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Research Report

Brexit (probability) and effects on financial market stability

IWH Online, No. 5/2016

Provided in Cooperation with:

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Suggested Citation: Krause, Thomas; Noth, Felix; Tonzer, Lena (2016) : Brexit (probability) and effects on financial market stability, IWH Online, No. 5/2016, Leibniz-Institut für Wirtschaftsforschung Halle (IWH), Halle (Saale)

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Halle Institute for Economic Research
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IWH Online

5/2016

June 2016

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Brexit (Probability) and Effects on Financial Market Stability

Imprint

The IWH Online series publishes work by IWH scientists with the least possible delay and free of charge. The series includes preliminary reports, studies, analyses and surveys.

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Citation

Krause, Thomas; Noth, Felix; Tonzer, Lena: Brexit (Probability) and Effects on Financial Market Stability. IWH Online 5/2016. Halle (Saale) 2016.

ISSN 2195-7169

Brexit (Probability) and Effects on Financial Market Stability

Halle (Saale), 20.06.2016



Brexit (Probability) and Effects on Financial Market Stability

Background

On 23 June 2016, there will be a referendum in the United Kingdom (UK) on the stay of the country in the European Union (EU). Based on recent poll data, the share of supporters and opponents of an exit varies around 50% (see Figure 1).

Opponents of the UK breaking up with Brussels („Brexit“) refer to high costs in terms of stagnating economic growth if the UK leaves the EU. The risk of reduced trade, declining foreign direct investment, and a lower degree of financial market integration is high following an exit of the “single market”.

Supporters of the leave campaign suppose that costs of a Brexit should not be that high. They see the advantage of increased flexibility in decision making if the UK no longer has to adhere to directives coming from Brussels.

Also financial markets are concerned about the upcoming referendum. This study analyses the reaction of different financial market indicators to poll results pointing toward a Brexit.

Data

The **Brexit probability** is approximated by poll data measuring the share of supporters of the UK leaving the EU at the date when the poll was conducted. The higher the share of supporters of an exit, the higher the probability for a possible Brexit. Data come from the website whatukthinks.org and are provided by NatCen Social Research, an independent research institution.

To evaluate the effects on the **stability of the financial system**, we make use of indicators referring to the financial and banking system (country-specific stock market indices/bank indices), the government sector (10-year government bond yields). Also, we look at the exchange rate of the UK Sterling relative to the euro, the Swiss franc, and the US Dollar. These data are obtained from Datastream.

Figure 2 shows the time series pattern of the poll results regarding the question about whether an EU exit is supported as well as different financial market indicators. An increase of the share of supporters of leaving the EU seems to go hand in hand with a) declining returns of bank indices and b) a depreciating currency in the UK. Also, there are signs for c) increased volatility in European stock markets, which are at record highs since last Thursday and which might suggest a higher level of uncertainty regarding future economic developments in case of a Brexit.

Analysis

The empirical analysis examines how the Brexit probability, and the related uncertainty about the future development of the member states of the EU as well as the UK affects different financial market indicators. The analysis covers the period from 1 September 2015 to 15 June 2016.

The empirical approach is similar to *Snowberg et al. (2007)*, who evaluate the effects of election results in the US on economic variables. A similar approach has also been chosen by *Acemoglu et al. (2014)*, who study the effects of the protests during the “Arab Spring” on stock market returns.

The estimated model looks as follows:

$$Financialind_t = \alpha + \theta * Financialind_{t-1} + \beta * Brexit Probability (0/1)_t + \epsilon_t,$$

whereas the dependent variable $Financialind_t$ is defined as the log difference of an aggregated bank index (UK, Germany, EU), the yield of a 10-year government bond (UK, Germany), or the exchange rate of the UK Sterling to another currency including the euro, Swiss franc, US Dollar. This is complemented by stock market indices' returns or volatilities (UK, Germany, euro area, US).

The variable $Brexit Probability (0/1)_t$ takes a value of one if the probability of a Brexit is at least 50% (that is, at the time of a poll, at least 50% of respondents would opt for leaving the EU). The variable is zero if the probability is either below 50% or during times when no poll has been conducted.

