

Fichtner, Ferdinand; Große Steffen, Christoph; Hachula, Michael; Schlaak, Thore

## Article

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# Brexit decision is likely to reduce growth in the short term

By Ferdinand Fichtner, Christoph Große Steffen, Michael Hachula and Thore Schlaak

The high degree of uncertainty about the United Kingdom's (UK) economic future following the June 23 Brexit referendum is leading to a flight into safe assets, and will most likely worsen financing conditions for British companies. In addition, companies could reduce investment and postpone hiring decisions. This is likely to start dampening economic growth in the UK in the short term, thus reducing the export possibilities for the euro area and Germany. The German automotive industry, which counts the UK as a major export destination, will be the most affected; German producers of wood, paper, and leather goods, as well as those of pharmaceuticals and chemical products, will also feel the impact. Assuming that the Brexit decision reduces British imports by 12.5 percent by the end of next year compared to a Remain-vote scenario, Germany's economic growth in 2017 could be half a percentage point lower than previously expected.

The Brexit vote of June 23 has shaken European policy and led to considerable uncertainty about the future of the European integration process. Immediately following the vote, a marked increase in economic uncertainty became evident not only with regard to the UK's economic prospects, but also with regard to the economic development of Europe on the whole and the rest of world. The increased uncertainty was reflected in the world market price of gold, which rose by more than four percent over the course of June 24.<sup>1</sup> However, the level of uncertainty is well below that which followed the collapse of Lehman Brothers, or that of various critical phases of the debt crisis in the euro area.

## Significantly higher uncertainty in the UK

In the UK, the flight into assets perceived as "safe" has led to increased price volatility on the financial markets; the volatility index of London's FTSE 100 (Figure 1) started increasing in June, indicating significant uncertainty.<sup>2</sup> In the days directly following the Brexit vote, heavy losses were observed in stocks. Particularly hit by the exchange losses were large banks, whose prospects are especially in question since it is unclear to which extent the financial center of London could still profit from the free movement of capital within the EU following the Brexit. By the middle of the following week, however, a significant recovery was observable.

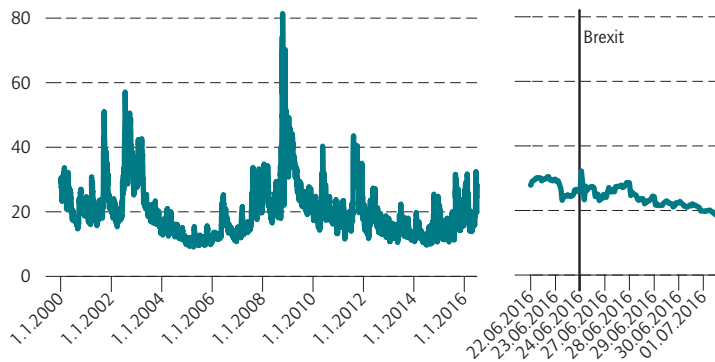
The prices of British government bonds ("gilts"), however, were affected by the flight-to-quality in the short term; indeed, these bonds' yields experienced a decrease. The interest on bonds with a maturity of three months fell by more than six basis points, while bonds with 30-year maturities dropped by nearly 16 basis points. Neverthe-

<sup>1</sup> A rising demand for gold can be seen as a strong indication of increased uncertainty, since investors consider this precious metal a "safe investment." See, for example: Piffer, M. und Podstawski, M. (2016): "Identifying Uncertainty Shocks Using the Price of Gold." DIW Discussion Paper 1549.

<sup>2</sup> Bloom, N. (2009): "The Impact of Uncertainty Shocks." *Econometrica* 77(3), pp. 623-685.

Figure 1

**Uncertainty in the course of time**  
FTSE 100 Volatility Index, daily frequency



Source: Datastream.

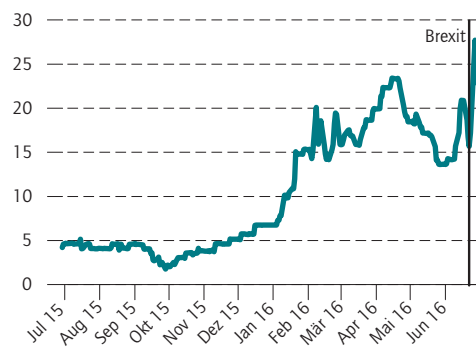
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In the historic context the uncertainty following the Brexit referendum is not extraordinarily high.

less, government financing costs are expected to rise in the medium term; evidence of this can be found in the prices of credit default swaps (CDS) for gilts, which have sharply increased compared to those of German government bonds (Figure 2). As a result of the referendum, two of the three most important rating agencies have al-

Figure 2

**Prices of Credit Default Swaps for British government bonds (5-year maturity)**  
Spread against German bonds, in basis points



Source: Datastream.

