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EUROPÄISCHE WIRTSCHAFT
UND
INTERNATIONALE MAKROÖKONOMIK

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Lack of International Risk Management in BREXIT?

EIIW Diskussionsbeitrag 246
EIIW Discussion Paper 246

Europäische Wirtschaft und Internationale Wirtschaftsbeziehungen
European Economy and International Economic Relations
ISSN 1430-5445

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July 18, 2018

Herausgeber/Editor: Prof. Dr. Paul J.J. Welfens, Jean Monnet Chair in European Economic Integration

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JEL classification: E5, E58, N14, G32
Key words: Macroprudential supervision, Brexit, EU, financial risk, economic policy

Summary

BREXIT is a historical step for the UK and the EU27 which could bring a strong Pound deprecation, an increase in risk premiums for British bonds and a transitory rise of financial market volatility plus a long term reduction of economic growth in the UK. Macroprudential supervision thus is a crucial policy challenge for EU28 in the context of BREXIT and the European Systemic Risk Board thus should have a critical role in 2018 and the following years. The ESRB should timely analyze the potential risk of BREXIT and consider adequate policy options to reduce or eliminate risks. Contract continuity as well as cooperation in prudential supervision between the EU27 and the UK stand for BREXIT-related problems that could create financial market stability – as is the BREXIT-induced UK deregulation pressure. EU prudential supervision post-BREXIT faces problems since a very large part of EU27 wholesale banking markets are in the UK and thus not regulated by the EU after March 29, 2019. The EU Commission's competence for EU trade policy as well as international investment treaties gives the EU the opportunity to offer the UK not only a – limited – Free Trade Agreement but an international investment treaty as well, including options for global cooperation. Several policy innovations are proposed which could help to limit risk associated with instability.

Disclaimer

While the authors gratefully acknowledge funding from the Deutsche Bundesbank within the project The Influence of Brexit on the EU28: Banking and Capital Market Adjustments as well as Direct Investment Dynamics in the Eurozone and other EU Countries, opinions expressed within represent those of the authors and do not necessarily reflect the views of the Deutsche Bundesbank or its staff.

Acknowledgments

I gratefully acknowledge the analytical and editorial support of David Hanrahan (EIIW). Research support from Tian Xiong, Vladimir Udalov and Christian Debes (EIIW) is also acknowledged. Comments from Markus Demary, German Economic Institute, Cologne, and Andrew Mullineux, University of Birmingham, at the EIIW workshop, March 16, 2017, and discussions with colleagues at the IMF and representatives of leading London City banks are appreciated. The usual caveat holds.

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1. Introduction

The 2016 referendum in the United Kingdom resulted in a narrow majority in favor of BREXIT: The United Kingdom will leave the EU on March 29, 2019, after 45 years in the European Union – a historical step for this century, for the UK itself, for Europe and also for the US. It is already clear, and has been emphasized at the 2018 meeting of British Prime Minister May and US President Trump in Davos, that the UK and the US are heading towards a British-American transatlantic trade and investment partnership agreement which is expected to help the United Kingdom to overcome the dampening effects of BREXIT on long run economic growth. With the United Kingdom leaving the EU, the negative long run output effect in the case of an EU-UK free trade agreement is about -6% according to the study of the UK Treasury in 2016. From a UK perspective, the Global Britain approach, with its strategy of concluding many new trade agreements, is part of political risk management in the BREXIT context; once the United Kingdom is no longer a member country of the European Union. The EU exports of the UK stand for about 12% of the British national income which is a large share; about five time as much as the economic weight of UK-US exports.

The BREXIT process could end with the full implementation of BREXIT in late March 2019 – plus an economic transition period until 2020. However one cannot rule out that there will be a second EU referendum which then could lead (a) to a confirmation of EURef1 or (b) a majority in favor of Remain so that BREXIT would be stopped. As SAMPSON (2017) emphasizes, there is unclear evidence to decide whether the BREXIT majority was mainly driven by national identity concerns and the desire to "take back control" from the EU or by a majority of voters who saw the European Union as a scapegoat for their economic and social concerns; the former suggests a general opposition to deep regional EU integration so that economic costs might not be a relevant category for voters, while the latter implies that the propensity for a BREXIT vote (or other protectionist steps) could be influenced by tackling the underlying concerns of voters' discontent.

The type of Free Trade Agreement agreed upon in the EU-UK negotiations will largely determine the cost of BREXIT for the UK; as regard the cost of BREXIT for the EU, the situation is more complicated since the existence of a large offshore financial EU center in London – after March 29, 2019 (assuming implementation of BREXIT) outside the EU – raises specific regulatory problems for the European Union. The responsible regulator of the EU's wholesale banking market will be the Bank of England and no longer the EU which has a framework competence for banking regulation in the European Union.

