THE CASE OF BREXIT: AN ANALYSIS OF THE POLITICAL AND ECONOMIC FACTORS

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ABSTRACT

This paper analyses the short-term economic, as well as the long-term political consequences of Brexit. In order to analyse the short-term economic impact, we implement Chow's test for a structural break on the main stock exchange indexes. Another significant part of this paper is an analysis of the factors that have an impact on the exports of the United Kingdom and whether the potential decrease of the exchange rate will be more relevant than the anticipated decrease of FDI and GDP. This paper concludes that there is significant evidence that there was a negative short-term economic impact caused by Brexit, as well that it might have a detrimental impact on the long-term exports of the United Kingdom. This paper further concludes that Brexit was a unnecessary and avoidable event that might not have happened had there been an accountable political class that fairly and objectively presented the potential consequences of Brexit.

Keywords: *Brexit, EU, VAR analysis, trade deficit, Chow structural brake test*

1. INTRODUCTION

On June the 23rd the people of the United Kingdom (further used: UK) delivered a powerful message to the entirety of the European Union (further used: EU) and to their own political establishment. The message at least 52% of them delivered was that they were deeply unsatisfied with the establishment force they perceived the EU to be. There are very few other rational explanations why the people of the UK would choose to inflict economic self-mutilation and bring about a long-term period of political and economic instability, as predicted by Ottaviano et al. (2014) that economic growth would slow down, Springford and White (2014) that it would have a detrimental effect on London as a centre of commerce, as well as the fact that it would have a negative impact on various segments of the economy, especially agriculture as stated by Lang and Schoen (2016), and would not be viewed favourably by any of the UK's most closest allies (Oliver, 2016:13). All of these predictions,

made between several months and two years prior to Brexit, are now coming true. The promises of the Leave Campaign were constantly refuted by all relevant economic experts, as well as the fact that they were deeply contradictive. Even accepting the absurd claim that leaving the EU would mean 350 million pounds more for the UK every week, the Leave Campaign promised to distribute this money to: maintaining the level of scientific and research work, maintaining European-level payments for less developed regions, ensuring that the NHS would be funded with an increase of 350 million pounds and many other absurd claims that seem difficult to believe that the public accepted.[1] The pure level of ignorance involved is displayed by the fact that the next day, the second most searched phrase in the popular search engine google was, 'what is the EU'.[2]

Indeed, both the political and the economic backlash of this decision will be felt in the period of at least 5 to 10 years. Of all of the many accomplishments that a country strives towards in such a period, it is difficult to understand why should it spend its time renegotiating trade deals and ensuring that it somehow retains access to the EU Single Market while at the same time not having to adhere to the principle of the free movement of labour. If this seems as an unlikely scenario, especially in the current circumstances where Marine Le Pen is one of the frontrunners for the French 2017 presidency,[3] it is that more difficult to understand the unusual decision of the people of the UK. The Brussels institutions will not allow the UK to specify what it desires from post-EU membership because the number of countries that would follow might cause the complete and total dissolution of the European Union.[4]

So while trying to understand the decisions of the public, one can perhaps correctly state that part of them were deceived by the blatant lies presented by the Leave Campaign and were seduced by an optimistic vision where they could ''Take back their future''.[5] It is highly difficult to understand how they plan to have these promises ensured and why the people have such high regard for the concept of the nation-state that has so clearly failed them. But perhaps even less understandable is the decision of the Conservative Party, mainly the former Prime Minister David Cameron, to ever propose such a referendum when he should have been aware of the dangerous and adverse effects that it would have on the economy of his country. Kux and Sverdrup (2007) explained the potential benefits of Norway and Switzerland as non-EU member-states, yet through the arguments presented it will be clarified that the case the United Kingdom currently faces is not comparable to that of Norway or Switzerland. This article will attempt to assess the long-term political fallout of Brexit, as well as empirically asses the short-term economic shortcomings of such a decision.