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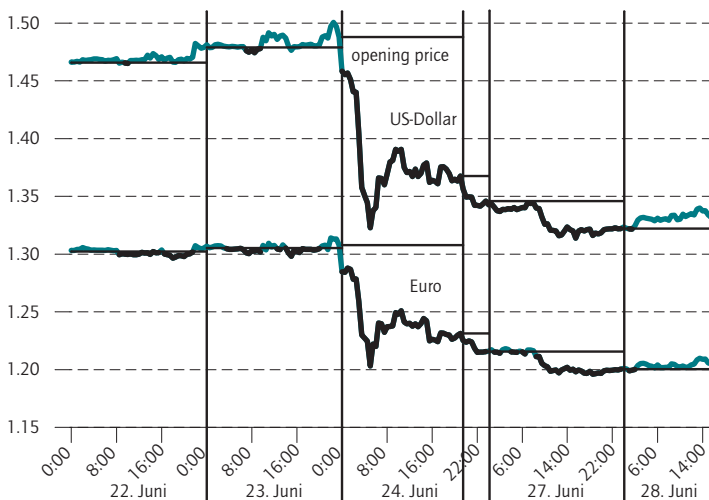
Market expectations imply an increase of sovereign default risk since the Brexit referendum.

ready revoked the top rating from the UK, which should negatively affect financing costs in the medium term.

In addition to the recent flight-to-quality within the UK, there are likely to have been capital outflows from the economy. This is evidenced by the significant depreciation of the British pound, the value of which dropped by 11.2 percent against the US dollar and by 8.2 percent against the euro within two trading days of the vote (Figure 3).<sup>3</sup>

Figure 3

**Exchange rate of British pound vis-à-vis the euro and US-Dollar**



Source: Datastream.

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In the course of two days after the Brexit referendum the British pound depreciated roughly 8 percent vis-à-vis the euro.

**Slower growth in the UK economy**

There are many indications that the increased uncertainty will persist in the longer run and thus have a dampening effect on the UK's economic development. For example, exit negotiations could drag on for several years, and the conditions for future trade, migration, and capital flows between the UK and the EU could remain unresolved for a long time to come.

In this environment, investment and employment are likely to be impacted, since companies prefer to wait before making decisions that are to some degree irreversible.<sup>4</sup> International investors are also likely to hold back

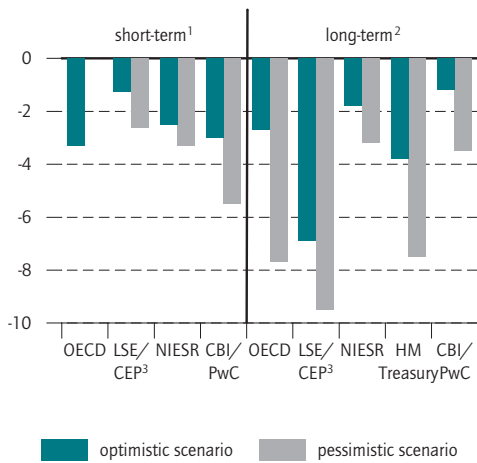
<sup>3</sup> (Net) capital outflows from a nation's economy lead to reduced demand for its currency in the foreign exchange market, which in turns leads to depreciation. See, for example: Krugman, P., Obstfeld, M. (2006): "International Economics: Theory and Policy." 7. Edition, Pearson.

<sup>4</sup> Bachmann, R., Elstner, S., Sims, E.R. (2016): "Uncertainty and Economic Activity: Evidence from Business Survey Data." American Economic Journal: Macroeconomics 5 (2), pp. 217-249; Bachmann, R., Bayer, C. (2013): "'Wait-and-See' Business Cycles?" Journal of Monetary Economics 60 (6), pp. 704-719.

Figure 4

**Impacts of the Brexit on the United Kingdom's gross domestic product**

In percent compared to a scenario without Brexit



1 Time period from 2016 to 2020.  
 2 Time period from 2016 to 2030.  
 3 Model with a static (short term) and a dynamic time horizon (long term).

