Changes in the global Foundry Industry and its Consequences on the Foundry Machinery Manufacturing

Dr. Heinz-Jürgen Büchner
September 2014
# Agenda

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Global Economic Growth and Trade Volume: Stabilisation

Global Economic Growth and Trade Volume of Goods and Services yoy in %

Source: IMF
China remains a Key Driver for the Global Economy: High absolute Increase, even by low Growth Rates

GDP, real

Year-on-year change in % (right axis)
in CNY bn. (left axis)

Gross Fixed Investment, real

Year-on-year change in % (right axis)
in CNY bn. (left axis)

Source: E.I.U.
USA: The Manufacturing Industry signals strong Growth and …

ISM-Index for the Manufacturing Industry

Car-Sales sb. and on a year-on-year basis (SAAR), in mn

Order Inflow Industry, in % compared to previous month

In Detail

- Since the beginning of the year the mood of large US companies has improved dramatically. Manufacturing ISM-Index climbed from 57.1 to 59.0 points in August. Especially the subcomponent 'order inflow' is on a very high basis.

- On year-on-year basis 17.5m light vehicles have been sold in August 2014. This level matches more or less monthly sales between 2000 and 2007 (approximately 17m on average).

Sources: Bloomberg; IKB
… the US-Economy remains on its Growth Path

- Indebtedness of Private Households, in US-Dollar bn

- Current Account, in % of GDP

- Receiver of Nutrition Assistance and Employment, in mn

- In Detail
  - According to the Fed’s Beige Book, the US economy is continuing its recovery. The growth rate in all twelve Fed districts is evaluated as moderate or moderate.
  - According to the Beige Book, the situation on the labor market has not changed at all. In certain industries it gets more difficult to attract qualified employees, however.
  - On average more than 200,000 persons were re-employed every month in the past half year

Quellen: Bloomberg; Fed; IMF; United States Departement of Agriculture; IKB
Euro-Business Cycle shows Signals of Recovery

**PMI (Purchasing Managers Index)**

**Real GDP Growth; in € bn**

Sources: Bloomberg; Eurostat
Europe: Not all Euro-Zone Members have Problems

GDP; 2007 = 100

Source: E.I.U.
Germany: Strong Order Activity signals positively for the Third Quarter

**Order Inflow, 2010 = 100**

- In Total
- Domestic Order Inflow
- Foreign Order Inflow

**Real GDP Growth, quarterly in % - based on ifo-Index**

- GDP Growth, historically and expected
- Floor and Cap

**Forecast 2014: GDP and its Components**

<table>
<thead>
<tr>
<th></th>
<th>€bn</th>
<th>Year-on-year change in % real (seasonally and calendar adjusted)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2013</td>
<td>2011</td>
</tr>
<tr>
<td>Private Purchase</td>
<td>1,572.4</td>
<td>2.3</td>
</tr>
<tr>
<td>Governmental Purchase</td>
<td>533.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Equipment Spending</td>
<td>170.9</td>
<td>6.2</td>
</tr>
<tr>
<td>Construction Spending</td>
<td>271.3</td>
<td>8.7</td>
</tr>
<tr>
<td>Exports</td>
<td>1,385.5</td>
<td>8.3</td>
</tr>
<tr>
<td>Imports</td>
<td>1,211.8</td>
<td>7.3</td>
</tr>
<tr>
<td>GDP</td>
<td>2,736.6</td>
<td>3.7</td>
</tr>
</tbody>
</table>

**In Detail**

- Order inflows increased suprisingly strong in July (+4.6% mom). Especially non-EU incoming orders added up (+9.6%). Volatile big orders, which is a signal for recovery in the third quarter, increased, too.
- According to the ifo-Index, GDP will increase in the third quarterly period, but decrease again in the fourth quarter.
- With the release of a detailed GDP forecast, we adjusted our forecast. Consumption remain the strut, equipment investment add up, but less dynamically as expected. In 2014 the external account does not set any impulses.