For the United Kingdom, a key issue will be the exact nature of future access to EU27 financial markets. For many years, the UK has recorded a structural surplus in its current account balance in services and this has been strongly shaped by the net exports of financial services from the UK. As the "passporting" of banks and investment companies from the UK (with a UK license a company located in the UK can provide services across the whole EU) will end with BREXIT – in March 2019 in the case of a No-Deal BREXIT or, if the transition period can be used, December 31, 2020 – international and British banks which have served the EU27 markets will have to establish a subsidiary in the

EU27; and, in many cases, expand existing EU27 subsidiaries while cutting back on financial services in the UK. Certain big international banks in the City of London could hope to continue the provision of certain financial services for clients in the EU post-BREXIT if these banks obtain specific equivalence assignments from the European Commission. However, the EU will only offer such equivalence agreements if it expects that UK regulations are really equivalent to EU regulations. While this will obviously be the case until 2020, it could take only a few quarters – and some UK government deregulation decisions or some UK court decisions that create the impression of non-equivalence in certain fields – until the EU has sufficient reason to cancel certain equivalence rules.

Questions of joint regulations or cooperation in banking regulations, as well as the topic of relevant fields of equivalence, could become major political issues in the EU-UK relations; the similarity of regulations is naturally strong at the beginning of BREXIT, namely due to the UK's history as a member country of the EU for more than four decades. However, the May government clearly wants more autonomy in the future and thus one has to anticipate that the UK and the EU27 will to some extent embark upon different regulatory trajectories; over time this will weaken the EU's willingness to continue with broad equivalence recognition for the UK. With weaker equivalence agreements, the relocation of City of London banking activities to EU countries will then accelerate. Industrialized regions in England, Wales, Northern Ireland and Scotland could be strongly negatively affected by BREXIT as early as 2020/21; and in 2020 at the latest a major negative output effect is to be expected in the UK.

In the contribution of ARMOUR (2017), the impact of BREXIT on the financial services sector is examined. For the author, the advantages which banks in the United Kingdom have enjoyed to date, i.e. the ability to offer and provide financial services across the entire European Union, cannot be completely replaced within the framework of EU regulatory equivalence for third countries. Such an approach would mean that for certain UK financial services, the respective British or foreign regulations would be recognized by the EU as being equivalent to the appropriate EU regulation. In the context of a UK-EU agreement, this could mean that post-BREXIT, banks in London would continue to have access to the relevant market sectors in the EU27. In the opinion of ARMOUR (2017), the EU would itself be disadvantaged by a lack equivalence agreements, as a broad range of capital market services which have been developed in the UK are not yet available in the EU27; the lack of such services would mean a higher cost of capital for financing investment in the EU and could this reduce growth in the EU27. In the event of a minimal EU27-UK agreement on equivalences, the result would be that many US banks could in the future provide financial services to the EU from New York instead, meaning that London would be faced with a growing level of competition from the US in the area of financial services. Furthermore, the UK's refusal to accept the four freedoms of the EU single market, including the free movement of people, will in the future bring significant problems for London as an attractive location for banks. For EU banks with branches or subsidiaries in London, the city will become rather unattractive for business as it will prove to be difficult to transfer staff to the UK post-BREXIT. There are a number of countries with which the EU has already reach agreements on equivalence in certain sectors: In banking this includes Hong Kong, Singapore and Switzerland, in the area of insurance such agreements exist with Bermuda, Switzerland and Israel, in the loan classification/credit rating sector

with Hong Kong and Singapore, and in the field of derivatives, which are crucial to risk management, with Hong Kong, Singapore and Switzerland. If an agreement on regulatory equivalence should be agreed between the EU and the US – and possibly with more Asian countries – then the EU should in the future be less reliant on London as a global financial capital.

Here it should be noted that the EU may be hesitant or reluctant to reach a deal with the UK on regulatory equivalence in the financial services sector, which will motivate British, American, Japanese and other foreign banks to relocate certain activities from London to the EU27. From the perspective of regulatory policy, the European Central Bank will be unlikely to accept that banking and financial transactions crucial for the Eurozone would be offered outside of the European Union und thus beyond the reach of the ECB itself as regulator. Ultimately, there is also an industrial policy perspective, as France, Germany, Ireland and other EU countries compete to attract financial service providers looking to transfer activities out of London, as they could bring many high-paying jobs with them to the respective EU countries.