[1] These and several others, as well as further information are available at: http://www.theguardian.com/politics/2016/jun/27/eu-referendum-reality-check-leave-campaign-promises .
[2] Other popular choices were questions such as 'What does it mean to leave the EU' and 'Which countries are in the EU'. For further information see: http://www.npr.org/sections/alltechconsidered/2016/06/24/480949383/britains-google-searches-for-what-is-the-eu-spike-after-brexit-vote .
[3] http://www.irishtimes.com/news/world/europe/favourites-emerge-ahead-of-2017-french-presidential-election-1.2619748
[4] For further information see: http://www.brusselstimes.com/world/5877/brexit-london-cannot-choose-a-la-carte-what-it-wants-from-the-eu-warns-merkel .
[5] For further information see: http://www.express.co.uk/news/world/684339/Donald-Trump-Brexit-Britain-America-US-Future-European-Union-Referendum.

2. THE POLITICAL AFTERMATH

Perhaps the first question that should be asked is what will remain of the United Kingdom as a direct result of this referendum. The second EU referendum clearly paved the path to a second referendum on Scottish secession from the UK.[6] This was obvious to perhaps even the casual observer and it should have been something that gave David Cameron and the Tory Party cause for both worry and caution. Perhaps Cameron never believed his own words and scepticism regarding the EU and saw the referendum as an attempt to satisfy both the right wing of his party and to try and further marginalise UKIP. Perhaps, as polls at the time of his re-election indicated, David Cameron never thought he would need to fulfil his promise on an EU referendum.[7] If so, he is as guilty of gross negligence as the political elite that have misled the people of the UK into thinking that there will be no economic fallout from Brexit. As emphasized by Copsey and Haughton (2014), the infamous 2013 Cameron speech was perhaps the most radical change in policy from the Tory party towards the EU since the first EU referendum in 1975.

Aside from the potential of Scotland seceding, there is also the potential that the EU institutions and leaders of key states will be less than willing to allow Theresa May and her successors into negotiating a deal that somehow includes complete and non-tariff access to the free market without accepting the full principles of the free movement of labour. Perhaps one clarification should be made here, when talking about access to the Single Market, if at some point the United Kingdom does activate Article 50 of the Lisbon Treaty and complete the (at least) two-year-long negotiating process, the United Kingdom will still be able to have access to the European market. This is guaranteed by the World Trade Organisation. The difference is that it would not have free access to the European market, there could be various tariffs imposed. This could have a potentially adverse effect on the export of the UK, taking into account that it already has a trade deficit.

Many speculated that the fall of David Cameron was imminent in the case the UK voted for leave; many even speculated that in the event of a close vote to remain a challenge was more than likely. Probably, this was the outcome Boris Johnson desired, a very narrow defeat for Leave in which he could have claimed moral victory as a figure that worked against the wishes of the majority of the UK establishment. Johnson as a two-term London Mayor provided the needed legitimacy that many other members of the Leave Campaign clearly did not have. Nigel Farage was known to the wider UK audience, but was far the most part known for his unusual style in the European Parliament rather than political and rhetorical acumen. Michael Gove lacked the leadership skills and has stated on multiple accounts that he was not suited for being the leader of the Tory Party, even using the phrase 'I did not want it, indeed I did almost everything not be a candidate for the leadership of this party' at the launch of his campaign.[8] This way Johnson was upgraded to the post of Minister of Foreign Affairs where he will certainly bare a large amount of responsibility for the Brexit negotiations.

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[6] For further information see: http://www.heraldscotland.com/news/14464159.Nicola_Sturgeon__Second_referendum_while_I_am_First_Minister/.

[7] http://www.telegraph.co.uk/news/politics/11010212/Poll-data-David-Camerons-prospects-for-victory-in-2015-cant-be-guaranteed.html

[8] http://www.theguardian.com/politics/2016/jul/01/michael-gove-launches-tory-leadership-bid-with-brexit-promise.

Perhaps the best the UK can hope for is achieving some sort of a compromise that would keep it within the EEA, similarly as Norway. Dhingra and Sampson (2016) advocate such an option, yet what such an option does not take into account is that the positions of Norway and the current positions of the UK are in no way comparable. The UK managed to negotiate a deal that released it from the 'Ever closer Union' phrase, as well as several other benefits during the time of the migrant crisis. Due to the timetable Cameron set out, high-ranking EU officials were forced to devote time and effort to keeping the UK in the EU during what might have been one of the most challenging crises since the founding of the EU and in the end several members of Cameron's own party were key advocates of the Leave campaign. The positions of Norway, that refused to even enter the EU *via* a referendum in a much less troubled time, and the current position of the UK one year before several key elections in Europe are in no way comparable. The position regarding Norway is also conclusive with the findings of Pettersen, Jenssen and Litshaug (1996:257) that there are no significantly differing patterns in the way that the population of Norway voted in the two referendums. Norway never wanted to be a member-state of the EU, while the UK is perceived as a member that always had its reservations and pursued its own interests beyond any reasonable measure during the time of the 2016 migrant crisis.