The results of the analysis show that on days during which poll results have been published and the probability of an exit is at least 50%,

- ▮ returns of bank indices decline. This holds in particular for the UK but also for aggregated indices at the EU level,
- ▮ yields of 10-year government bonds show an only limited, significant reaction, whereas monetary policy and inflation expectations can also play a role in this context,
- ▮ the exchange rate of the UK Sterling depreciates, in particular relative to the euro or the Swiss franc; no significant effect is found for the UK Sterling-US Dollar exchange rate,
- ▮ returns of stock market indices decline, which holds especially for the UK but also for the euro area. A generally increased level of uncertainty is reflected by a positive effect on the euro area stock market index volatility. Also, the volatility in German stock markets rises. This might reflect uncertainty about the consequences of a Brexit for the German financial system.

Further results have shown that the value of the poll result as such (that is, the percentage fraction of respondents opting for a leave) has no relevant effect on the financial market indicators. This reveals that, especially passing the 50% threshold and thus having a higher share of supporters of an exit than opponents, plays an important role.

Conclusions

The upcoming referendum in the UK about the stay in the EU creates a high degree of uncertainty about possible consequences; this can also be seen in financial markets.

Poll results pointing toward a Brexit result in short-term declines in returns of bank indices. This suggests that negative consequences of exiting the EU are expected not only for the UK but also for the EU.

A depreciation of the UK Sterling relative to the euro or the Swiss franc can reflect that the currency loses its attractiveness. This can arise due to an (expected) decline in the attractiveness of the UK as financial center and reduced demand for the UK Sterling if the UK leaves the EU.

References

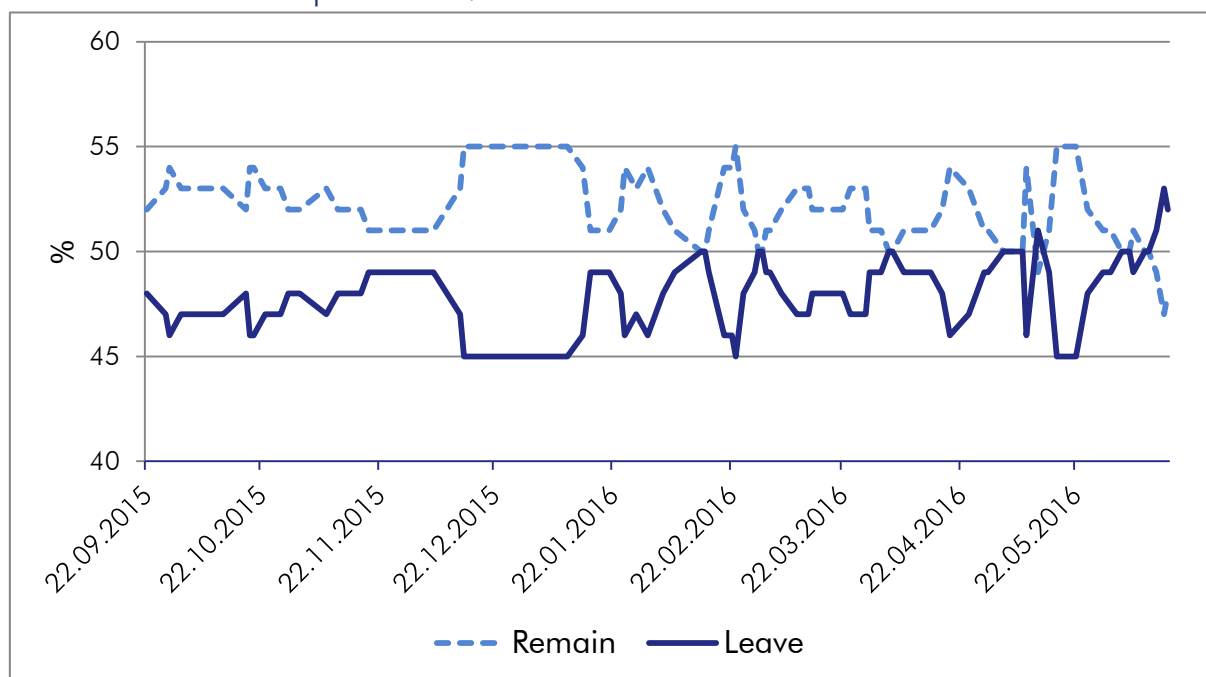
Acemoglu, D.; Hassan, T. A., and Tahoun, A. (2014): [The Power of the Street: Evidence from Egypt's Arab Spring](#). NBER Working Paper 20665, NBER.

