Brake Block Brexit - How a hard Brexit would impact the German automotive industry

June 2017
Deloitte Brexit Briefings
Perspectives on Brexit

Deloitte Brexit Briefings Series

The United Kingdom’s decision in June 2016 to leave the EU will have a far-reaching economic and political impact. For German companies, Brexit means a fundamental change in the business environment. Deloitte Brexit Briefings examine the core Brexit themes and risks from economic, strategic, taxation and legal perspectives, and are intended to provide orientation about the complex effects of the Brexit and the Brexit process.

The current edition

In this current edition, “Hard Brexit and its impact on the German automotive industry”, we will analyse the impact that a hard Brexit would have on the British vehicle market. The focus will be on how future WTO duties and an ongoing weakness in the British pound affect German and European automobile exports.
Automotive industry UK | Overview & relevance to Germany
The United Kingdom is the most important export market globally for Germany’s manufacturers (2016)

German exports to UK¹

One in three newly registered vehicles in the UK is a German export. In total, 950,000 of the 3 million newly registered cars in the UK are German exports (2016).

One in five new cars exported from Germany goes to the UK (20% of German exports).

Manufacturing for UK sales market (units)²

<table>
<thead>
<tr>
<th>EU-27³</th>
<th>UK</th>
<th>DE</th>
<th>RoW</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>428,000</td>
<td>522,000</td>
<td>950,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Jobs in DE for UK export market

60,000 employees in Germany manufacture 950,000 vehicles for the UK sales market

UK turnover by vehicle origin (€ billion)⁴

<table>
<thead>
<tr>
<th>EU-27³</th>
<th>UK</th>
<th>DE</th>
<th>RoW</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.3</td>
<td>10.2</td>
<td>25.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ Cars and light commercial vehicles; ² Sales figures include cars and LCV, 2016; ³ Excluding Germany; ⁴ Turnover figures include cars and LCV, 2016
Summary

A hard Brexit not only leads to sales and turnover slumps for German manufacturers, it also endangers German jobs.

A hard Brexit (WTO duties and 10 percent devaluation of the pound) means a cumulative **cost increase** of €1.9 billion (+15%) for automotive manufacturers in the United Kingdom compared to a no-Brexit scenario.

If vehicle manufacturers pass this cost increase on 1:1 to their customers, the price of a car in the United Kingdom would increase by €3,700, and by as much as €5,600 for cars manufactured in Germany.

Taking into account British consumer behaviour, in the year of exiting the EU this price increase would lead to an **overall sales decrease** of approx. 550,000 vehicles (-19%) in the United Kingdom. **German vehicle exports** would decline by 255,000 units (-32%).

**Total turnover** from vehicles in the UK would decline by approx. €12.4 billion (-18%), and profits by €900 million. While manufacturers from the UK and outside of the EU benefit, EU-27 turnover would decline by €8.3 billion, and for **German manufacturers** by €6.7 billion.

Based on these declines in sales and turnover, approx. **18,000 jobs** in the German automotive industry would be directly endangered.

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1) Excluding Germany
Summary
A hard Brexit would have a negative effect similar to the financial crisis of 2008/2009

Forecast sales development cars & LCV after a hard Brexit (million units)

*) "No Brexit" base scenario: IHS Automotive forecast before Brexit Referendum; "Hard Brexit" scenario: modelling by Deloitte Research
Summary | Sales development
After a hard Brexit, German and other European manufacturers would sell 650,000 fewer cars

Sales by manufacturing region after a hard Brexit (in thousands)

- **EU-27¹**
  - **DE**: 810, -255,000 cars (-31%)
  - **RoW**: 570, +40,000 cars (+7%)
  - **UK**: 360, +60,000 cars (+17%)
  - Total: EU-27¹: 1,095, -395,000 cars (-36%)

- **DE**: 700, +40,000 cars (+7%)
- **RoW**: 610, +60,000 cars (+17%)
- **UK**: 420, +60,000 cars (+17%)
- Total: DE: 810, -255,000 cars (-31%)
- Total: RoW: 570, +40,000 cars (+7%)
- Total: UK: 360, +60,000 cars (+17%)
- Total: 2,285