Sources: ifo, German Federal Office of Statistics, IKB
ECB Policy supports weaker Euro with another Interest Rate Cut

In Detail

- ECB has (again) reduced its reference rate to 0.05%. The deposit rate has been lowered by 10bp to -0.2%. These measures increase the pressure on the Euro exchange rate.
- Fiscal policy needs to contribute to the economic stimulation. Monetary policy is not able to influence the economy positively, because of the unfavorable basis of interest rates and lending. A solution would be an increase in demand.
- A strong Euro and an expansive fiscal policy could reduce economic risks dramatically

Sources: Bloomberg, ECB, IKB

* Note: deposit facility plus check account minus minimum reserve
ECB has reduced its reference rate by 10bp to 0.05% on 04.09.2014

Additionally ECB announced, that it will purchase a broad portfolio of ABS. This measure shall encourage lending and the ultimately support the real economy.

In consequence of this, we forecast a depreciation of the Euro of 1.25 US-$ in the following six months.

Parts of the German economy (e.g. engineering, automotive industry etc.) will experience enhanced sales opportunities.

On the other hand, metals and other commodities, which are traded in US-$, will be more expensive.
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Light Vehicles: China is the Winner, but Japan and South Korea decline

Global Light Vehicle Production; (in mn)

- Germany gains market share in the European recovery process with a stronger growth in some Eastern European countries
- The North American growth is driven by Mexico and the investments of foreign OEM’s
- Production shifts from Korea and Japan to China

Source: IHS
EU: New Car Registration from January to June 2014

New Car Registration by OEM

Change yoy in %

- Renault Group
- Nissan
- Toyota Group
- VW Group
- Ford
- PSA Group
- Fiat Group
- BMW Group
- Daimler
- Hyundai/Kia
- GM Group

Europe Ø

Change yoy in %

- France
- Japan
- Germany *
- USA **
- Italy
- Korea

Source: ACEA  * = VW-Group, Daimler; BMW-Group  ** = GM and Ford; without Chrysler

Recovery in 2014

- After the strong decline mainly of the French, Italian and North American OEM during the last two years, these car manufacturers have recovered in 2014.
- The growth rate of most German OEM was below the European average during the first half of 2014. But these companies grew even in 2013.
- The leading German premium car producers, e.g. Daimler, BMW and Audi will show a new all-time high by the end of the current year.
- But some problems of the American and Italian manufacturers are still unsolved.
Environmental Regulation drives the Demand for Trucks

Global Medium/Heavy Vehicle Production; (000s)

- Regulations of the EU as well as the USA aim to a reduced fuel consumption and lower emissions
- This will induce investments to modernize the truck fleet as well as other commercial vehicles

Source: IHS
Mechanical Engineering: Recovery in Europe, strong Growth in Asia

Global Turnover of Mechanical Engineering; (€ bn)

- Globally we forecast a strong growth in demand for mechanical engineering products
- In 2016, the Chinese turnover will equal the combined North American revenues with the Asian turnover outside of China
- Within Europe, Germany and Italy gain market shares in relation to other Western European suppliers

Sources: VDMA; IKB estimation
Construction Sector: Improvement in the US, China still strong

Global Construction & Engineering Industry; in US-$ bn

In Detail

- The US American construction market will see a rising number of housing starts, which induces a higher demand for steel and other construction raw materials.
- But even in the current year new housing starts will be below their all-time high.
- Until today around half of the Chinese population has lived in rural areas. During the next ten years we forecast a higher population shift into the urban regions. This will induce a higher demand for housing in the bigger cities.
- The currently existing overcapacities in the housing sector in some of the Chinese boom towns will be reduced during the next five years. But even in this case a short temporary real estate bubble in China is possible.