3. METHODOLOGY

As stated by Coulter and Hancké (2016), it is difficult to attempt to make any objective cost-benefit analysis on Brexit due to the fact that many of the perceived gains, such as the concept of new-gained sovereignty, are simply not quantifiable. The first thing that the paper aims to assess is whether the referendum caused a structural break in significant short-run data that can be observed. Perhaps the most relevant economic short-term data that can be examined is the value of various indexes that display the strength of the companies on the London Stock Exchange. Thus we observe the value of the various UK stock exchange indexes: FTSE 100, FTSE 250 and FTSE SmallCap. In their respected order, these indexes provide us with the value of the top 100 companies listed on the stock exchange (FTSE 100), the 101st to the 351th largest company listed on the London Stock Exchange (FTSE 250) and the 351st to the 619th largest listed companies (FTSE SmallCap) on the London Stock Exchange. The data was extracted from the official website of the London Stock Exchange (2016).

The analysis of these indexes will be conducted by simply regressing each variable on the lags of themselves, as it is not the intention of this article to forecast the future values or test hypotheses. This will be done by using a simple Ordinary Least Squares (OLS) Regression with the basic function:

$$ln(FTSE_t) = \alpha_0 + ln(FTSE_{t-1}) + \cdots + ln(FTSE_{t-n}) + \varepsilon_t \quad (1)$$

Thus, this includes a constant, an error term and the number of lags (n) of the dependent variable that will ensure that the explanatory value of the model is high enough in order for the results to be statistically relevant. After viewing the regression results, the structural break test introduced by Chow (1960) will be conducted.

The second part of the empirical analysis will focus on trade. We examine the impact of other relevant variables on trade, which we examine as the dependent variable. All of the variables, as well as the sources of these variables, are presented in Table 1.

Table 1. Variables observed

Variable	Abbreviation	Source
Trade value	Trade	UK Office for National Statistics
Gross Domestic Value	GDP	UK Office for National Statistics
Foreign Direct Investment inflows	FDI	UK Office for National Statistics
Exchange rate between sterling and the dollar	ER	Bank of England

The data is observed for the period from the first quarter of 1998 to the first quarter of 2016, meaning that our overall study has 72 observations for each variable. In theory, based on the research presented in the introduction, following Brexit a decline in GDP and FDI is expected and the ER is supposed to decrease, although based on some research that might actually help increase trade. We discuss this issue in greater detail in the following section. Prior to conducting the model we conduct the stationarity test introduced by Dickey and Fuller (1976). Upon confirming that the variables reject the null hypothesis of non-stationarity, we employ a Vector Autoregressive (VAR) framework, where we focus on the following equation:

$$Trade_t = \alpha_0 + \alpha_1 GDP_{t-1} + \cdots + \alpha_{1,2} GDP_{t-n} + \alpha_2 Trade_{t-1} + \cdots + \alpha_{2,1} Trade_{t-n} + \alpha_3 FDI_{t-1} + \cdots + \alpha_{3,1} FDI_{t-n} + \alpha_4 ER_{t-1} + \alpha_{4,1} ER_{t-n} + \varepsilon_t \quad (2)$$

Therefore, we include a constant, an error term and the number of lags (n) as proposed by the information criterion originally introduced by Akaike (1974) and the variables are abbreviated as described in Table 1. Based on the VAR model, we will examine the Impulse Response Functions (IRFs) based on the work of Sims (1980) that will display how Trade reacts to an impulse of each of the explanatory variables while holding the value of the variables whose impulse is not being examined constant. Based upon these results, as well as the results of the variance decomposition, it will be possible to evaluate the short-term economic results that are highly probable because of the Brexit.

4. RESULTS AND DISCUSSION

The plotted figures of the FTSE 250 index is presented in Figure 1, as we can clearly see there has been a mostly decreasing trend in the value of the indexes for the majority of the year. The summary statistics are provided in the appendix.