1) Excluding Germany
Summary | Turnover development
The turnover volume of the British automobile market would decline from €67.8 billion to €55.4 billion, i.e. 18%

Turnover by manufacturing region after a hard Brexit (in € billion)

<table>
<thead>
<tr>
<th>Region</th>
<th>No Brexit 2019</th>
<th>Development</th>
<th>Hard Brexit 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total EU-27¹</td>
<td>67.8</td>
<td>-€12.4 billion turnover (-36%)</td>
<td>55.4</td>
</tr>
<tr>
<td>EU-27¹</td>
<td>23.1</td>
<td>-€8.3 billion turnover (-36%)</td>
<td>14.8</td>
</tr>
<tr>
<td>DE</td>
<td>21.8</td>
<td>-€6.7 billion turnover (-31%)</td>
<td>15.1</td>
</tr>
<tr>
<td>RoW</td>
<td>13.0</td>
<td>+€0.9 billion turnover (+7%)</td>
<td>13.9</td>
</tr>
<tr>
<td>UK</td>
<td>9.9</td>
<td>+€1.7 billion turnover (+17%)</td>
<td>11.6</td>
</tr>
</tbody>
</table>

1) Excluding Germany
Summary | Profit development

The German automotive industry would see a sharp decline in its profits due to the pronounced sales slump in its premium brands.

Profit by manufacturing region after a hard Brexit (in € million)

<table>
<thead>
<tr>
<th>Region</th>
<th>No Brexit 2019</th>
<th>Hard Brexit 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU-27¹</td>
<td>1,500</td>
<td>1,000</td>
</tr>
<tr>
<td>DE</td>
<td>1,800</td>
<td>1,200</td>
</tr>
<tr>
<td>RoW</td>
<td>600</td>
<td>700</td>
</tr>
<tr>
<td>UK</td>
<td>700</td>
<td>800</td>
</tr>
<tr>
<td>Total</td>
<td>4,600</td>
<td>3,700</td>
</tr>
</tbody>
</table>

- €500 million profit
- €600 million profit
+ €100 million profit
+ €100 million profit

1) Excluding Germany

Deloitte 2017

1) Excluding Germany
Scenarios
Two factors influence the occurrence of a hard Brexit: future WTO duties and the exchange rate of the pound

Central assumptions:
Market development as per the IHS Automotive forecast before the Brexit Referendum, i.e.:
• UK has full access to EU Single Market
• Pound stable at level before Referendum

WTO duties
After a hard Brexit, trade between the EU and UK would initially fall under the customs conventions of the World Trade Organization (WTO):

Vehicles
• ~10% WTO duties

Vehicle parts
• ~4.5% WTO duties

Development of the pound
Since the Referendum, the British pound (GBP) has been devalued by approx. 10% on average against the euro and other currencies (e.g. USD).

No Brexit Scenario

Central assumptions:
• WTO duties apply between EU and UK:
  vehicles: ~10% / vehicle parts: ~4.5%
• The exchange rate of the pound remains consistently 10% under level before the Brexit Referendum
UK market analysis

The British automotive market was analysed and mapped out comprehensively in order to model the impact of a hard Brexit.

Manufacturing sites and volumes of vehicles sold in the United Kingdom
- Germany⁴
- EU-27 (excluding Germany)
- United Kingdom (UK)
- Rest of world (RoW)

Research of British list prices of 330 car models in total³

Sales figures
Categorisation of sales figures¹ by:
- Manufacturer
- Model
- Manufacturer type
- Segment²

List prices
Research of British list prices of 330 car models in total³

Manufacturing sites
Manufacturing sites and volumes of vehicles sold in the United Kingdom¹
- Germany⁴
- EU-27 (excluding Germany)
- United Kingdom (UK)
- Rest of world (RoW)