According to the British government, the UK's position in the negotiations is largely to achieve a CETA+++ agreement, i.e. a free trade framework for goods and services as is relevant in Canada-EU free trade agreement (CETA). MAGNTORN/WINTERS (2018) have analyzed to what extent an enhanced CETA agreement would solve the UK's services sector problems and the answer they arrived could be broadly summed up as 'not really' or in the words of the authors themselves: "Even an ambitious multi-sectoral CETA+++ agreement would not support existing level of services trade between the UK and the EU. This is because such a deal lacks the 'architectural' – the over-arching – aspects of the Single Market which are of particular importance in services trade – the unified court system, the free mobility of labour and the mobility of data". As about three quarters of UK output is from the services sector and 45% of UK total exports are cross-border flows of modern services and since the UK has a structural sectoral account surplus in services vis-à-vis the EU, the problem of services trade liberalization is important for the UK. This holds not only for the export side but for the services import side a well. Imports of EU services have contributed considerably to more competition in the UK in the Single Market context and thereby contributed to the provision of specialized services as well as to lower services prices. The latter aspect implies that, post-BREXIT, higher services prices in the UK will contribute to a rise of the UK price level and hence a real income loss in the UK. Moreover, the UK's export competitiveness is likely to be impaired by a reduced availability of cheap modern services imports from EU27 countries. While it is true that the UK could in principle unilaterally eliminate barriers to services imports from the EU (and other countries) it seems not very likely that the UK will proceed like this if the EU in turn would allow rather limited free market access to British services exporters. If one considers the potential advantages of a CETA+++ treaty between the EU and the UK, market access and national treatment are two relevant categories to be considered in each service sector. It turns out that even a CETA-like EU-UK agreement would not really open the sector of financial services, insurance and pension fund services where the authors give the EU a protectionist red classification – that sector was 29.4% of total UK services exports in 2016 and the EU share was 41.2%; equally awarded red classifications were land transport services, water transport services and air transport services, where the

figures were 11.2% and 45%, respectively. Several other sectors were considered as largely liberalized (green marks: see Appendix 9).

It should be noted that the UK is an important source of financing for German firms, for example, where 18% of the respondents – rather large firms – indicated that they used such services from UK financial service providers; and 14% of firms indicated in 2016 that they were worried about the future provision of financial services through UK service providers (DELOITTE/BDI, 2016). The implication is that BREXIT will bring a higher cost of capital for some big firms in Germany, at the same time one should not ignore the broader topic of higher foreign direct investment inflows from UK to the EU27 – partly motivated by quasi-tariff-jumping (with non-tariff barriers of the EU27 playing a possibly larger role than EU import tariffs). Regulatory requirements of the EU and the European Central Bank, respectively, could also raise EU foreign direct investment inflows from the UK – while the anticipated real appreciation of the Euro real exchange rate will dampen Eurozone foreign direct investment inflows in line with the Froot-Stein argument (FROOT/STEIN, 1991) which emphasizes that a real appreciation of the currency in the investment target country reduces the value of equity capital of foreign bidders – expressed in the currency of the target country – so that leveraged international mergers & acquisitions are less likely to be successful than before. It is, however, also clear that the breadth of EU-UK free trade agreements will be an important determinant of the UK's continued attractiveness for foreign investors; many of which considered the UK as an ideal gateway to the EU27 markets. As regards survey results related to FDI, the findings of EY (2018) from spring 2018 among 440 foreign investors in the UK (big multinational companies) clearly indicate that over a time period of three years many firms from Asia and the EU – less so from the US – are considering divestment in the UK post-BREXIT: there is some sectoral variation, namely 16% of chemical/pharmaceutical businesses, 16% of financial services and 14% of business services companies anticipate moving facilities in the next three years – this is considerable when compared to only 4% of manufacturers; in the long run, about 50% of foreign investors in the UK are considering relocating part of their assets internationally which implies that FDI gravity modeling could be useful for understanding BREXIT-related adjustment. The issue of market access thus will be crucial for financial services in the context of BREXIT where efficiency issues as well as regulatory aspects, related in turn to systemic stability, will have to be considered.

Future British market access to the EU27 and EU27 market access to the UK stand for important challenges, however, contract continuity is an additional critical point to be considered for BREXIT.