Source: OECD (2016): *The economic consequences of Brexit: A taxing decision*. OECD Economic Policy Papers, No. 16; Dhingra, S. et al. (2016): *The consequences of Brexit for UK trade and living standards*. CEP Brexit Analysis No. 2; Baker, J. et al. (2016): *The short-term economic impact of leaving the EU*. National Institute Economic Review, No. 236; Ebell, M., Warren, J. (2016): *The longterm economic impact of leaving the EU*. National Institute Economic Review, No. 236; HM Government (2016): *HM Treasury analysis: the long-term economic impact of EU membership and the alternatives*. Cm9250; PwC (2016): *Leaving the EU: Implications for the UK economy*. report commissioned by CBI.

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The impact of the Brexit on the British economy is expected to be negative.

with investment in the UK at first; this could increase the financing costs for companies, private households, and the government, and also dampen investment and consumption.

All in all, the UK's overall development is expected to be weaker in the coming years than it would have been in a no-Brexit scenario.<sup>5</sup> The literature estimates the short-term decline in British economic output resulting from the Brexit vote to be between 1.3 percent and 5.5 percent (Figure 4).<sup>6</sup>

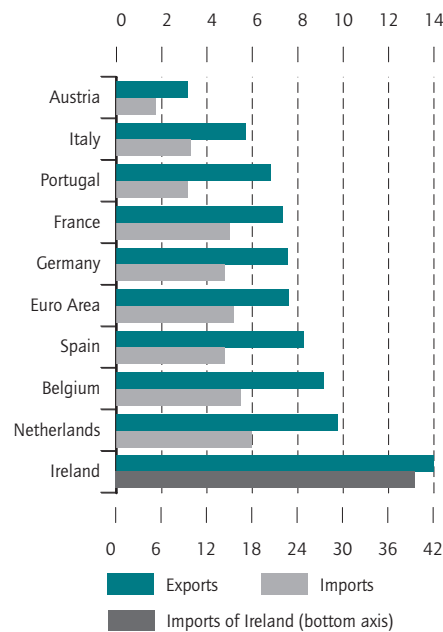
5 See, for example: Baker, J. et al. (2016): "The Short-Term Economic Impact of Leaving the EU." NIESR Review No. 236, May 2016.

6 In most of the studies, the "short-term" decline in GDP refers the period up until 2020.

Figure 5

**Trade relations between different euro area countries and the United Kingdom**

Percentage of total exports/imports of goods, Average 2014/2015



Source: Datastream, calculations of DIW Berlin.

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Some euro area countries are particularly linked to the United Kingdom through trade relations.

**Brexit vote negatively impacts the euro area as well**

A slump in the UK economy is likely to have a direct impact on the economy of the euro area. One important impact channel comprises the direct trade effects resulting from a decrease in the UK's demand for goods and services from the euro area.<sup>7</sup> The recent devaluation of the British pound against the euro should also reinforce the decline in demand related to slower growth, since Europeans goods will become more expensive for Brits.

Altogether, 7 percent of the euro area's total merchandise exports go to the UK, and 5% of the euro area's total merchandise imports originate in the UK. An immediate drop in trade would affect the euro area countries in varying degrees (Figure 5). The UK is Ireland's sec-

7 An overview of other medium- and long-term Brexit impact channels influencing the economy of the euro area and the rest of the EU can be found, for example, in Buiter, W. et al. (2016): "The implications of Brexit for the rest of the EU." Vox.eu.org, March 2016 and Boata, A. et al. (2016): "Brexit: What does it mean for Europe?" Euler Hermes Economic Research, May 2016.

Figure 6

**Stock market losses in different euro area countries immediately after the referendum**

Between 23 June and 24 June in percent



Source: Datastream, calculations of DIW Berlin.

