Assessing Dependent Industries
Automotive and Construction Sectors

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• Survey results
• End uses of steel (dependent industries)
• Automotive sector and outlook
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Platts’ early 2013 survey results - Oil & Gas seen to be recovering well, Construction is worst sector

Source: Platts
Contents

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Globally, the construction and automotive sectors account for about two thirds of all steel consumption

- In 2012, just over 1.5 billion tonnes of steel was produced globally, and converted into just under 1.4 billion tonnes of finished steel
- There are many differing opinions on how steel is used in dependent industries - steel is often sold through intermediaries where end-use is not known at point of sale
- There is consensus that the construction sector, in its widest form (including infrastructure) accounts for about half of all steel worldwide
- The automotive sector (all vehicles) is next

Source: REAL analysis
The automotive sector is flat product-intensive, the construction sector is long product-intensive,
REAL’s 2013 survey highlighted the key industry issues as follows:

Observed rules of capacity:
Not all capacity is created equal -
Some capacity is more equal than others -
But there is plenty of it (especially in China)

Source: REAL analysis
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The automotive sector
The automotive sector

• Some say steel is being phased out of cars - they will soon all be aluminium and plastic (and titanium and carbon fibre...)

• How much validity does this have?

• Let’s look first at how many cars are made and what they are made of

• What is expected to happen?

• What are the drivers for use of steel?

• What are the real substitution effects?

• What conclusions can we draw?

Source: PwC/Oxford Economics, REAL
In 2012, over 60 million cars were made globally, a CAGR of 3.0% since 1960. About 66 million will be made during 2013.

Source: OECD, OICA, REAL analysis
Steel production grew 2.9% CAGR over the same period - in effect, at the same rate as the automotive sector.
With increasing urbanisation and more focus on the environment, do we still need cars?

- By 2035, 61% of the world’s population will live in urban areas (82% in the most developed regions)
- Some see cars as environmentally unfriendly and (classic cars aside) a depreciating asset
- Others advocate car sharing and more public transport
- Studies show that many people live within 300 metres of bus/rail or other public transport
- Surely car use must fall?

Source: IEA, REAL
Car ownership will continue to rise per thousand people - strongly in many parts of the world. By 2035, 1 in 5 people will own a car.

Source: OPEC
By 2035, there will be almost 1.8 billion cars in use worldwide, almost twice that of today.

Source: OPEC
Three key questions

• Will cars still be made of steel?
• Will there be enough roads?
• Will there be enough parking?
By 2020, less than half the weight of a European car will be steel/ferrous (vs almost 80% in 2000)

Source: OICA, Taub et al, analysis by REAL
By 2020 there will be over 600 kg of steel/ferrous material in a European car. >40% will be medium or high strength steel.

Source: OICA, Taub et al, analysis by REAL
Conclusions for the automotive sector

• The automotive sector globally will continue to grow, with strong markets being the USA, China, Brazil and India
• In Europe, expected European production of 15.3 million vehicles is lower than 2007
• Cars are easily exported and many European marques are sought after worldwide - strong partnerships between car makers and steel makers will be needed to ensure that this continues
• There will continue to be significant substitution dynamics, driven by the continuing need to balance lightweighting and fuel efficiency with strength and safety
• Steel has an important role to play. Whist absolute volumes of steel per vehicle will decline, there is also the opportunity to sell higher value medium and high strength steels
• Electric vehicles provide an additional market - for electrical steels as well as for lightweighting

Source: OICA, ArcelorMittal, REAL
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The Ministry of Truth was startlingly different from any other object in sight...an enormous pyramidal structure of glittering white concrete, soaring up, terrace after terrace, 300 metres into the air.

George Orwell
Nineteen Eighty-Four
What is driving growth in construction?

• Expanding populations (by 2020, world population will be 7.5 billion, 85% of whom will live in less developed countries)

• Economic activity

• Rapidly growing urban populations and middle classes with spending power

• Favours Asia not Europe, with few exceptions

• Some examples

Source: PwC/Oxford Economics, United Nations Population Forecast
Population growth and urbanisation rates (%), 2010 and 2035

OECD smaller and much more urbanised than non-OECD

Source: IEA
Population growth and urbanisation rates (%), 2010 and 2035

Europe’s population and urbanisation grow slowly

Source: IEA
The global construction sector is forecast to grow 67% in value terms from 2013 to 2020. That is almost 9% compound growth.

Source: PwC/Oxford Economics
65% of the growth from 7 countries (none of these in Europe) Also, the market is all materials, not just steel

Global construction market

<table>
<thead>
<tr>
<th>Year</th>
<th>Market size, trillion USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>6.5</td>
</tr>
<tr>
<td>2020</td>
<td>+67% +8.7% CAGR</td>
</tr>
</tbody>
</table>

65% of the growth from China, India, USA, Indonesia, Canada, Russia and Australia

Source: PwC/Oxford Economics
Some examples - construction in China since 1980

Indexed, 2000 = 1.00

Source: China National Statistics
By 2030 the world will need over 60 million km of paved roads (almost twice the road network of 2000)

New roads required

<table>
<thead>
<tr>
<th></th>
<th>Millions of paved lane kilometres</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>30</td>
</tr>
<tr>
<td>2020</td>
<td>35</td>
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<td>2020f</td>
<td>50</td>
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<td>2030f</td>
<td>65</td>
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</tbody>
</table>

Source: IEA
By 2030 the world will need around 80 thousand square km of parking.
All the world’s cars would just fit inside South Korea in 2030
What is the prognosis for construction overall?

- USA recovers strongly to become $14.5 trillion market by 2020 (21% of world)
- China - slower growth but China the second largest construction market in world by 2020, an estimated $13.4 trillion (19% of world)
- India - grows faster than China but still only 1/3 size of China by 2012
- MENA - grows strongly - 80% up on 2013 - to reach $4.3 trillion led by Egypt and by energy-related growth in Qatar, Libya and Algeria
- Russia, Ukraine, Turkey (- pending EU membership) will all grow
- Opportunities for steel to help build infrastructure, roads, and car parks
- Growth in construction in the developed world will be slow, as urbanisation is already high and population growth relatively slow

Source: PwC/Oxford Economics, REAL
What is the prognosis for Europe?

- Construction still suffering after effects of financial crisis
- Overall lack of population growth (especially Germany, Italy) and austerity measures
- Developed infrastructure (especially France, Germany, Netherlands) - less need to improve
- Bright spots - positive demographic trends in UK, Sweden
- Room to improve steel penetration (a long term game - British Steel/Corus/Tata took 20 years to increase steel framing penetration from 15% to 70% in UK - it can be done but not overnight)
- The industry must think in terms of value not just tonnes (a continued challenge)

Source: PwC/Oxford Economics, REAL
Conclusions for construction in Europe

- The market is not going to grow strongly (but it will recover in time)
- UK and Sweden have favourable demographics
- Germany, Spain, UK, France and Italy remain in the top 15 construction markets by 2020 (measured in value terms - not by steel penetration)
- The other 22 EU countries are not large on the world stage but all have their own opportunities (and the smaller countries are likely to grow more strongly)
- Overall the message for steel is that there are still plenty of opportunities for those prepared to take a long-term view and address individual market needs

Source: PwC/Oxford Economics, REAL