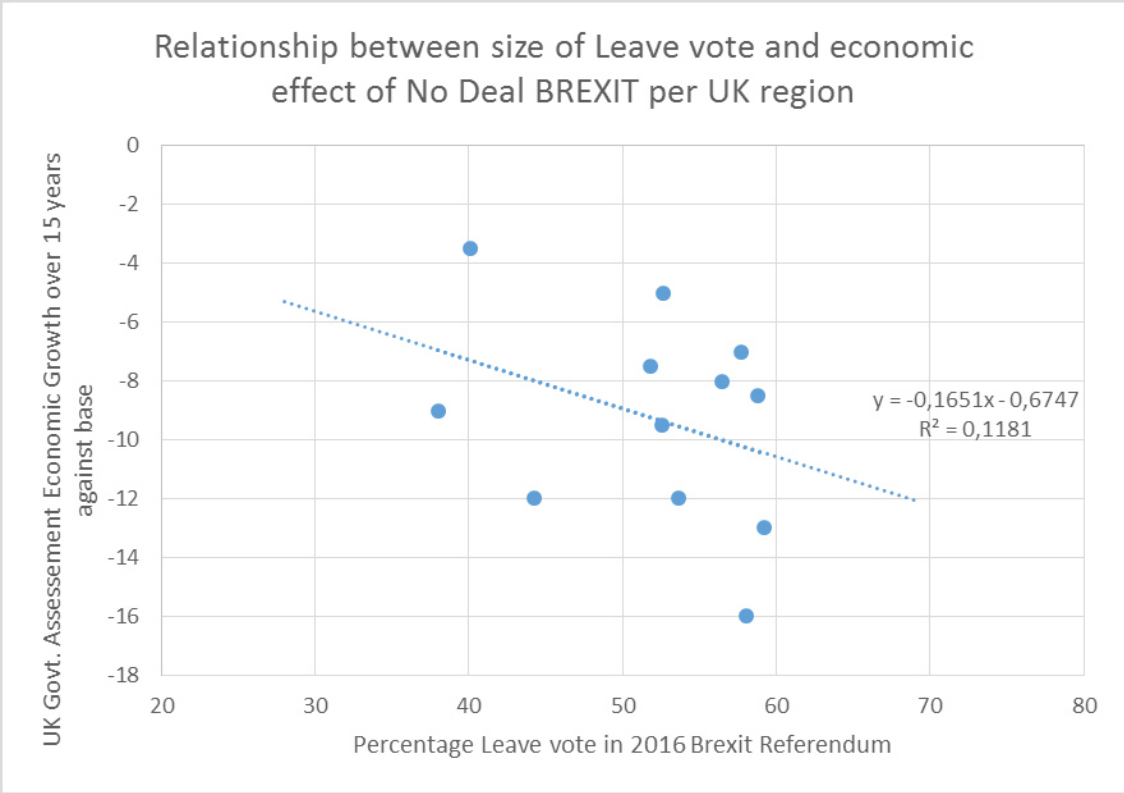
- Millions of contracts will be void with BREXIT – implemented on March 29, 2019, in the case of a hard BREXIT (if there is no EU-UK agreement, then the WTO rules will be relevant; and in most services subsectors those are not much better than the CETA agreement if it were applied to the EU-UK case); if there is the full extended transition period until the end of 2020, as agreed on a preliminary basis in March 2018, the BREXIT implementation date is December 31, 2020. If the BREXIT extension period is fully valid, then there is still a contract continuity risk on December 31, 2020.
- There is a considerable specific contract continuity risk, namely that the EU-UK negotiations could collapse so that those market participants which have anticipated the end of December 2020 as being the effective BREXIT data would suddenly

recognize that the No-Deal BREXIT is relevant: with an exit date of March 29, 2019. Millions of insurance contracts and contracts for derivatives would then be void and this could certainly create new risk and additional costs for many market participants in the UK and the EU27. A study by the HOUSE OF LORDS (2018) has emphasized that there could be serious problems with contract continuity in the context of BREXIT.

- One cannot rule out that the Northern Ireland border regime issue cannot be solved in a way that the existing soft border regime can be prolonged into the post-BREXIT era so that the May government would have to allow Northern Ireland to have a kind of shadow EU membership even after BREXIT (or face a No-Deal BREXIT on March 29, 2019); this, however, would motivate Scotland to seek the same status - as already indicated in 2018 by the Scottish government - which, however, would result in an effective disintegration of the British Union. This could lead to a political crisis, a new snap election and a Labour-led government in early 2019 which in turn would face high pressure for a second EU referendum in the UK.

As regards the economic impact of services trade on regions in the UK, a study by BORCHERT/TAMBERI (2018) has revealed that Northern England could face particular economic problems if a broad free trade deal between the EU27 and the UK could not be achieved. More generally: The UK's major medium-term challenge from BREXIT will concern the rather large regional output losses to be expected in Northern England and Wales – those regions where BREXIT-induced reductions of real income under in a No-Deal case would be particularly high according to the British government's leaked papers on the regional impact of BREXIT: If one considers the regions with relatively high projected output losses those regions are those where the pro-BREXIT voting share was rather large (see Figure 1). The referendum was not a strongly rational political choice in this perspective. The implication is that the pro-BREXIT majority seems to be rather fragile so that the confidence of EU27 countries in the UK government's promises will be rather limited – this in turn makes the negotiations on BREXIT difficult.