Share of Urban Inhabitants; in %

Sources: ifo; MARKETLINE; Worldbank
Construction Sector EU: Start of the Recovery

**Total Construction Output; Volume mill. €**

<table>
<thead>
<tr>
<th>Year</th>
<th>Eastern Europe</th>
<th>Western Europe</th>
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<tbody>
<tr>
<td>2009</td>
<td>700,000</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>600,000</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>500,000</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>400,000</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>300,000</td>
<td></td>
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<tr>
<td>2014</td>
<td>200,000</td>
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<tr>
<td>2015</td>
<td>100,000</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>100,000</td>
<td></td>
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</tbody>
</table>

**Total Construction Output; Volume mill. €**

<table>
<thead>
<tr>
<th>Year</th>
<th>France</th>
<th>Germany</th>
<th>Italy</th>
<th>Spain</th>
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<tbody>
<tr>
<td>2009</td>
<td>350,000</td>
<td>300,000</td>
<td>250,000</td>
<td>200,000</td>
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<tr>
<td>2010</td>
<td>250,000</td>
<td>200,000</td>
<td>150,000</td>
<td>100,000</td>
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<tr>
<td>2011</td>
<td>150,000</td>
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<td>2012</td>
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<td>2016</td>
<td>50,000</td>
<td>50,000</td>
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**In Detail**

- Between 2013 and 2016 the European construction sector will recover.
- The Eastern European EU members will show a stronger growth in relation to the Western European countries.
- In the Eastern part of the EU the strong development of the Polish economy results in higher construction expenditures mainly driven by residential buildings. In addition Slovakia shows a stronger construction sector, too.
- Within Western Europe the Spanish construction industry is reaching ground after years of high slumps.
- While Italy and France develop sideward; the German residential building market in the bigger cities is characterized by a higher demand and rising prices after years of insufficient investments.

*Sources: Euroconstruct; IKB * excl. France, Germany, Italy and Spain*
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Natural Gas: OPEC holds only half of the Reserves

Proved Reserves of Natural Gas; in %

- The OPEC is not as dominant in the natural gas market as in the crude oil market, but 51 per cent of total proven natural gas reserves are located in the OPEC countries.
- The countries of the former Soviet Union are the second important player with a global market share of around 29 per cent.
- North America holds a market share below 5 per cent, while only 8.2 per cent of the natural gas reserves were found in the Asian Pacific region (with Australia, China and Indonesia as dominant players).

Source: BP Statistical Review of World Energy
Natural Gas: High Dependency on Russia

**Germany; in %**
- Russia: 38%
- Norway: 35%
- Netherlands: 23%
- Other: 4%

**EU-27; in %**
- Russia: 32%
- Norway: 29%
- Algeria: 14%
- Qatar: 9%
- Nigeria: 3%
- Other: 13%

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**In Detail**

- Germany is mainly dependent on Russian and Norwegian natural gas imports. The country is unable to substitute the Russian imports very quickly.
- The high importance of the Netherlands may be due to the transition function of the Dutch harbours.
- For the European Union, Russia is the dominant supplier of natural gas.
- But during the last decade, the supply of Norway showed a rising importance. In the medium-term Norway will even be a relevant player in the Central European market after the discovery of new reserves.
- Algeria supplies the EU 27 not only via three pipelines (two to Spain and one to Italy) but also in addition with LNG.

Sources: BAFA; Eurostat
Fracking: Is North America the new OPEC?

Global Shale Gas Production; in Bcf/d

US Natural Gas Net Exports; in Bcf/d

Shale Gas Supply by Region; in Bcf/d

In Detail

- The global shale gas production will grow with a constant rate during the next two decades
- Around three quarters of the total production will be exploited in North America. On the other hand the extraction of natural gas via fracking will be of minor importance in Western Europe
- Between 2015 and 2020 the United States will become a net exporter of natural gas
- From 2035 on we forecast lower US net exports
Gas: High Upstream Investments

Between 2014 and 2035 the IEA (International Energy Agency) estimates, that the necessary upstream investments in the gas sector should exceed 6 trillion US-

While around three quarters are required for investments in conventional gas, the shale gas investments equal 14 % of total investments

Within the investments in unconventional gas of more than 1.5 trillion US-$, North America accounts for around 60 % of this amount

Investments in coal bed methane are well underway in Australia, potential is seen in India and China

Sources: IEA World energy investment outlook
Oil: Conventional Oil still dominating