Snowberg, E.; Wolfers, J., and Zitzewitz, E. (2007): [Partisan Impacts of the Economy: Evidence from Prediction Markets and Close Elections](#), in: Quarterly Journal of Economics 122, 2, 807-829.

Figures and Tables

Figure 1

Poll results on the question “Should the United Kingdom remain a member of the European Union or leave the European Union?”



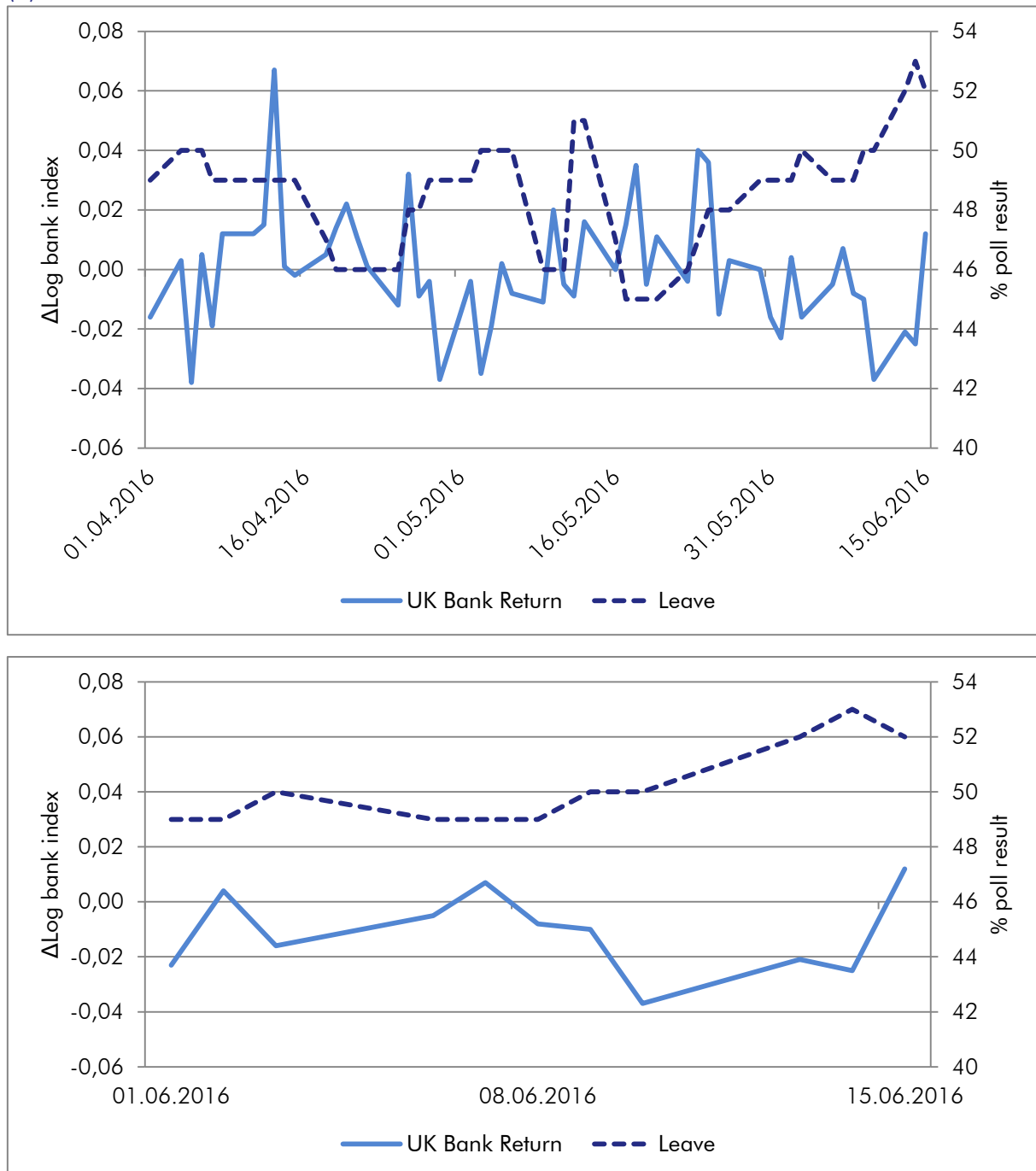
The figure shows the average opinion about whether the UK should remain or leave the EU across the six most recently conducted polls.