Figure 1: Relationship Between the Size of the Leave Vote and Projected Output Losses



Source: EIIW calculations based on data projected output losses available from the leaked government figures and data on the regional Brexit vote available from the Electoral Commission www.electoralcommission.org.ukb

It could happen that despite an unclear majority from the EU referendum - there are arguments to classify the referendum as a disorderly one (WELFENS, 2017a) - BREXIT is fully implemented, but at least one may hope that an EU-UK free trade agreement for goods could be achieved. As regards financial markets, one may anticipate considerable volatility in the coming years given the fact that BREXIT is a historical step which takes the UK and the EU into unchartered waters. As regards risk management, one may assume that macroprudential supervision institutions in the EU28 and also relevant policy units at the International Monetary Fund (IMF) and the Bank for International Settlements (BIS) will carefully and timely consider the potentially serious challenges ahead in financial markets. On some elements on the EU, see appendix. As regards the pressure regarding the relocation of banks and investment funds, several studies have looked into the potential effects (e.g. CAMBRIDGE ECONOMETRICS (2018); OLIVER WYMAN (2016)). One also should note that at least one study from Germany has raised the issue of whether or not risk premia in various forms could slow down investment in Europe (IMK, 2016).

To the extent that the post-BREXIT UK and the EU27 are not cooperating adequately in the field of macroprudential supervision and economic policy, the cost of BREXIT could become much larger than various studies available suggest. It is also important to take into account the size of foreign direct investment impediments in Organisation for Economic Co-operation and Development (OECD) countries in banking and insurance and finances so that once could get a better idea about the relocation of capital flows in the context of BREXIT. As regards the broader, general FDI relocation perspectives, the UK government

is likely to consider changes in the corporate tax rate and in banking regulation as a means to raise the growth rate of output above the reduced level observed in the context of BREXIT (WELFENS/BAIER, 2018). As regards the persistence of financial market volatility, here with a focus on currency trading, CAPORALE ET AL. (2018) have presented evidence that there is an increased volatility in financial markets – and this is related to the BREXIT referendum (an exception is the British Pound/Yen implied volatility, the implied volatility for the Euro and the US dollar have increased); the degree of persistence of the FTSE100 implied volatility index has also increased so that there are clear arguments why considering the more volatile EU28 financial market system is appropriate in the context of BREXIT.

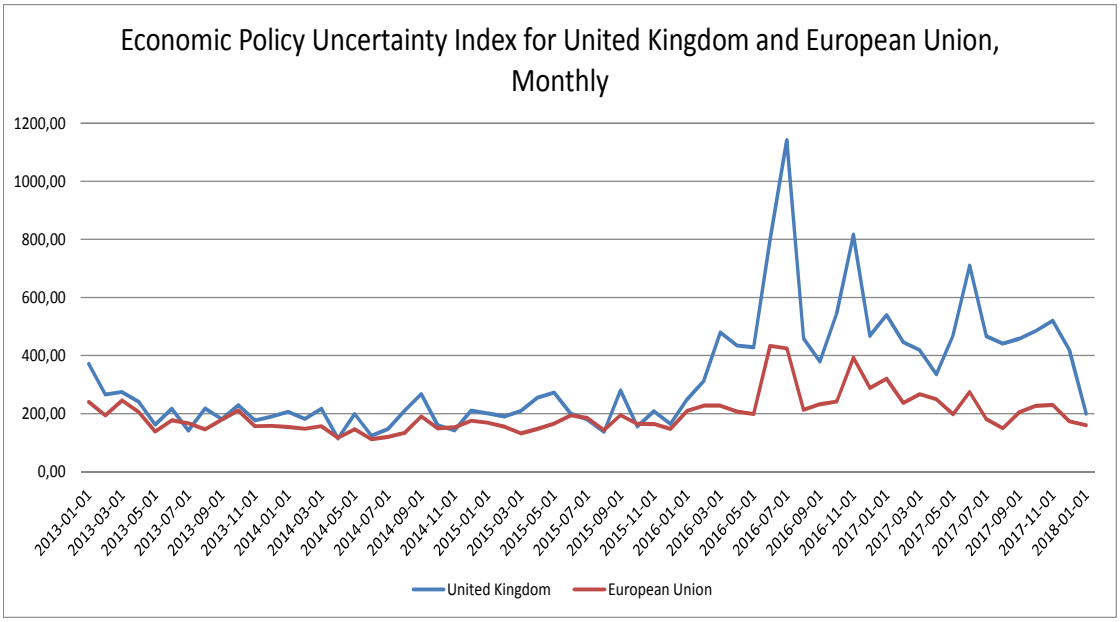
As regards financial market volatility, the ECB CISS indicator (Figure 2) shows that the UK referendum has raised financial market nervousness and a new spike may be expected for 2018/19 as it will become clear whether or not BREXIT – and what type of BREXIT (i.e. hard versus soft) – will be implemented. The Bank of England could fight a recession with an expansionary monetary policy to some degree, but then the inflation rate would rise again in the context of strong Pound depreciation. The political risk indicator also suggests that BREXIT is affecting markets. It is all the more important that financial risk analysis is conducted in a comprehensive way by the relevant policymakers.