- Between 2014 and 2035 the cumulated global upstream oil investments are estimated at 11.3 trillion US-$ by the IEA
- Around 72% of the total investment amount will go into conventional oil, followed by light tight oil investment with another 14%
- Around three quarters of the investments in non-conventional oil will be done by North America
- In Venezuela the investments in extra-heavy oil substitutes will partly compensate their declining conventional oil reserves
- Some investments in light tight oil is forecasted for Russia, China and Argentina

Sources: IEA World Energy Investment Outlook
Fracking: Positive Impact on Economic Growth

The economic impact of lower gas and electricity prices

- Decrease in production costs of manufacturing industry → Lower gas and electricity prices
  - Increase in real disposable income
  - Increase in real consumption
  - Increase in competitiveness → Increase in demand for gas in the power generation sector → Increase in employment → Increase in GDP → Improvement on trade balance

Source: Cambridge Econometrics
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Consequences for the Global Foundry Industry

### Impulses for Higher Demand

- During the next decade we expect a rising demand from the automotive industry as well as from the commercial vehicles industry for foundry products.
- Drivers for growth are the rising wealth in the emerging markets in the car industry, while the demand for commercial vehicles is driven by stronger regulation for energy efficiency and emissions.
- The mechanical engineering sector will show strong growth in the chemical industry, machines for food and beverages, for packaging as well as for power generation components.
- The European construction industry will show a slight recovery, mainly driven by residential construction. In the emerging markets we expect a positive economic development.
- The demand for foundry products will shift to the East.

### Improvement in Margins?

- But we are not sure, that the profitability in the European foundry industry will improve tremendously in the short run.
- The main reasons are the existing overcapacities (especially in Southern Europe) and the price pressure coming from Chinese competitors.
- For the automotive suppliers, we forecast a stabilization of the profitability; certain development partners may experience a margin improvement.
- From 2018 on, we forecast a shift for several vehicle parts manufactured today in iron, steel or malleable iron cast to light metal cast.
Iron, Steel and Malleable Iron Foundries: A Jump in Asia

Global Production of Iron, Steel and Malleable Iron Cast; (in million t)

- Western European production remains constant, Germany gains relative market shares
- NAFTA takes advantage of the re-industrialization, due to reduced energy costs; a great share of growth occurs in Mexico
- China’s market share continues to grow, India catches up, Japan and Korea lose parts of their foundry production to these countries

Sources: World Census, CAEF, IKB
Iron, Steel and Malleable Iron Foundries: Growth in Eastern Europe

European Production of Iron, Steel and Malleable Iron Cast; (in million t)

- Majority of European Growth occurs in Eastern Europe. Please note, that Eastern Europe includes Turkey
- Western European production is recovering modestly; in comparison with competitors Italy and Germany should be able to increase their market shares

Sources: World Census, CAEF, IKB
Aluminium Foundries: China declassifies its Competitors

Global production of Aluminium Cast; (in million t)

- Germany gains European market shares at the expense to Western European competitors; Convergence of Eastern European is stronger however
- NAFTA’s growth is mainly attributable to foreign OEM's investments
- Korea and Japan lose market shares to China

Sources: World Census, CAEF, IKB
Aluminium Foundries in Germany: The Million Ton Threshold is in Sight

European Aluminium Casting Production; (in million t)

- Eastern Europe’s growth is, among other facts, attributable to the new production of aluminium rims in Turkey; additionally further capacities were enlarged in Slovakia
- After the strong growth in the first half in 2014, Germany aluminium foundries are close to the 1 million ton production threshold

Sources: World Census, CAEF, IKB
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Foundry Machinery Exports: Mirroring the Foundry Forecast

German Exports of Foundry Machinery; important markets; in €m

- Lately China gained importance as foundry machinery market. This fact correlates with the expected enlargement of the foundry capacities.
- Russia is more complicated; Project financing is more difficult, due to sanctions.
- NAFTA area is currently in a re-industrialisation process leading to higher foundry production capacities.