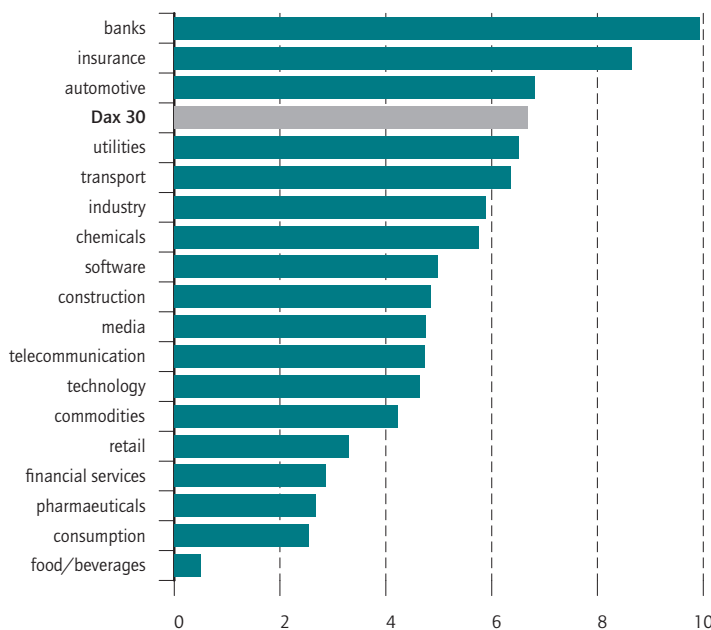
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Stock markets in all euro area countries plummeted immediately after the Brexit referendum.

Figure 7

**Stock exchange losses of the CDax by sector**

Between 23 June and 24 June in percent



Source: Datastream, calculations of DIW Berlin.

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The losses incurred by stocks of the automotive industry, banks, and insurances were particularly high after the Brexit referendum.

ond largest trading partner, and many Irish and British companies are closely linked via production chains and mutual financial investment.<sup>8</sup> The UK has similarly close trade links with Belgium and the Netherlands. Moreover, Dutch companies are strongly represented in the UK via equity and direct investment, and British banks are important lenders in the Dutch economy.<sup>9</sup>

Assuming that the negative impact on the euro area economy will work primarily through trade channels, Ireland, Belgium, and the Netherlands should be most heavily affected by the Brexit in the short-term. However, share prices have fallen sharply in all euro area countries as a direct response to the referendum (Figure 6)—even in places where the UK has a lower weight in total merchandise trade. This indicates that the financial markets are expecting the economic consequences of the Brexit to be negative for the entire euro area. An important channel of transmission will most likely be that the increased political and economic uncertainty worsens financing conditions and exerts negative effects on investment and employment.

The increase in uncertainty is also evidenced by the immediate and varied reactions of government bond yields in euro area countries following the referendum. Yields on bonds with 10-year maturities fell in Germany and France; government bonds in these countries are perceived as safe assets and tend to be in demand in times of heightened uncertainty. On the other hand, bond yields in Spain and Italy increased. All in all, however, the development of the bond yields across the board was significantly lower than it was on the days of important decisions during the euro area debt crisis.

If we divide up the post-Brexit referendum trade losses on the European stock exchanges by sector, we find that companies manufacturing everyday necessities like food or drugs—business investments considered relatively safe even in times of increased uncertainty—have experienced the smallest losses. The losses for banks and other financial service providers, however, were major: there have only been a few trading days in which the share price of some euro area banks plummeted by as much as it did following the Brexit referendum.

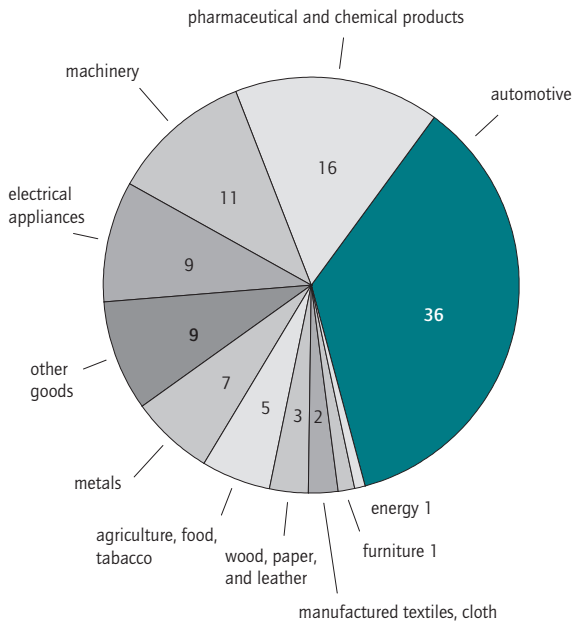
**8** In the medium term, however, Ireland could also benefit from the Brexit: if international companies with outposts in Britain want to relocate their European headquarters to preserve their access to the internal market, Ireland is likely to be a preferred destination.