Figure 2: ECB Composite Indicator of Systemic Stress (CISS)

Source: European Central Bank (2018), Statistical Data Warehouse

The Economic Policy Uncertainty Index for the UK and the EU also has increased in the months before and after the British EU referendum – in the UK much more than in the EU (see Figure 3).

Figure 3: Uncertainty Index for the UK and the EU, Jan- 2013 - Jan. 2018



Source: https://fred.stlouisfed.org/help-faq

An important question that would have to be considered by macroprudential authorities concerns the BREXIT-related changes in FDI regulatory restrictiveness: such an indicator is available from the OECD, namely for all sectors combined and for banking&insurance as well as financial services. The only country that has zero restrictions in 2016 in both banking&insurance and financial services is Sweden. The UK has zero in banking&insurance and an indicator value of 0.033 for financial services. It would be interesting to see to what extent EU27 countries will change the FDI regulatory restrictiveness (for individual countries' index values see Appendix 3).

As regards contract continuity, BREXIT poses difficult problems that had not been solved in early 2018 although this should be a natural priority of policymakers in London and Brussels:

- 2 trillion GBP in derivatives contracts could be void on March 29, 2019; and the same applies for insurance contracts: 30 million EU policyholders and 6 million UK insurance policyholders could face a serious problem as of this date (BAILEY, 2018) – unless the EU27 and the UK find a timely solution in the BREXIT treaty negotiations. It seems strange that the head of the British Financial Conduct Authority had to point out these figures as late as February 5, 2018, in a speech at the Future of the City dinner. Financial service providers have also pointed out the relevance of contract continuity problems (AFME, 2017). The envisaged transition period until the end of 2020 could help to mitigate some of the problems associated with derivatives contract, but the case of insurance policies is different since most insurance policies are long term.
- Not finding a solution would create a higher cost of BREXIT and could add to financial instability in British and EU27 markets; and it would create a lot of additional work for lawyers and courts in the EU28.

It is difficult to understand why the key problem of contract continuity has not yet been solved as of the first quarter of 2018. Failure to achieve a timely solution indicates that

there is a deep political rift between the UK and the EU27. All available cost estimates of BREXIT would be too low if the contract continuity problem could not be solved in a timely fashion.

With the EU27 wholesale banking market largely located in the City of London there is a challenge of achieving adequate regulatory policy cooperation between the UK and the EU27 – if this cooperation is not achieved BREXIT will bring liquidity problems as well as other problems for Europe. The present analysis is structured as follows: Section 2 looks into some theoretical aspects of BREXIT disintegration, Section 3 at the risks for EU28 banking stability. Section 4 examines issues of risk management analysis and macroprudential policy options and Section 5 concludes. At the bottom line, the analysis concludes that financial market issues and contract continuity questions have been rather neglected in the EU-UK negotiation process until early 2018 and there are considerable risks that financial market instability could become a major challenge in the transition years of 2019/20 as well as in the initial post-BREXIT years. Such instability dynamics could, of course, have considerable negative real output effects in the UK and in the EU27 countries, respectively; the interdependence of international financial markets suggests that there could also be considerable interest rate changes and foreign exchange rate changes in the US, the UK and the Eurozone, respectively. To the extent that there is adequate macroprudential supervision and a carefully designed EU-UK agreement on regulatory cooperation – alongside an overall EU-UK agreement – the risk of higher financial market volatility in the context of BREXIT might be rather restricted. However, the prospects of a broad but adequate EU-UK agreement seem to be quite limited - as long as the UK government aims at a hard BREXIT and thus does not want to consider continued membership in the EU single market and the EU customs union, respectively.