Source: VDMA
## Consequences for the German Foundry Industry

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<th>Globalisation of customer markets</th>
<th>Chances / Risks / Trends</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>➢ Important customer markets tend to shift to Asia, leading to new foundry capacities</td>
<td>➢ Enlargement of sales cooperation?</td>
</tr>
<tr>
<td></td>
<td>➢ Export chances to China?</td>
<td>➢ Increase of exhibition and fair participation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Increasing competition</th>
<th>Chances / Risks / Trends</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>➢ China, Taiwan and Korea are becoming more important on global markets</td>
<td>➢ Still high investments in R&amp;D</td>
</tr>
<tr>
<td></td>
<td>➢ Lose of market shares as a consequence? Does the technological advantage last?</td>
<td>➢ Investments in human capital, personnel commitment</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Increased logistic demands</th>
<th>Chances / Risks / Trends</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>➢ Far located markets increase logistic costs</td>
<td>➢ Founding of shared service location sites</td>
</tr>
<tr>
<td></td>
<td>➢ Service and maintenance get more expensive</td>
<td>➢ Who can deal with whom?</td>
</tr>
<tr>
<td></td>
<td>➢ Hence increasing sales costs</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trend to one stop shops?</th>
<th>Chances / Risks / Trends</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>➢ Are comprehensive foundry offers by Greenfield Investments useful?</td>
<td>➢ Does the foundry engineering sector need consolidation? E.g. a financial investor, who promotes the idea of a global acting foundry engineering company</td>
</tr>
<tr>
<td></td>
<td>➢ Are strategic alliances / cooperations or mergers useful?</td>
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</tr>
</tbody>
</table>

- The German foundry industry will face great challenges in a changing market environment
- Keeping the technological advantage is a key element succeeding
- Cooperations or strategic alliances in important foreign markets can help to insist this challenge
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Your Contact

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IKB – overview

At a glance

- Background: Specialist in Corporate Financing
- Founded: 1924
- Headquarters: Düsseldorf, Germany
- Shareholders: Lone Star: 91.5%, Free-float: 8.5%

Employees, locations

- Approx. 1,440 employees
- Locations in Germany: Düsseldorf (HQ), Frankfurt, Berlin, Hamburg, Munich, Stuttgart;
- International Locations: London, Madrid, Milan, Paris

Financial data¹)

- Total assets: €24.7 billion
- CET1 Ratio 10.4%

Know-how

- Expertise in Corporate Finance, M&A, Capital Markets, LBO/ Acquisition Finance, Tax and Restructuring
- Range of Financing and Structured Products, Capital Structure Advisory

Locations

Hamburg
Berlin
Headquarters:
Düsseldorf
Frankfurt
Stuttgart
Munich
London
Paris
Milan

¹) Data as of 31 March 2014
Cooperation partnerships ensure IKB’s global coverage

- **Piper Jaffray**
  - Minneapolis, MN
  - Leading US middle market investment bank
  - Covering broad range of investment banking services including M&A and capital markets
  - Over 35 offices in the U.S., Europe and Asia

- **Handelsbanken**
  - Stockholm
  - M&A solutions for companies in Scandinavia
  - Leading market position and excellent market access
  - Focus on M&A transactions in the industrial sector
  - Structuring and management of M&A processes, project team coordination

- **Falkenburg Corporate Finance**
  - Budapest
  - Founded by former WestLB M&A team for Central Europe and Eastern Europe, now with more than 10 years of experience
  - Profound transaction experience and industry expertise; strong partnerships with the regional industries

- **JM Financial**
  - Mumbai
  - Leading house for executing complex and international transactions
  - Long-lasting partnerships with India’s leading companies
  - 2011 “Team of the Year” - Indian investment banks – IFLR India Awards

- **EAC Consulting**
  - Shanghai
  - Consulting and M&A advisory firm founded by ex Siemens M&A executives
  - Strong reach into China

- **BTG Pactual**
  - São Paulo
  - Global presence with clear focus on the emerging markets
  - Offers the entire service portfolio as well as extensive experience in the relevant markets
  - Brazil’s leading M&A-advisor in 2010 – Thomson Reuters, ANBIMA

- **Rand Merchant Bank**
  - Sandton
  - Diversified financial services house: advisory, finance, sales & trading, fund management and research
  - Global coverage with distinct focus on African markets
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