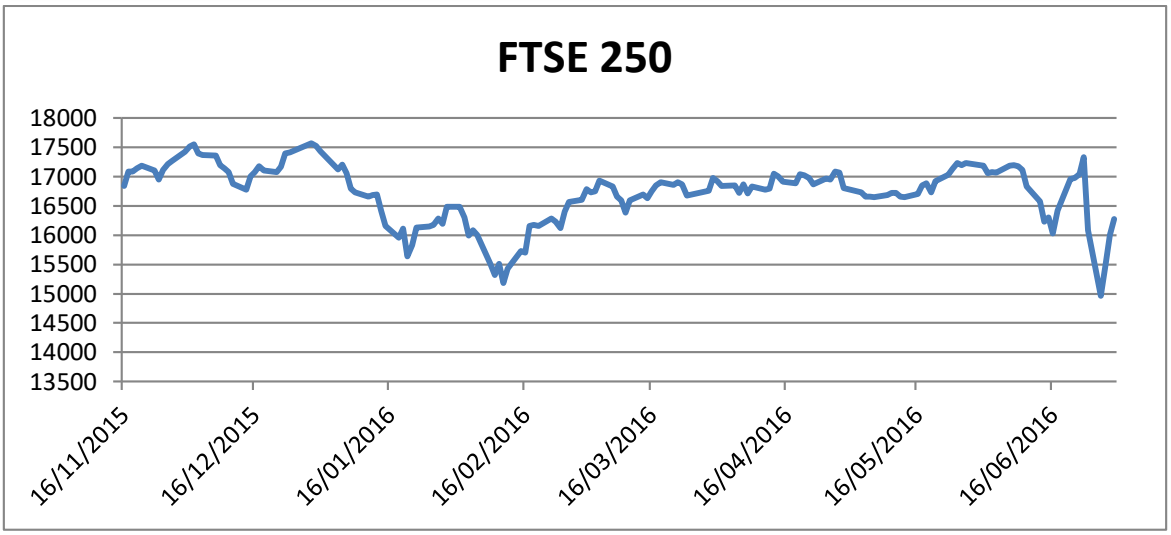

Figure 1. FTSE 250 value
Source: London Stock Exchange, http://www.londonstockexchange.com/statistics/ftse/ftse.htm (30/07/2016)

As we can clearly see from the value of the FTSE 250 index, the value of the index started to decline strongly in February, which coincides with the formal start of the referendum campaigns. The mostly stable values after that can to a degree be explained by the market regaining confidence because most polls indicated, up until a month prior to Brexit, that remain would prevail. Generally, the market, a large part of the Tory and Labour Party and indeed most of the country appeared to have sleepwalked into Brexit largely unprepared. The second strong shock occurs of 24th of July, when the FTSE 250 index declined by more than 7%. The decline persisted on the 25th, but since then the market has partially recovered. In Table 1 the results of the Chow test for structural break, as well as other key statistics of the regressions, are displayed.

Table 2. Chow test and key regression statistics

	FTSE 100	FTSE 250	FTSE SmallCap
R-squared	0.9118	0.7847	0.9139
Adjusted R-squared	0.9103	0.7769	0.9132
Lag length	2	4	1
F statistic	594.56**	101.12**	1241.97**
	(0.000)	(0.000)	(0.000)
Akaike criterion	−715.012	-667.58	−801.92
Standard error of regression	0.0115	0.013	0.0083
Durbin Watson statistic	1.987	1.889	2.353
Chow test statistic for structural break on June 23th	2.773*	3.3873**	5.513**
	(0.044)	(0.007)	(0.005)

Source: Authors' calculations and GRETLE output
Note: values in the parenthesis represent the p value. * and ** indicate statistical significance at the respected 0.05 and 0.01 levels of significance.

As can be seen from Table 1, all of the models are statistically significant based on the value of the F statistic at the 1% significance level. The explanatory value of all 3 models is relatively high, with an R-squared value between 0.7847 and 0.9139. The results of the Chow structural break test indicate that we find evidence of a structural break in all 3 of the observed indexes. In the indexes that measure the value of smaller companies, we may reject the null hypothesis of no structural break at the 1% significance level, while the null hypothesis of no structural break in FTSE 100 can be rejected at the 5% significance level. This clearly means that there was a negative impact on all of the indexes observed caused by Brexit. The smaller companies seem to have had a more pronounced negative impact in comparison to FTSE, where the structural brake was not as pronounced. After analysing the FTSE indexes, we perform an analysis on the effect on Britain's trade. The UK already has a trade deficit and one of the arguments of the Brexit campaign was that even if the value of sterling decreases, it will help promote increased exports. The UK currently does have a trade deficit and most of its exports are to EU member-states (UK Office for National Statistics, 2016). In Table 3, we provide key statistics regarding the VAR model where Trade is the dependent variable, which is specified at the lag length of 2, based upon the Akaike information criterion.

