ministers approved an investment programme that will put a total of

<sup>6</sup> See Kerkhoff, Hans Jürgen (2015a). Aussichten der Stahlindustrie für 2015 (Outlook for the steel industry in 2015). German Steel Federation. Press conference. Düsseldorf. January 16, 2015, p. 2.

<sup>7</sup> See also Heitker, Andreas (2015), Die drei großen Probleme der europäischen Stahlkoher (The three major problems faced by European steelmakers). Börsen-Zeitung. February 4, 2015.

<sup>8</sup> For country examples, see e.g. Heitker, Andreas (2015).



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EUR 315 billion into strategic investment between 2015 and 2017. There is no doubt that the European steel industry will ultimately also benefit from a boost to demand as a result of this programme.

In 2008, capital investment across Europe was roughly one fifth higher than the current level. Even if the investment differential in Europe compared with 2008 could be closed (not least also as a consequence of the new EU incentives), there is considerable doubt as to whether the steel industry could expect a sufficiently major and lasting stimulus as to make structural adjustment unnecessary. Although the steel industry would benefit temporarily, the short-term programme does not in any way represent a really permanent solution. It will probably only delay the corrections necessary in the European steel industry – necessary not least because of the evident structural transformation in European industries – and will simply shift the efforts required to deal with the problem into the future. It is therefore more than questionable as to whether Europe as a location for business investment really is best served on a permanent basis by this programme.

### Challenge of energy prices remains an issue in Germany ...

Energy prices are a significant factor affecting steelmaker competitiveness. This is the reason why, for decades, special terms for the purchase of electricity have been made available to the industry, including in Germany. Without this assistance, it would have been a great deal more difficult for the German steel industry and other industries that form part of Germany's industrial base – from key parts of the chemical industry to the non-ferrous metals industry – to survive over the years at the current level. In turn, this would have had a negative impact on key customer sectors, including the automotive, mechanical engineering and electrical engineering industries.

It was therefore a big relief for the steel industry when, at the end of 2014, the European Commission dropped an investigation that had already been ongoing at the beginning of 2014 into whether the reduced EEG surcharge in existence up to that point – a reduced surcharge applied under the German Renewable Energy Sources Act (EEG) for energy-intensive users including the steel industry – constituted state aid. It is also doubtful whether the investigation would have served any purpose anyway, even from an environmental perspective. It is possible that production would have been relocated to countries with environmental standards notably less ambitious than in Germany and entirely conceivable that the end result would have been greater global environmental pollution than at present. According to calculations by the German Steel Federation, the loss of the reduction on the EEG surcharge for the purchase of electricity and the additional imposition of the EEG surcharge on the steel industry's own power generation – a measure that was also planned by the German government in the past – threatened the industry with additional costs amounting to EUR 1.3 billion.<sup>9</sup> One problem that does remain however is the grandfathering provision for the industry's own power generation, which is only in place for two years. Thereafter, unfavourable readjustments could be imposed at any time. In addition to the absolute level of energy costs, uncertainty about the future direction of German energy policy is in any case another adverse factor weighing on the steel industry. This uncertainty is probably one of the main reasons why the sector has been reluctant for some years to commit capital investment in Germany.

Future direction of German energy policy is uncertain

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<sup>9</sup> See Kerkhoff, Hans Jürgen (2015a), p. 6.



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### ... and climate policy surprises are possible