2. Theoretical Aspects of BREXIT Disintegration and EU-UK Trade & FDI Agreement

BREXIT is a historical step out of the EU after 45 years of membership and it is associated with a regime change in economic and political terms where financial market dynamics are part of both the short- and medium-term dynamics – and policy impulses come on top of this. One may assume that an EU-UK free trade treaty for goods (and a narrow range of services) will come into effect after the exit date of March 29, 2019, but there will be no free trade in financial services. With regulations in the UK and EU starting to diverge after 2019 – some industries are likely to rather focus more on US standards in the future – one may assume that non-tariff EU import barriers to trade will grow over time and this, along with custom clearance costs, will reduce the export growth of the UK as evaluated at a constant real exchange rate. The UK as a both production location and gateway to EU markets also looks less attractive to foreign investors after March 2019. Furthermore, several London-based banks, both British and non-British, will have to apply for a license in the Eurozone if they want to maintain their strong position in the EU27 wholesale banking market once the one-passport rule for London banks will no longer apply. One may thus expect a real devaluation of the British Pound which will stimulate foreign

international mergers and acquisitions in the UK; this is basically then referring to the arguments of FROOT/STEIN (1991) according to which a real devaluation in a world of imperfect capital markets will stimulate foreign direct investment (FDI) inflows: foreign investors will have more equity – expressed in currency units of the investor target country – if there is a real devaluation of the currency of the investor's target country so that a leveraged international merger & acquisition project will be more likely to be successful.

In a nutshell BREXIT means that in the short, term interest rates, exchange rates and stock market prices will react while in the medium term, output, price level, employment and budget effects, as well as effects on the current account, will be of particular interest. Part of the short-term effects are related to changes in international capital flows where portfolio capital flows are more important than FDI effects. The latter will take some time and thus will rather concern medium-term effects.

BREXIT will bring a regime shift for EU27 countries' clients interested in financial services from the European Union; as a practical aspect, the traditional LIBOR, as a benchmark interest rate included in financial contracts, will no longer be valid after BREXIT for EU27 countries so that a new benchmark should be established – the LIBOR's role had diminished after the Transatlantic Banking Crisis and the apparent LIBOR-related rigging scandal. Ratings obtained in the UK could become invalid for EU27 firms in certain cases after BREXIT and this in turn could bring additional rating costs and in some cases downgrades for EU27 clients – to the extent that insurance companies and other institutional investors are concerned, such rating transfer problems could in some cases result in a loss of investor grade rating so that financial instruments would have to be sold in the course of the BREXIT process which will amount to a short-term pricing shock in bond markets. To the extent that firms, banks or insurance companies in EU27 face such problems, a possible side-effect is lower exports of the UK; and there could be a negative impact on the current account.

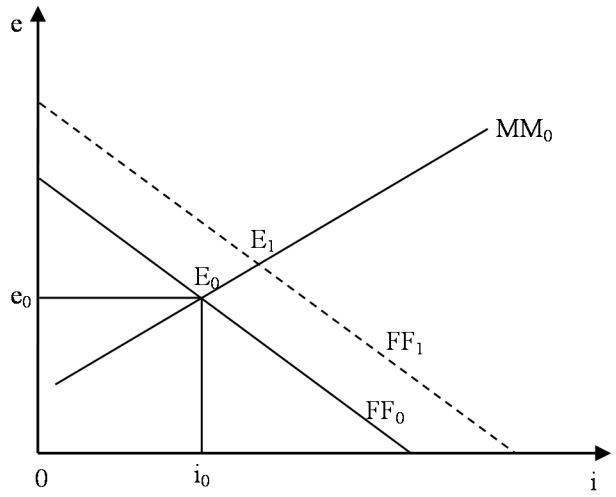
It is not clear whether or not the UK current account will improve. One will have to consider the case that there will be a worsening of the current account in 2019/20, as it will take some time for the UK to implement new free trade agreements with countries outside of Europe – and this in a manner that could stimulate UK net exports. If the short-term BREXIT effect is a worsening of the current account, the standard BRANSON model (e is the nominal exchange rate in price notation and i is the nominal interest rate) leads one to expect that there will be a devaluation of the Pound and an increase of the interest rate (Figure 4). A fall of F* will also shift the MM curve downwards (not shown in the subsequent graph) – this downward shift should be rather small and therefore it would dampen the depreciation effect, while the rise of the interest rate would be increased. There is an important question with respect to a potential worsening of the UK current account:

- How strongly will the current account react to real depreciation of the Pound (assuming that BREXIT implementation itself will bring such a depreciation)?
- How strong will be the impact of the reduced access of UK firms and banks to EU27 market?

The White Paper of the May government (UKgov, 2018) has suggested that the UK goods market would remain strongly integrated with the EU27 single market, while the services markets would be weakly integrated with the EU27 – negotiations will show final results.