Table 3. Key statistics of Trade VAR model

R-squared	0.6153	Adjusted R-squared	0.5648
Mean dependent var	10.572	S.D. dependent var	0.084
Sum squared resid	0.1889	S.E. of regression	0.0556
Autocorrelation LM test statistic	4.937	Autocorrelation test statistic P value	0.0948
F(8, 61)	12.193	P-value(F)	0.000

Source: Authors' calculations and GRETLE output

The explanatory value of the model is satisfactory and the model is statistically significant at the 1% significance level, which enables us to perform the IRFs and view the results of the variance decomposition. The results of the tests for autocorrelation is presented in Table 1 and indicates that we fail to reject the null hypothesis at the 5% significance level, while the VAR inverse roots in relation to the unit circle may be viewed in the appendix. The results of all these tests confirm that the model is adequately specified. In Figure 1, we present the IRF for an impulse of a shock in GDP, FDI and ER in Trade.

Figure following on the next page

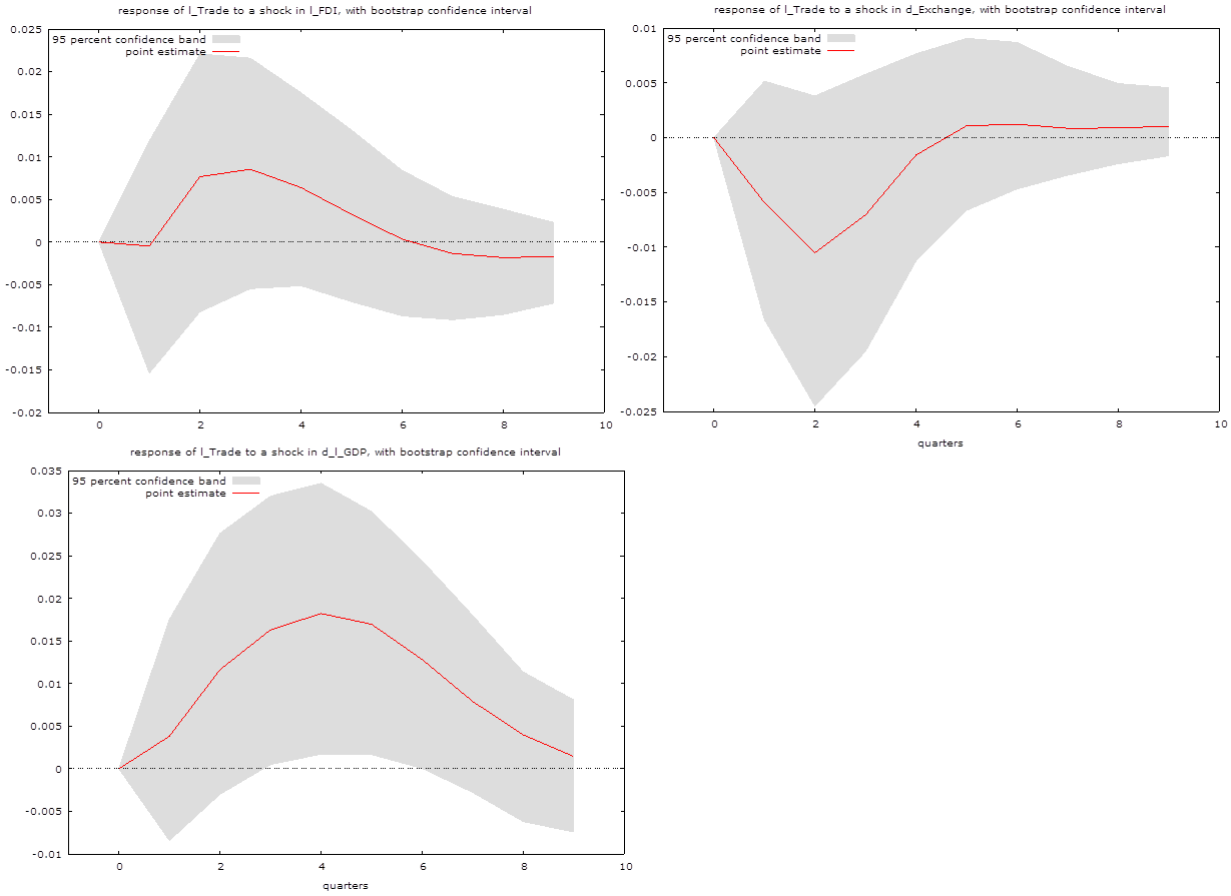

Figure 1. IRF functions
Source: Authors' calculations and GRETLE output

Based on the IRF functions, it is clear that GDP has a significant impact on Trade, as the positive impulses persist throughout the first ten periods. The response of Trade to FDI is mostly positive or neutral, from the second to the sixth period, although clearly not as strong nor does it have such a persistent positive effect as GDP. An increase in ER, meaning that sterling becomes stronger in relation to the dollar, clearly does have a negative impact on trade. This is often used as a strategy to increase exports, perhaps most famously China's constant efforts to keep the value of its currency low, but exports depend upon strong productivity and the overall macroeconomic situation. The uncertainty that has resulted from Brexit is far from favourable for increasing investor confidence or encouraging a rise in productivity. It is possible to conclude that on average, GDP account for 15 percent of the forecast error variance, which is by far the highest of the observed variables, aside from the impact of trade itself. The exchange rate is responsible for roughly 3-4 percent and while the effect of GDP becomes stronger in the long run, the effect of the exchange rate and FDI stagnates after the first 3 periods. Thus, GDP and FDI decrease will have a negative impact on exports, while the exchange rate, especially taking into account the level of uncertainty currently present, will not be able to compensate for that. The forecast variance decomposition can be observed in Figure 2.