Source: whatukthinks.org.

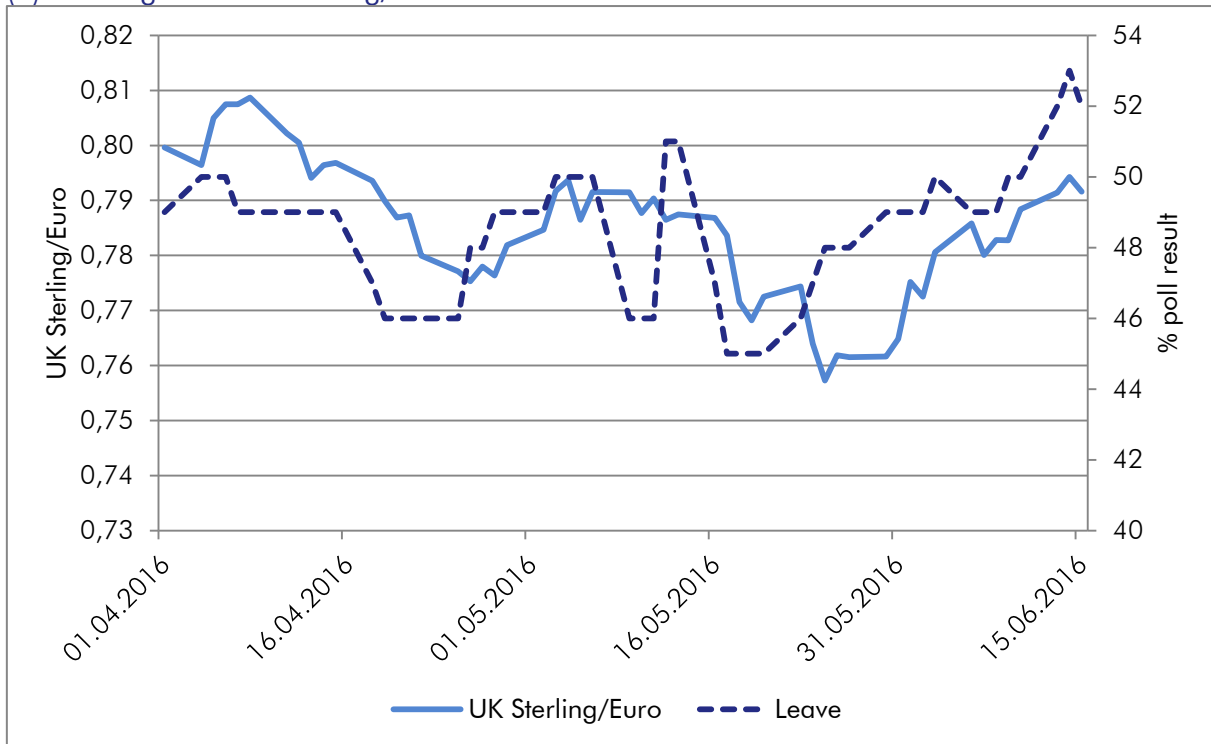
Figure 2

Poll result and financial market indicator

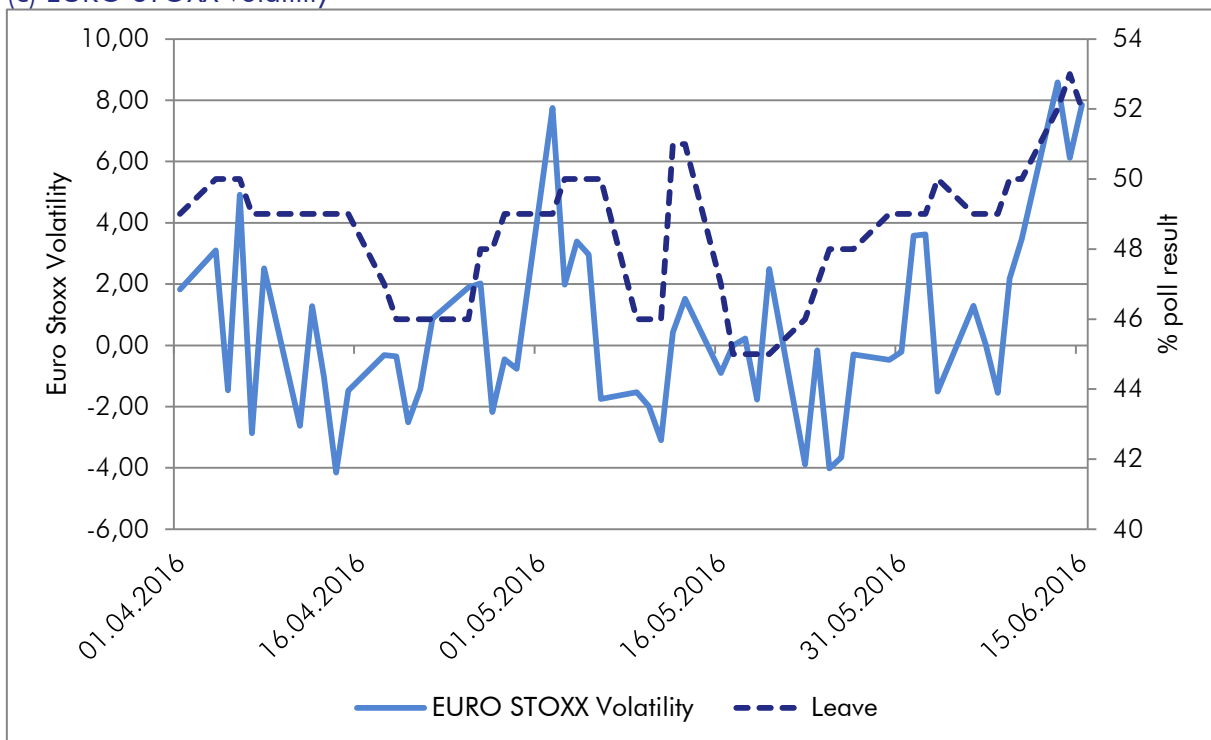
(a) UK bank index return



(b) Exchange rate UK Sterling/euro



(c) EURO STOXX volatility



The figure shows the share of respondents supporting the exit of the UK from the EU (right axis) and the time series pattern of a financial market indicator (left axis).

Source: whatukthinks.org; Datastream.

Table

Effects of Brexit probability on financial market indicators

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>bank index return</i>			<i>government bond yield</i>		<i>exchange rate UK Sterling to</i>		
	<i>UK</i>	<i>DE</i>	<i>EU</i>	<i>UK</i>	<i>DE</i>	<i>Euro</i>	<i>CHF</i>	<i>US Dollar</i>
lag of variable	-0.086	-0.075	-0.084	0.985***	0.982***	0.988***	0.988***	0.982***
	(0.102)	(0.116)	(0.109)	(0.017)	(0.015)	(0.012)	(0.014)	(0.017)