Uncertainty about energy and climate policy is holding back capital investment

Climate policy addresses a problem that spans the world and that is likely to become even more important as time passes. Europe – including Germany – has taken a leading role in recent years in the efforts to address this group of issues. Notably, Europe has become an international trailblazer in this respect with the establishment of a scheme for the trading of CO<sub>2</sub> emissions certificates covering a large number of countries. There have been repeated surprises in the last few years in connection with CO<sub>2</sub> emissions trading. Given this backdrop, steel producers believe it is debatable whether there is any point to further development of emissions trading and especially certificate pricing. In the steel industry, where the proportion of total production costs accounted for by energy is exceptionally high, uncertainty about energy and climate policy does not encourage capital investment decisions, much more so than in many other sectors of the economy. As in other areas, policymakers should therefore aim to establish transparency and a reliable long-term framework for emissions trading and the further development of the schemes. The continued existence of steelmaking in Europe depends on producers being able to keep the overall costs of the necessary energy consumption (and of the unavoidable process-related emissions) under control – especially if non-European countries continue to pursue less ambitious climate policy targets in the future. Another reason to avoid surprises is that they affect an industry where many of the businesses have often only been operating at the very edge of profitability for years. It is thus understandable that there is some irritation in the Federation about initiatives like the one pursued by the German federal government aimed at the rapid introduction of a 'market stabilisation reserve' from as early as 2017, whereas the European Commission had proposed that this measure only be introduced for the period after 2020. The German Steel Federation has calculated that the German steel industry could incur additional electricity costs of more than EUR 1 billion in 2030 as a consequence of rising emissions certificate prices, a figure that is roughly the same as the volume of annual capital investment by the iron and steel industry in Germany.<sup>10</sup>

### Challenge of competition from non-ferrous and plastics substitutes

Significant competition between the materials

One of the major ongoing challenges faced by the steel industry is the competition from substitute products in individual customer sectors ranging from the construction industry to industrially manufactured mass-market products, such as motor cars. Much depends on the material properties and prices in each instance and these factors need to be assessed very differently on a case-by-case basis. Generally, iron and steel are in competition with a very wide range of materials, mainly determined by the area of application. Depending on the material properties required, perhaps the biggest competitors are individual non-ferrous metals (such as aluminium), plastics and glass, and even textiles, wood and stone. If the steels in question have application properties that are just as good as the competing materials, then individual prices highlighting comparative economic appeal become a key consideration. In this regard, the critical factor in the long-term success of an individual steel product in the marketplace is far from being just its absolute price in comparison with that of other grades of steel, it is also how this price compares with that for substitute materials.

Differentiated analysis is required

Past experience shows that there is not just one big winner in competition between materials. For example, just a few years ago it was predicted that lightweight materials such as aluminium and plastics would see all other competing materials in car production cast to one side because of rising fuel prices, but this did not happen with the degree of certainty anticipated at that

<sup>10</sup> See Kerkhoff, Hans Jürgen (2015a), p. 7.

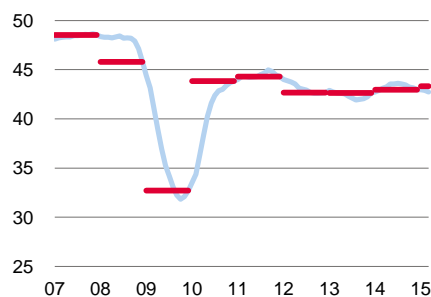


## German steel set to benefit from global growth

### Crude steel production recently stable

13

Million tonnes, moving 12M average, ann., Germany



Source: German Steel Federation

time. In fact, the steel industry was in a position to counter the trend by developing thinner but more stable steels. As a consequence, thanks to considerable progress in materials technology, the latest, energy-efficient vehicles even now still comprise quite a high proportion of iron and steel<sup>11</sup> and in the future this may increasingly also be in the form of a combination of materials<sup>12</sup>. There are now cars with a high proportion of carbon fibre reinforced plastic (CFRP) components.<sup>13</sup> Various research projects are also being undertaken in the US aimed at reducing car energy consumption.<sup>14</sup> These developments bring to mind predictions in other sectors, where advances in materials technology likewise brought back to life materials that were believed to have 'passed away'. For example, 30 years ago, many believed that the advent of fibre optics would herald the end of the use of copper cables in telecommunications; in reality, today's state-of-the-art communications networks – indeed such networks throughout the world – make use of both materials. Despite all of this, the steel industry would be well advised to keep a very close eye on competing materials and their continued development, from the progress made in terms of production costs and product properties to pricing.

In addition to the substitution of individual metals, recent years have also increasingly seen developments in the use of complementary materials or combinations of materials. The additional use of different metals, plastics, textiles, glass or stone can generate economic and/or technical benefits in the construction industry. In the automotive and engineering industries too, factors including changes in energy prices and environmental requirements mean that the use of different material combinations is currently definitely on the rise and has long since ceased to be the exception.<sup>15</sup> Ultimately, technical advances in materials will lead to improved product properties. An important place has been reserved for steel in this portfolio of advances for the foreseeable future.