<table>
<thead>
<tr>
<th>Make</th>
<th>Model</th>
<th>Manufacturer type</th>
<th>Segment² (A-F)</th>
<th>Sales UK 2016</th>
<th>List price UK (in EUR)</th>
<th>Manufacturing site</th>
</tr>
</thead>
<tbody>
<tr>
<td>VW</td>
<td>VW Golf</td>
<td>Volume</td>
<td>C</td>
<td>72,762</td>
<td>€20,972</td>
<td>DE</td>
</tr>
<tr>
<td>PSA</td>
<td>Citroen C1</td>
<td>Volume</td>
<td>A</td>
<td>19,155</td>
<td>€9,917</td>
<td>EU-27</td>
</tr>
<tr>
<td>BMW GROUP</td>
<td>BMW X3</td>
<td>Premium</td>
<td>D</td>
<td>9,638</td>
<td>€40,629</td>
<td>RoW</td>
</tr>
<tr>
<td>Jaguar XE</td>
<td>Premium</td>
<td>D</td>
<td>13,498</td>
<td>€33,365</td>
<td>UK</td>
<td></td>
</tr>
</tbody>
</table>

¹ Source: IHS Automotive Insight 2017; ² Segmentation as per IHS Automotive Insight 2017; ³ Standard model with basic equipment (as at April 2017); ⁴ German manufacturing sites include German companies like BMW, Daimler and VW, as well as Opel/Vauxhall and Ford.
Based on the scenarios, the model calculates post-Brexit vehicle sales, sector turnover and endangered jobs in DE

**Cost increases after hard Brexit**
Change in cost base due to WTO duties and currency effects

![Cost increase graph](image)

- UK: 2.9%
- EU-27: 21%
- RoW: 10%

\( \bar{\Delta} = \sim 15\% \)

**Implication for price development**

**Assumption:** manufacturers pass on cost increases 1:1 to end consumers

**Manufacturing**
Cost increase

**End consumer**
Price increase

1:1

**Sales development**
Modelling of sales development taking into account price and cross-elasticities

**Turnover development**
Modelling of manufacturer turnover based on sales development

**Endangered jobs**
Modelling of endangered jobs based on automotive industry job multiplier

**Modelling of “No Brexit” base scenario:**
Originally forecast development of initial parameters before the Brexit decision was known

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1) Volume weighted average of cost increases; 2) Source: Economics For The Environment Consultancy Ltd (eftec), 2008
Implications
Potential impact of a hard Brexit

- Price development
- Sales development
- Turnover and profit development
- Jobs affected
Price development
If cost increases were passed on entirely, vehicles prices in the UK would increase by approx. 15% on average

### Average price development by production region (€ and %)

<table>
<thead>
<tr>
<th>Production Region</th>
<th>Current list price² (€)</th>
<th>Price³ after hard Brexit (€)</th>
<th>Price increase (€)</th>
<th>Price increase (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard car in UK</strong></td>
<td><strong>23,900</strong></td>
<td><strong>27,600</strong></td>
<td><strong>3,700</strong></td>
<td><strong>+15%</strong></td>
</tr>
<tr>
<td><strong>UK manufacture</strong></td>
<td><strong>26,900</strong></td>
<td><strong>27,700</strong></td>
<td><strong>800</strong></td>
<td><strong>+3%</strong></td>
</tr>
<tr>
<td><strong>DE manufacture</strong></td>
<td><strong>26,500</strong></td>
<td><strong>32,100</strong></td>
<td><strong>5,600</strong></td>
<td><strong>+21%</strong></td>
</tr>
<tr>
<td><strong>EU-27 manufacture (excluding DE)</strong></td>
<td><strong>20,600</strong></td>
<td><strong>24,900</strong></td>
<td><strong>4,300</strong></td>
<td><strong>+21%</strong></td>
</tr>
<tr>
<td><strong>RoW manufacture</strong></td>
<td><strong>23,200</strong></td>
<td><strong>25,500</strong></td>
<td><strong>2,300</strong></td>
<td><strong>+10%</strong></td>
</tr>
</tbody>
</table>

1) Average prices by production region were weighted by sales volumes; 2) List prices: standard models with basic equipment (as at April 2017); 3) Price without expected inflation by 2019 (= adjusted for inflation)
Price increases after a hard Brexit would lead to sales decreases of around 550,000 cars (-19%).