Brexit probability>50%	-0.016***	-0.015	-0.013**	-0.027*	-0.019	0.003*	0.003**	0.002
	(0.005)	(0.010)	(0.006)	(0.015)	(0.012)	(0.001)	(0.002)	(0.001)
observations	165	165	165	165	165	165	165	165
R-Squared	0.034	0.021	0.029	0.958	0.966	0.974	0.967	0.959
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>Stock market index return</i>				<i>Stock market index volatility</i>			
	<i>UK FTSE</i>	<i>DE DAX</i>	<i>EURO STOXX</i>	<i>US S&P500</i>	<i>UK FTSE</i>	<i>DE DAX</i>	<i>EURO STOXX</i>	<i>US S&P500</i>
lag of variable	-0.095	-0.007	-0.008*	-0.000	4.315	3.995**	2.545*	0.829
	(0.086)	(0.005)	(0.004)	(0.004)	(3.017)	(1.795)	(1.407)	(1.730)
Brexit probability>50%	-0.009**	-0.007	-0.008*	-0.000	4.315	3.995**	2.545*	0.829
	(0.004)	(0.005)	(0.004)	(0.004)	(3.017)	(1.795)	(1.407)	(1.730)
observations	165	165	165	165	165	165	165	165
R-Squared	0.024	0.021	0.026	0.015	0.019	0.045	0.033	0.020

Source whatukthinks.org; Datastream.



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