### Future prospects stable over the medium term in the principal forecast scenario

The German steel industry is occasionally 'written off' or described as 'barely fit for the future', but the global environment in the period up to 2025 will provide plenty of opportunities for it to establish a stable, economically viable future for itself. The prospects for the domestic steel industry will of course be affected by a wide variety of factors and only the interaction between these factors in

<sup>11</sup> In Volkswagen's mass-market vehicle, the latest VW Golf, weight savings of 25% were achieved by using hot-formed ultra-high-strength steels. See 'Man kommt mit Stahl schnell an die Grenzen der Machbarkeit' (With steel you quickly come to the limits of feasibility). VDI Nachrichten (2014a). December 19, pp. 32/33.

<sup>12</sup> Audi used a combination of aluminium (for example, aluminium profile forming the roof arch) and steel (for example, special steels to stabilise the floorpan assembly) in the latest third generation TT Sport Coupés to achieve a weight reduction of 100 kg compared with the original version produced over 20 years ago (which at that time already included the Audi space frame). See Leichter Leckerbissen (Light treats). VDI Nachrichten (2014b). December 19, p. 34.

<sup>13</sup> See Gearing up for carbon fibre's arrival. Cars. Material Advantage. Financial Times (2015). February 13.

<sup>14</sup> In the US, car manufacturers are under an obligation to reduce the average fuel consumption of their vehicle fleet from 7.8 to 4.3 litres per 100 km within ten years. In other words, they have to achieve a considerable increase in efficiency. For details and implications see, for example, Gehrke, Jochen/Lache, Rod (2015). Changing gear in the auto industry. Deutsche Bank AG. Konzept. No. 3, pp. 10/11.

<sup>15</sup> At this year's Leichtbau-Gipfel conference covering lightweight construction in the automotive industry, presentations included a demonstration of how the automotive industry could use light alloy/steel composite casting to achieve further reductions in car body weight and thereby save on components. The trend in material combinations is towards hot-formed, but nevertheless high-tensile materials with a small proportion of aluminium. The objective of the mix is to combine the advantages of aluminium die casting with the strength of sheet metal. See Scheiner, Jens (2015). 'Stahl ist der wirtschaftlichste Leichtbau' (Steel is the most economic material for lightweight construction). Leichtbau-Gipfel 2015. March 12.

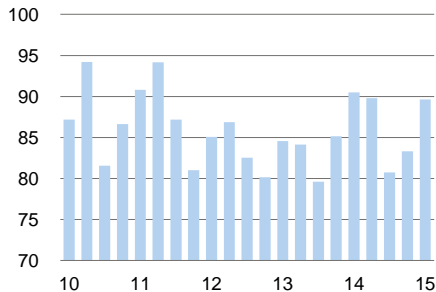


## German steel set to benefit from global growth

Crude steel: Capacity utilisation rises again

14

% of effective full capacity utilisation, Germany



Source: German Steel Federation

practice will determine the future of the industry. By no means all of these factors will help to generate growth.

Our forecast in the principal scenario that it will be entirely possible for the steel industry in Germany to achieve a stable future is ultimately predicated on a whole range of individual considerations. In essence, the question of whether the principal scenario will actually materialise depends on whether the anticipated macroeconomic trends discussed below turn out to be accurate and whether the various challenges outlined above can be successfully addressed.

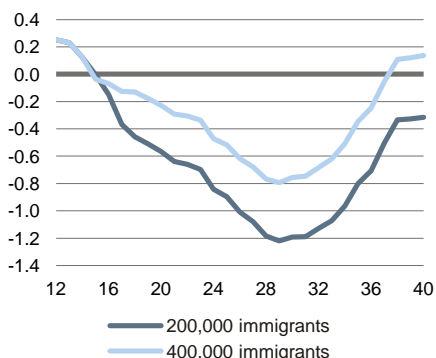
### Shrinking potential workforce puts a damper on growth prospects