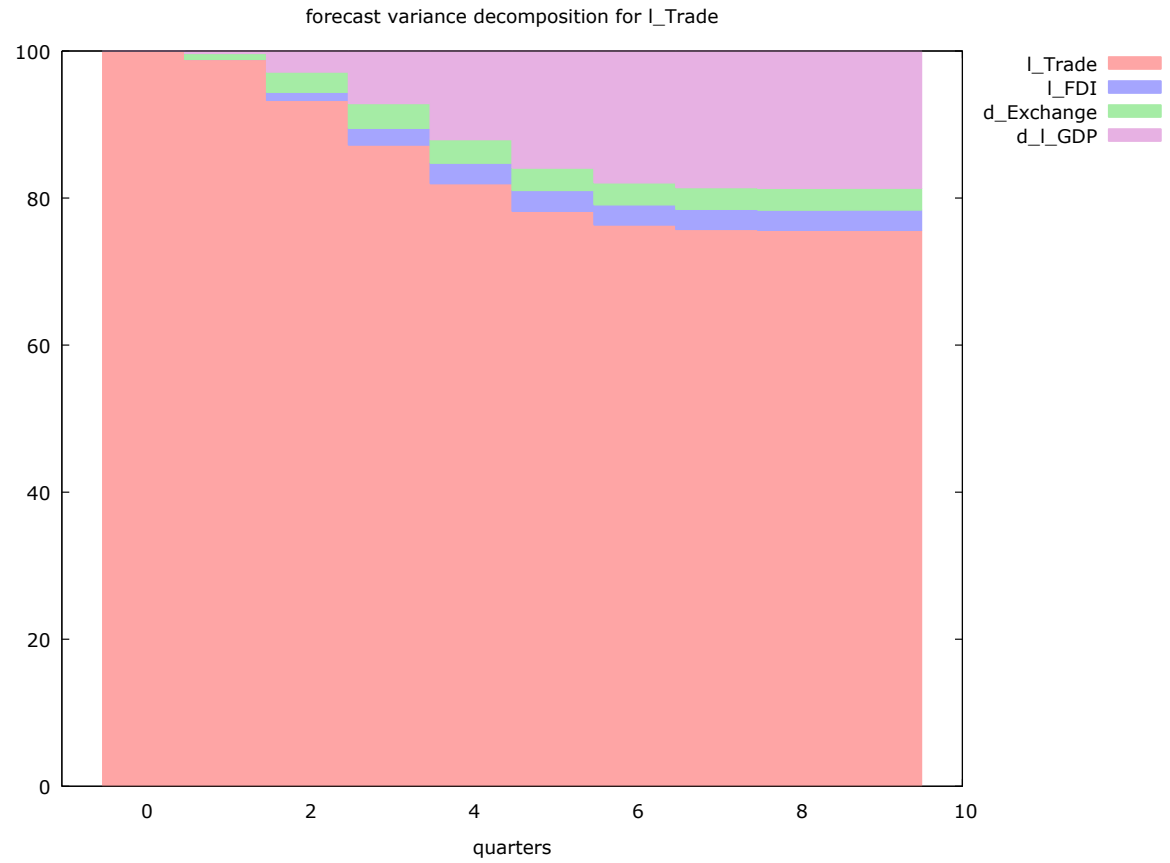

Figure 2. Variance decomposition
Source: Authors' calculations and GRETLE output

5. CONCLUSION

When examining the short-term economic impact on Brexit, it is clear that there was not a single positive economic consequence from it. There was a structural break in the value of their most relevant stock indexes. The trade deficit will probably increase. There is clear evidence that the political outcome will be as negative as most of the experts predicted. Scotland is likely to press for independence and this time with a referendum that will likely have a different outcome from the first. All of these outcomes, although they will eventually be overcome, were entirely unnecessary. The EU and the UK will manage to find the common ground on the basic premise that the economy of the EU needs the UK and the economy of the UK needs the EU. Sadly, not in time to stop Brexit, perhaps the most needless waste of time and energy in comparison with the results the entirety of the EU will have to endure. Maybe, this is the shock the EU needed in order to try and work on some of the issues that it definitely has. Perhaps this will pave the way for a more coherent EU, with a decreased democratic deficit of its key institutions. Perhaps the people of the UK might have chosen to be part of such a union if not for the fact that part of their political class openly and without any consequence led a campaign that can best be summed up with the phrase 'I think people in this country have had enough of experts' (Gove, 2016). It may indeed be true that researchers are out of