Forecast sales development cars & LCV after a hard Brexit (million units)

*) "No Brexit" base scenario: IHS Automotive forecast before Brexit Referendum; "Hard Brexit" scenario: modelling by Deloitte Research
Sales development | Manufacturing regions

While European manufacturers would sell 650,000 fewer cars, the UK and other regions would benefit (+100,000 cars)

Sales development by manufacturing region after hard Brexit (thousand units)

-550,000 cars (-19%)

Brexit losers (EU-27¹ & DE):
-650,000 cars (-34%)

Brexit winners (RoW & UK):
+100,000 cars (+11%)

EU-27¹: -395,000 cars (-36%) DE: -255,000 cars (-31%) RoW: +40,000 cars (+7%) UK: +60,000 cars (+17%)

1) Excluding Germany
Sales development | Volume and premium segment

The decline in sales figures will affect volume and premium manufacturers equally

### Development of sales volumes after hard Brexit (thousand units)

#### Volume segment

<table>
<thead>
<tr>
<th></th>
<th>Brexit losers (EU-27¹ &amp; DE):</th>
<th>Brexit winners (RoW &amp; UK):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-320,000 cars (-37%)</td>
<td>+40,000 cars (+8%)</td>
</tr>
<tr>
<td></td>
<td>-145,000 cars (-34%)</td>
<td>+35,000 cars (+17%)</td>
</tr>
<tr>
<td></td>
<td>+40,000 cars (+8%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+35,000 cars (+17%)</td>
<td></td>
</tr>
<tr>
<td>EU-27¹</td>
<td>870</td>
<td>530</td>
</tr>
<tr>
<td>DE</td>
<td>430</td>
<td>570</td>
</tr>
<tr>
<td>RoW</td>
<td>210</td>
<td>245</td>
</tr>
<tr>
<td>UK</td>
<td>2.040</td>
<td>1.650</td>
</tr>
<tr>
<td>Total</td>
<td>1.650</td>
<td>1.650</td>
</tr>
</tbody>
</table>

#### Premium segment

<table>
<thead>
<tr>
<th></th>
<th>Brexit losers (EU-27¹ &amp; DE):</th>
<th>Brexit winners (UK):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-75,000 cars (-33%)</td>
<td>No change</td>
</tr>
<tr>
<td></td>
<td>-110,000 cars (-29%)</td>
<td>+25,000 cars (+17%)</td>
</tr>
<tr>
<td>EU-27¹</td>
<td>225</td>
<td>40</td>
</tr>
<tr>
<td>DE</td>
<td>380</td>
<td>40</td>
</tr>
<tr>
<td>RoW</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>UK</td>
<td>635</td>
<td>175</td>
</tr>
<tr>
<td>Total</td>
<td>795</td>
<td>635</td>
</tr>
</tbody>
</table>

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1) Excluding Germany
Turnover development | Manufacturing regions

German and European manufacturers’ declining sales are also reflected in falling turnover in these regions.

Turnover development by manufacturing region after hard Brexit (€ billion)

- €12.4 billion (-18%)

- €8.3 billion (-36%)  
  Brexit losers (EU-27¹ & DE):
  - €15 billion (-33%)

- €6.7 billion (-31%)

+ €0.9 billion (+7%)

+ €1.7 billion (+17%)

Brexit winners (RoW & UK):

EU-27¹  
23,1  ↓  14,8

DE  
21,8  ↓  15,1

RoW  
13,0  ↑  13,9

UK  
9,9  ↑  11,6

Deloitte 2017

1) Excluding Germany
Turnover development | Volume and premium segment

RoW manufacturers benefit especially in the volume segment, while UK manufacturers make gains in the premium segment.

**Development of sales volumes after hard Brexit** (thousand units)

**Volume segment**

- Brexit losers (EU-27¹ & DE): €8.7 billion (-35%)
  - €5.9 billion (-37%)
  - €2.8 billion (-33%)
- Brexit winners (RoW & UK): +€0.8 billion (+7%)
  +€0.7 billion (+17%)

<table>
<thead>
<tr>
<th>Region</th>
<th>Volume Segment</th>
<th>Premium Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU-27¹</td>
<td>-€7.3 billion (-18%)</td>
<td>-€5.1 billion (-18%)</td>
</tr>
<tr>
<td>DE</td>
<td>-€5.9 billion (-37%)</td>
<td>-€2.4 billion (-34%)</td>
</tr>
<tr>
<td>RoW</td>
<td>+€0.8 billion (+7%)</td>
<td>No change</td>
</tr>
<tr>
<td>UK</td>
<td>+€0.7 billion (+17%)</td>
<td>+€1.0 billion (+18%)</td>
</tr>
</tbody>
</table>