If anything, our forecast of relatively stable future prospects for the steel industry in Germany may at first sight appear a little surprising. After all, at first glance, the demographic forecasts for the next decades and the associated macroeconomic potential do not seem to offer much hope. According to the relevant specialist institutes (including pension insurance providers and IAB Institute for Employment Research), the potential workforce in Germany will already have shrunk markedly by approximately two million by 2025.<sup>16</sup> This is despite the recent net immigration to Germany (around 450,000 in 2014), perhaps driven primarily over the last few years by the rather favourable economic circumstances in Germany compared with other European countries and the lifting of the restrictions on the freedom of movement imposed in connection with the eastward enlargement of the EU. Net inward migration is likely to be noticeably lower over the coming years however. In the analysis period, the proportion of women going to work will continue to increase, continuing a trend established for a number of years now. Without the positive impact from these two factors of immigration and the rising proportion of women in employment, the contraction in the potential workforce by 2025 would be even greater than projected in current forecasts. In particular, the next few years will see the baby boomer generation in Germany reach pension age, noticeably reducing the size of the potential workforce with a significant adverse impact on businesses and their production facilities simply because fewer people will be available for work.

Potential workforce shrinks significantly

15

Population 15-65, % year on year



Sources: German Federal Statistical Office, Deutsche Bank

The consequence of the fall in the size of the potential workforce is that, even in the coming decade, i.e. within the time horizon covered by our forecast, the potential for economic growth will also be reduced. The net result is therefore that, by the mid-2020s, Germany is likely to have a lower growth potential than it has enjoyed in previous decades. Average GDP growth rates in the initial years of our analysis (i.e. up to 2020) will probably still be marginally above 1%, but will remain below 1% thereafter, i.e. in the period 2020 to 2025. The fall in growth rates is also bound to subdue the prospects for Germany's steel industry. However, the forecast fall in available labour should prove to be relatively manageable for the steel industry compared with other sectors of industry. This is because steelmakers have tended to focus on scaling back their workforces in recent years with a view to improving productivity, profitability and therefore competitiveness. This has ultimately helped the steel producers ensure their survival and remain at the heart of Germany's industrial base.

Compared with the emerging labour market problems, the impact of demographic change on demand is expected to be the greater challenge for the

<sup>16</sup> See Fuchs, Johann/Weber, Enzo (2014). Längerfristige Entwicklung des Erwerbspersonenpotenzials: Einschätzung im Hinblick auf die aktuelle Zuwanderungsentwicklung (Longer-term trends in the potential workforce: estimates in view of the current trends in immigration). IAB. Nuremberg, p. 2. A contraction of more than 10% in the total potential workforce by 2030 is also entirely possible (see Heymann, Eric/Peters, Heiko/Rakau, Oliver (2015). German exporters facing strong headwind despite softer euro. Deutsche Bank Research. Focus Germany. March 30, 2015, pp. 8/9).



## German steel set to benefit from global growth

### Population trends pin back industrial sectors

steel industry. The reduction in the size of the population will also impact the housing market because – all other things remaining the same – the population change will be accompanied by a drop in demand. Although per capita demand for residential space in terms of square metres has gone up in Germany over the last few years (i.e. demand has increased) and this trend is likely to continue, the effect is not sufficiently large to offset the declining population over the medium term and certainly not to create an overall increase in demand. The net impact will also include a negative effect on the demand for steel in Germany in the future.

In addition, the expected trends in the population will also diminish the prospects in those industrial sectors that are among the main customers of the steel industry. The German engineering industry – which employed more than 1 million people in 2014 for the first time since 1993 – is already bemoaning a shortage of potential skilled labour for its businesses with production facilities in Germany. The growing labour shortage is also restricting the prospects for the domestic automotive industry of course. Compared with the construction industry, however, these two industries will be in a better position to cope with the demand-side implications of the demographic change. This is a function of the significant export-focus in these industries, both engineering and the automotive sector being among the industries with high export ratios. One of the encouraging consequences from the strong focus on exports is that the depressed demand in Germany caused by the demographic change is likely to be more than offset by further growth in international demand. As a consequence of the demographic situation in Germany, the demand for steel from both industries is still likely to be constrained, however, by the fact that they will be able to produce less in Germany than would potentially be possible on the back of the strong long-term sales prospects in the global market. The emerging demographic barriers to growth will therefore tend to be in connection with the supply of labour and not as a result of changes in product demand.