**9** Beyond trade and financial services, other aspects of the European economy will be affected: the Spanish tourism industry could also start feeling the effects of the Brexit this year, since Brits make up over a quarter of the country's foreign visitors – and due to the devaluation of the pound, these tourists are now likely to spend less money while in Spain. Moreover, as part of the Commonwealth, Cyprus still has close ties with the UK; if the turmoil on the British financial markets continues, this could create problems for Cypriot banks. Details on the economic relationships between each euro country and the UK can be found in Irwin, G. (2015): "BREXIT: the impact on the UK and the EU." Global council analysis, June 2015.

Figure 8

### German exports of goods to the United Kingdom by product groups

Shares in percent



Source: German National Statistical Office, calculations of DIW Berlin.

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A major share of Germany's exports to the United Kingdom is made up of only a few product groups.

Firstly, this is related to the fact that many banks and financial institutions are heavily engaged in London, an important global financial center, and are now likely facing difficult decisions regarding reallocation. Secondly, many European banks' individual economic situations are being strained by low-interest margins in the zero interest rate environment as well as a still-high level of non-performing loans.<sup>10</sup>

All in all, however, European financial markets already started to calm down significantly. While yields in France and Germany continued to decline slightly until the end of June, Spanish and Italian yields already started experiencing a countermovement and are now also on a lower level than they were pre-referendum. Similarly, the trade losses following the Brexit decision were partly reversed on the European stock exchanges by the end of June.

<sup>10</sup> This is especially true for Italian banks, whose shares have experienced strong losses in the wake of the Brexit referendum, and also explains why the stock market losses in Italy are more significant than those in other euro area countries. Also in Spain, where the stock market has also plummeted strongly, bank stocks have a comparatively high weight in the overall index.

### Germany's major industries affected

The immediate effects of the Brexit referendum were clearly noticeable on the German stock market as well: the German share index DAX dropped by nearly seven percent on the trading day following the vote, but already recovered somewhat by the end of June. In particular, the automotive, banking, and insurance sectors recorded high losses (Figure 7): the Brexit would be costly for the automotive sector, which will have to restructure its value chains, while banks and insurance companies are strongly affected by uncertainty in the financial markets.

The share of Germany's UK-bound exports in its total exports has risen steadily over the past five years, from 6.2 percent in 2011 to 7.5 percent in 2015, making the UK the third-largest market for German exporters after the US and France. Automotive, chemical and pharmaceutical exports as well as machinery construction make up roughly 63 percent of Germany's UK-bound exports (Figure 8). The German automotive industry sends 11.6 percent of its total exports to the UK; wood, paper, and leather goods as well as pharmaceuticals and chemical products also have high trade links (Figure 9).

As a consequence of the Brexit, the UK's output growth is likely to decrease; moreover, the British pound has already depreciated against the euro. Given these developments, the UK's import demand is expected to decelerate, which means that an appreciable effect via the trade channel on the German economy could start to materialize. Assuming a 12.5-percent<sup>11</sup> drop in UK import demand by the end of 2017, the growth rates of British imports would be 1.7 percentage points lower in 2016 and 11.9 percentage points lower in 2017 than would be expected if the UK were to remain in the EU. With the UK accounting for 8.0 percent of German goods and services exports<sup>12</sup> and excluding indirect effects—for example, third-country or substitution effects—the previous assumptions would result in a decline in the growth rate of German exports by 0.2 percentage points this year, and by 1.0 percentage points next year (Figure 10). With exports making up 48 percent of the GDP, this will dampen the growth rate of Germany's economic output—in comparison to a no-Brexit situation—by 0.1 percentage points in 2016 and by 0.5 percentage points in 2017.

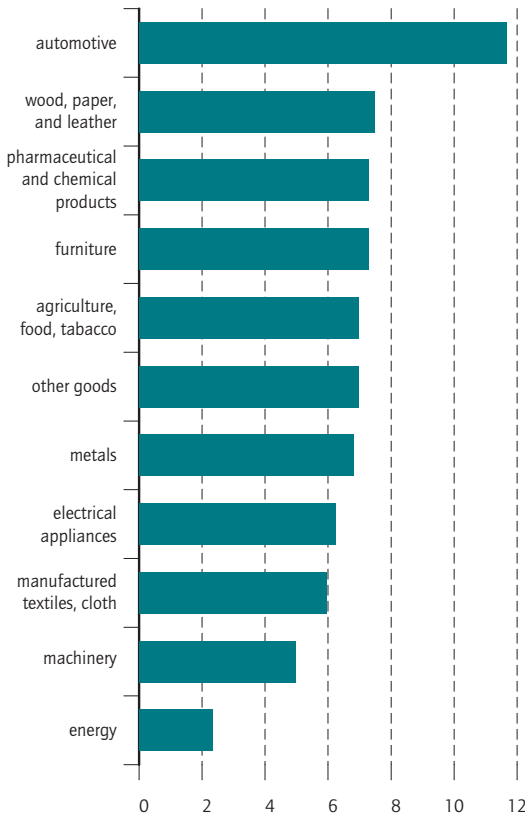
If the UK leaves the European domestic market, trade activity between Germany and the UK will also develop rel-