**Premium segment**

- Brexit losers (EU-27¹ & DE): €6.3 billion (-31%)
  - €2.4 billion (-34%)
  - €3.9 billion (-29%)
- Brexit winners (UK): +€1.0 billion (+18%)

<table>
<thead>
<tr>
<th>Region</th>
<th>Volume Segment</th>
<th>Premium Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU-27¹</td>
<td>-€5.1 billion (-18%)</td>
<td>-€5.1 billion (-18%)</td>
</tr>
<tr>
<td>DE</td>
<td>-€2.4 billion (-34%)</td>
<td>-€2.4 billion (-34%)</td>
</tr>
<tr>
<td>RoW</td>
<td>No change</td>
<td>No change</td>
</tr>
<tr>
<td>UK</td>
<td>No change</td>
<td>+€1.0 billion (+18%)</td>
</tr>
</tbody>
</table>

1) Without Germany
Profit development | Manufacturing regions
Sector profits would fall by around €900 million after a hard Brexit; EU-27¹ and DE would lose over 30%.

Profit development by manufacturing region after hard Brexit (in € billion)

- €900 million (-19%)

Brexit losers (EU-27¹ & DE):
- €1,100 million (-33%)
- €500 million (-33%)
- €600 million (-31%)

Brexit winners (RoW & UK):
+ €100 million (+17%)
+ €100 million (+14%)

EU-27¹: - €1,100 million (-33%) 1.500
DE: - €600 million (-31%) 1.800
RoW: + €100 million (+17%) 600
UK: + €100 million (+14%) 700

Total: 4.600
EU-27¹: 1.500
DE: 1.800
RoW: 700
UK: 800

¹) Excluding Germany

Deloitte 2017
Effect on jobs | Germany
Based on the declines in sales and turnover, approx. 18,000 jobs would be directly endangered in Germany

Chain of effects from a hard Brexit on jobs in Germany
If German manufacturers’ sales figures fall in the UK... turnover falls as well for the German automotive industry in the UK... endangering 18,000 of the 60,000 jobs in German manufacturing for vehicle exports direct to the UK.

DE cars sold in UK

<table>
<thead>
<tr>
<th>No Brexit 2019</th>
<th>Hard Brexit 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>810,000 vehicles</td>
<td>-255,000 cars</td>
</tr>
<tr>
<td>555,000 vehicles</td>
<td></td>
</tr>
</tbody>
</table>

DE turnover in UK

<table>
<thead>
<tr>
<th>No Brexit 2019</th>
<th>Hard Brexit 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>€21.8 billion turnover</td>
<td>-€6.7 billion turnover</td>
</tr>
<tr>
<td>€15.1 billion turnover</td>
<td></td>
</tr>
</tbody>
</table>

Jobs in DE

<table>
<thead>
<tr>
<th>60,000 employees manufacture cars for the UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>18,000 jobs at risk in DE</td>
</tr>
</tbody>
</table>
Outlook
Options after a hard Brexit
Outlook (1/2)
If automotive manufacturers waive margins, it would cushion the sales decline, but always at the expense of profit.
Outlook (2/2) | Options for action

The issues for automotive manufacturers are varied and require analysis of individual effects

Potential options for action as building blocks for an effective Brexit strategy

<table>
<thead>
<tr>
<th>Brexit topics</th>
<th>Options for action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emerging duties</td>
<td>Adjust price strategy</td>
</tr>
<tr>
<td>Currency fluctuations</td>
<td>Optimise transfer pricing</td>
</tr>
<tr>
<td>More complicated supplier structures</td>
<td>Realign supply chain</td>
</tr>
<tr>
<td>Separation from sales market</td>
<td>Review location strategy</td>
</tr>
<tr>
<td>Regulatory requirements</td>
<td>Optimise homologation</td>
</tr>
<tr>
<td>Bureaucratic obstacles</td>
<td>Screen for legal changes</td>
</tr>
</tbody>
</table>
Your contacts

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