### Globally, growth prospects for the steel industry are more favourable

The sales prospects for the steel industry are significantly more favourable at a global level than in Germany. In Europe, there is only likely to be limited stimulus for demand because there is little to suggest that the European steel market could grow to any extent over the coming decade, given the existing structural problems and overcapacity. The outlook for steel is somewhat more promising in the NAFTA region, where the industry ought to benefit among other things from a certain amount of re-industrialisation taking place in the US thanks to lower energy prices.

Over the medium term, Asia will remain the primary growth driver. Further growth impetus will come predominantly from China and also to a limited extent from India and the ASEAN countries. Although China has recently increased its steel exports and, from a macroeconomic perspective, will remain on an exceptionally high and stable growth trajectory over the coming years (especially compared with the European market), the country's GDP growth is likely to fall below 7% per annum in the forecast period. Nevertheless, it is not at all unrealistic to predict that the demand for steel in China in 2025 in terms of volume could be approximately the same as that for all other countries, i.e. the rest of the world, together.<sup>17</sup>

<sup>17</sup> See Schill, Ingo (2015). Stahlmarkt 2025. Quo Vadis? (Steel market in 2025. What next?). Stahlmarkt magazine. No. 3, pp. 14/15.



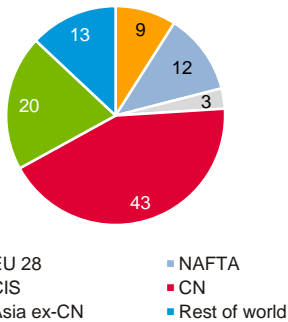
## German steel set to benefit from global growth

### Principal scenario predicts growth in output with breakeven

Global demand for steel in 2012 was 1.545 billion tonnes

16

% of global demand for steel

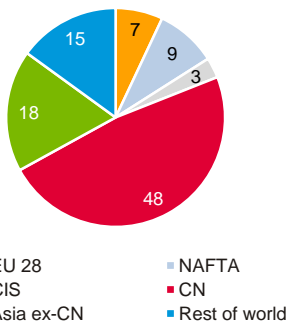


Sources: Schill, Ingo (2015), PricewaterhouseCoopers

Global demand for steel will rise by 2025 to approx. 2.4 billion tonnes

17

% of global demand for steel



Sources: Schill, Ingo (2015), PricewaterhouseCoopers

In our principal scenario, we anticipate that the regulatory framework in Germany for the steel industry and its customer sectors up to 2025 will remain favourable or will not be tightened such that it has an adverse impact on these industries. We also predict that worldwide steel capacity over the forecast decade will grow at a slower pace than global demand for steel. This will ease the current downward pressure on prices and margins in the global steel market.

One of the key defining assumptions in our principal scenario is that, over the medium term, policymakers will take a more rational approach to the cost issues of energy and climate protection, which are highly sensitive as far as the steel industry is concerned. That Germany is not going to become a low-wage country in the future is also beyond doubt. Furthermore, all things considered, there are hardly any opportunities for international differentiation strategies when it comes to the procurement of raw materials, especially ores. It thus comes down to ensuring that, at the very least, the other costs do not rise in future at a faster rate than those in production facilities outside Germany. We therefore expect policymakers to exercise a certain degree of flexibility in relation to maintaining certain special terms for the procurement of electricity, both for the steel industry and for key customer sectors. Another notable assumption in our scenario is not only that the steel industry will continue to benefit from the reduced EEG surcharge over the whole of the forecast period, but that the grandfathering provisions for the industry's own power generation will be extended until 2025 (in other words, not just for two years). We have also assumed that the ongoing development of climate policy in Germany and Europe will include a certain degree of flexibility aimed at establishing a level playing field so that German steelmakers are not disproportionately burdened compared with their competitors in the rest of Europe and beyond.

In our estimation, there are also many factors supporting the assumption that future expansion in steel capacity will be slower than the growth in demand. Over the last few years, steel capacity expansion has been concentrated primarily in China, which could see that it needed and continues to need a great deal of iron and steel for its mega-strategies covering industrialisation, infrastructure expansion and urban construction. The sharp rise in steel exports from China, which has been taking place for some time, indicates that the trend in capacity growth in China over the coming years will flatten out noticeably compared with the period since the turn of the millennium. Another factor suggesting that growth in steel output capacity will be weaker over the medium term is the current crisis involving Russia. Although the crisis is weakening the Russian currency and making the country's steel exports cheaper, the crisis will nevertheless tend to weaken the Russian steel industry over the medium term because of the emerging problems for domestic customers. In the final analysis, the current overcapacity in the European steel industry will also act as a brake on the expansion of steel-producing capacity and, in our opinion, this also supports the prediction that the increase in global steel capacity in the future will not be as strong as at present.