touch with the people, with their problems and issues. Yet, every research article, column, report and study is held accountable and can easily be verified and subject to rigorous scrutiny. Referendums are often referred to as a 'festival of democracy'

and it is truly sad when they are marked by blatant lies and the people rethinking their vote the following day. A potentially historic decision was made, but several premises upon which the people made their decision were clearly not based on any fact, especially the 350 million pound-per-week promise. Clearly, the EU is not the only one facing its fair share of difficulties. In the trying times ahead it will become increasingly important to have a political class that works based on accountability and understanding of the facts rather than manipulating people's feeling about facts that are not necessarily true.

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APPENDIX

In Table A1, key descriptive statistics regarding the FTSE indexes are provided.

Table A1. Summary statistics of FTSE indexes

	FTSE 100	FTSE 250	FTSE SmallCap
Mean	6226.4	16666	4516.5
Median	4541.1	16789	4541.1
Minimum	4145.6	14968	4145.6
Maximum	4774.9	17334	4774.9
Standard deviation	247.13	477.90	126.22
Skewness	0.21087	-1.3957	-1.0137

Source: Authors' calculations and GRETLE output

In figure A1, it is possible to see that the VAR inverse roots conform to the stability condition and that the model is adequately specified.

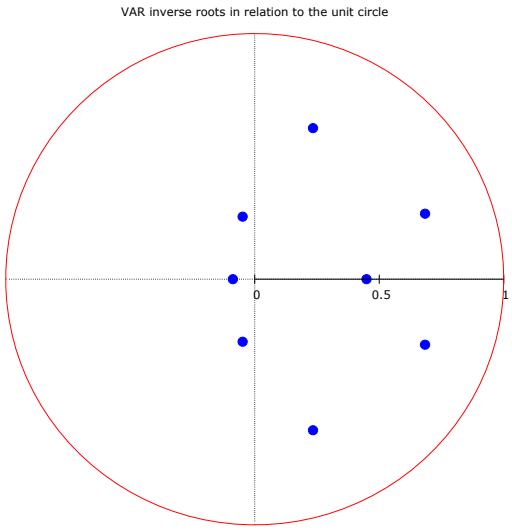

Figure A1. VAR inverse roots in relation to the unit circle
Source: Authors' calculations and GRETLE output