<sup>11</sup> The calibration is based on Baker, J. et al. (2016): "The short-term economic impact of leaving the EU." National Institute Economic Review 236, May 2016.

<sup>12</sup> Data from the German Foreign Trade Statistics are used to calculate UK's share of 7.5 percent of Germany's total exports of goods. For services exports geographically differentiated data are not available; UK's share of Germany's total service exports is assumed to be 10 percent.

Figure 9

**United Kingdom's share of German exports of goods within product groups**  
In percent of total exports of respective product group



Source: German National Statistical Office, calculations of DIW Berlin.

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Trade relations between Germany and the United Kingdom are especially high in the automotive industry.

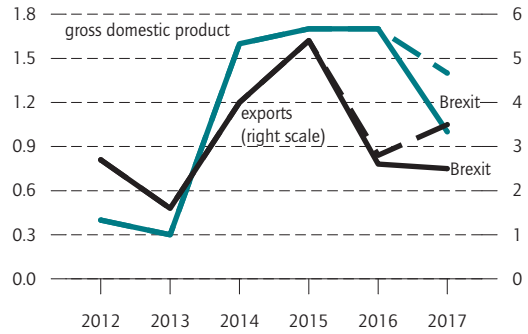
atively weaker in the medium term, since import restrictions such as tariffs, a higher administrative burden for export goods, and the possible introduction of national product standards would lead to additional costs for exporters. In addition, quantitative restrictions on imports could create an additional trade barrier.

**Conclusions**

In the wake of the Brexit referendum, there was a significant increase in the uncertainty surrounding the future economic development of the UK and Europe. On the

Figure 10

**Germany: Gross domestic product and exports**  
Annual growth rate in percent



Source: Calculations of DIW Berlin.

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The growth rates of the German economy are expected to be lower compared to a scenario with no Brexit.

financial markets, this manifested itself in an increase in prices of "safe-haven" assets such as gold and government bonds, while stock prices in Europe experienced a significant drop in value directly following the referendum. However, the financial markets' reaction was nowhere near as extreme as it was after the collapse of Lehman Brothers, for example, and recoveries were already observed in the days following the Brexit referendum.

Nevertheless, the increased uncertainty is expected to start creating significant economic losses straight away, long before the actual Brexit might take place, as companies will most likely chose to postpone investment and hiring decisions. Moreover, international investors may be reluctant to invest in the UK, leading to a deterioration in financing conditions for businesses, households, and the government. This not only reduces economic growth in the UK itself, but also leads to a reduction in export opportunities for the euro area and Germany, thus negatively impacting on their economic development. Moreover, the Brexit will have additional effects on the economy through prolonged high financial market volatility, foreign direct investment, and prices; these effects, however, are at the moment nearly impossible to quantify. With this in mind, it is in the interest of both continental Europe and the UK to reduce the uncertainty surrounding their economic perspectives as much as possible – particularly when it comes to their future relationship.

## BREXIT DECISION

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**Ferdinand Fichtner** is Head of the Department of Forecasting and Economic Policy at DIW Berlin | [ffichtner@diw.de](mailto:ffichtner@diw.de)

**Christoph Große Steffen** is Research Associate in the Department for Macroeconomics at DIW Berlin | [cgrossesteffen@diw.de](mailto:cgrossesteffen@diw.de)

**Michael Hachula** is Research Associate in the Department of Forecasting and Economic Policy at DIW Berlin | [mhachula@diw.de](mailto:mhachula@diw.de)

**Thore Schlaak** is Research Associate in the Department of Forecasting and Economic Policy at DIW Berlin | [tschlaak@diw.de](mailto:tschlaak@diw.de)

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DIW Berlin – Deutsches Institut  
für Wirtschaftsforschung e.V.  
Mohrenstraße 58, 10117 Berlin  
T +49 30 897 89 -0  
F +49 30 897 89 -200

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