### 60% probability of the principal scenario occurring

We have assessed the principal scenario as having a 60% probability of occurrence, and therefore a much greater relevance than all the other scenarios that we still need to outline. In this scenario, the German steel industry will manage to sustain its current position at a steady level in real terms, based on an annual increase in production and achieving breakeven. At first glance, this scenario does not appear to be very positive. However, it is important to note that the steel industry has always been a very cyclical industry and is likely to remain so in the future (with rises in output being followed by sharp falls in production). Another important factor is that the challenges for German industry are becoming greater, not least because of the subdued economic growth



## German steel set to benefit from global growth

prospects in the medium term. This very much puts our assessment of the prospects for steel in this scenario into perspective. Our principal scenario therefore appears to us to be not only the most probable, but also the most favourable for the German steel industry.

### Three further scenarios – less probable

In addition to our principal scenario, there are three further conceivable scenarios for the future, which differ from the principal scenario in terms of the assumption regarding the change in the regulatory framework (tighter than in the principal scenario with adverse consequences) and/or the assumption that global steel capacity could grow faster than demand. Although, in our opinion, the probability that the alternative scenarios could occur is lower than that for the principal scenario, we still think it would be useful to provide a brief outline of the associated implications.

#### Scenario: 'Deterioration in national framework despite global easing'

Global demand for steel rises faster than output capacity

In this scenario, there is a significant improvement in the global steel market by 2025 because the expected increase in global demand exceeds the growth in new steel capacity. The developments in this scenario reduce the surplus capacity in the steel market. Generally speaking, this is a blessing for the steel industry because the competition is no longer as fierce as it was previously. A welcome consequence of the fall in competitive pressure for global steel producers is that the significant downward pressure on prices in the industry caused by the overcapacity gradually abates. In turn, this allows many steel producers to survive or enjoy a more comfortable existence in the future.

Regulatory framework becomes tighter with adverse consequences

From the perspective of German steel producers, this scenario is not worth pursuing under any circumstances because it amounts to bad news as far as they are concerned. This is because – in contrast to the assumptions in the principal scenario – this scenario is based on the assumption that a tighter regulatory framework will be imposed in Germany on steel producers and their customers in the coming years with an adverse impact on these industries. There may be a number of reasons behind such tighter regulations, none of which are plucked entirely out of thin air. For example, it is conceivable that a future German government – possibly involving an even more environmentally-minded party than at present – could reduce the special terms for the purchase of electricity and/or impose additional charges on the industry's own power generation. In a political scenario of this nature, further charges arising from an ambitious climate policy are not only something that cannot be ruled out, they are indeed entirely probable.<sup>18</sup>

15% probability of occurrence

A deterioration in the political framework in Germany as far as steel producers and their customers are concerned is also likely to be reflected overall in their investing activities. The political climate for new capital investment in German industry is deteriorating markedly. The conditions for replacement investment will become tougher over the years too. In this scenario, we predict, in particular, that steel production in Germany in terms of volume would not be maintained at the current level even though an even greater focus on quality would be likely. It is therefore conceivable that steel output could fall by approximately 1% per year over the forecast period. Over the whole of the decade, this would lead to a significant drop of roughly one tenth. Given this context, it is entirely possible that one plant or another could cut production, or even close down altogether.

<sup>18</sup> For a critique of German climate protection policy, see for example Letzte Ausfahrt Paris? (Last exit Paris?). IW-Dienst (2015). No. 11. March 12, pp. 6/7.





## German steel set to benefit from global growth

However, we have given this scenario a probability of occurrence of around 15% at most.

### Scenario: 'Rising global surplus dampens positive impact from German flexibility'

Global steel capacity rises faster than demand

It is also possible to conceive of another future scenario in which German steelmakers suffer a marked deterioration in their situation even though a majority of policymakers in Germany – as in the last few decades – are willing to take a positive-minded approach and allow a certain degree of flexibility with a view to maintaining steel production in Germany. However, in contrast to the principal scenario, it is assumed in this case not only that global steel capacity grows over the forecast decade but that the expansion is also more rapid than the increase in the global demand for steel. The consequence of the resulting supply-side surplus would be that downward pressure on prices in the industry, which would be evident worldwide, (depending of course on the prevailing phase in the economic cycle at the time) would not disappear at all, but if anything would become more intense in the future.

Assumptions not implausible

The change in the assumptions in this case compared with the principal scenario is actually quite plausible based on the experience of the last few years. The availability of iron and steel and therefore also production by a domestic industry has always been seen as a special requirement, particularly by political leaders. These leaders have thus often accorded the industry special priority status. In this context, the assumption that global supply could continue to rise faster than demand is not at all improbable. One of the factors that supports this scenario is that growth in capacity has recently predominantly come from countries outside the group of developed industrialised nations. Given an (assumed) less-developed approach in these countries (compared with traditional industrialised countries) to imports of metal raw materials that have already been processed, there is some justification for the assumption that the countries concerned will in the future continue to produce and process more iron and steel primarily in their domestic industries. This in turn supports the idea that, up to 2025, global steel capacity could continue to rise faster than demand.

20% probability of occurrence

A counter-argument, however, is that China has been the primary driver behind the expansion in capacity over many years. It is our assessment that, despite further increases in the demand for steel, China will be the first of the emerging markets to scale back new additions to steel production capacity over the coming decade. In the final analysis, this is the main reason why we have given this scenario a probability of occurrence of 'just' 20%.

Despite the relatively favourable conditions in Germany for steel producers and their customers, which have been assumed to continue over the forecast period, the industry is adversely impacted by the expected pressure on prices. The net result from the interaction between the relevant factors is that German steel production is likely to fall by approximately 0.5% per annum in this scenario; thus, a noticeably less favourable trend than in the principal scenario. Although, thanks to the product focus and the production of high-quality steels, Germany would be less affected than other countries that focus predominantly on producing mass-market steel, Germany would not be completely immune to the impact from trends in the global steel market. Despite the assumption of support for the industry from policymakers, there would still be a risk of plant closures in this scenario.



## German steel set to benefit from global growth

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### Scenario: 'Double negative impact'

#### Crisis scenario with 5% probability of occurrence

This scenario assumes a double negative impact on the steel industry based on selection of the worse assumption for the domestic steel industry for each of the two influencing factors. On one side, the rising global supply-side surplus forces down the selling prices for steel and steel products. At the same time, this is exacerbated by the assumption of political action that is contrary to the interests of steel production in Germany; such action could arise in particular from the realignment of energy and climate policy in Germany or Europe. Although we have given this scenario a probability of occurrence of 'just' 5% or so (and the probability is therefore deemed to be relatively low compared with the other scenarios), the scenario could still occur if significant corrective action were not taken in good time. If the scenario were to materialise in reality, steel production in Germany could contract by approximately 2.5% (or even more) each year over the forecast period. This would have drastic consequences for the steel-producing sites, local employment and the industries (such as the automotive industry) associated with the steelmakers; it would even affect retailers in the proximity of each site. The closure of sites in Germany would nevertheless be unlikely to have any major implications at global level. It is therefore questionable as to whom the developments in this scenario would really help.

### Summary: Stable continued development desirable and possible

The German steel industry has come through the years since the beginning of the financial and economic crisis in quite good shape compared with other European industries. Although the industry believes that it faces a large number of challenges, both currently and in the future, the prospects up to 2025 are extremely favourable provided that the industry is able to cope with these challenges. However, this presupposes that the regulatory framework for steel producers and their customer industries in Germany remains favourable and is not tightened with any material adverse impact. It would also be helpful if the global demand for steel were to rise faster than steel capacity (and therefore the actual supply of steel) because in this case the downward pressure on prices would dissipate over time. Although we believe this scenario for the coming decade to be the most probable and the 'most reasonable', there are also other conceivable scenarios with greater risks, challenges and consequences for the German steel industry and its employees.

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