Figure 4: BRANSON Model and BREXIT

(BRANSON Model: BREXIT Perspectives with a Worsening Current Account (FF is the equilibrium line for the foreign bonds market, MM is the equilibrium line for the money market))



The current account position of the UK will be undermined by the reduction of British financial services after BREXIT – the UK services current account has a sectoral surplus vis-à-vis the EU27. It is noteworthy to read the IMF news in early 2018 which states: "The financial sector, for instance, may suffer if UK-based financial firms lose the right to sell services to EU clients. The IMF baseline projection assumes a 40 percent reduction in net exports of financial services to the EU as a consequence of the UK leaving the single market. Manufacturing firms that rely on foreign suppliers, such as automobile companies, could be hit if trade with EU partners becomes more expensive or is complicated by new rules and requirements."

It should also be clear that even with an EU-UK free trade agreement, British exports of goods could be dampened by rule of origin requirements that will weaken the European production networks of British firms: If these firms have to artificially raise value-added in the UK, the share of value-added exports to the EU relative to GDP might increase – if there is a real Pound devaluation, but a weakening of global British competitiveness, this could result in a worsening current account of the UK. It is not clear that the current account improvement of 2015-2018 will continue after March 2019.

Moreover, BREXIT could bring a rise of the UK risk premium and a rise of the risk premium will not only reduce investment but also the import of foreign intermediate products so that total factor productivity growth would be dampened and hence also export growth. Only in the case of a recession in the UK in 2019/20 would one anticipate a rather quick improvement of the UK current account. It should also be taken into account that the UK's exports to EU27 countries are dampened through the effect that UK production networks will have to shrink in the context of BREXIT; even if there is an EU-UK free trade agreement in goods – the traditional 60% minimum value-added required by the EU after 2020 (that year is assumed to be a transition year during which the UK will still be integrated in the EU single market) will force some British firms to relocate foreign production in EU27 countries in order to raise UK value-added so that the 60%

requirement of domestic content is fulfilled. Higher unit costs for the respective UK export products will dampen UK exports to the EU.

Long Run Price Level Dynamics

The long run price level dynamics of BREXIT can be analyzed in a monetary growth model where the real demand for money is $M^d = hY/(h'i)$ - where Y is real GDP, i the nominal interest rate (and r the real interest rate; h and h' are positive parameters, A is the level of knowledge, K the capital stock and L labor input and the population, respectively). The consumption function is assumed to be $C= c(1-\tau)(1-\alpha^*ß)Y + c'(M/P)$ where M is the nominal stock of money, P the price level, τ is the income tax rate; $0<c<1$, $0<c'<1$. It is assumed that the share of the capital stock owned by foreign investors is α^* ($0<\alpha^*<1$); ß is the share of profits in GDP. If one assumes that profits of foreign subsidiaries are not taxed in the host country, we have (with the uses side of household income $Y(1-\alpha^*ß) = C + S + T$, where S denotes savings, $T=\tau(1-\alpha^*ß)Y$ is the income tax revenue) as the enhanced savings function considered here (with s:=1-c):

(1) $S = s(1-\alpha^*ß)(1-\tau)Y - c'M/P;$

Taking into account the equilibrium condition for the money market in the form

(2) $(M/P)/(AL) = hy'/(h'r)$

where zero inflation has been assumed and y':=Y/(AL). The modified macro production function – with the intermediate input import ratio j and the export ratio x assumed to have a positive effect on y' (v and v' are positive parameters; v could be related to the MELITZ (2003) view on export intensity stimulating productivity and intermediate imported inputs also can be assume to raise factor productivity; see WELFENS, 2017c) - considered here is

(3) $y' = (1+\lambda x)^v(1+\lambda' j)^{v'}k'^{ß;}$ ($0<ß<1$; k':=K/(AL))

Hence a modified neoclassical growth model – with an exogenous growth rate of knowledge ($a>0$), an exogenous growth rate of the population ($n<0$) and capital depreciation rate δ - yields as the accumulation equation (with m':= (M/P)/(AL); m":= M/(AL) is considered to be a monetary policy parameter; h":= h/h', t is time index):

(4) $dk'/dt = [(1+\lambda x)^v(1+\lambda' j)^{v'}s(1-\alpha^*ß)(1-\tau) - (c'h''/r)]k'^{ß} - (a+n+\delta)k'$

The goods market equilibrium condition imposed here is $S/(AL) = (dK/dt) + \delta K$; at the same time the above savings ratio and the macro production function has been taken into account. The steady state value of k'# - with BREXIT possibly negatively affecting j and x as well as v and v' due to trade diversion effects - therefore is given by

(5) $k'\# = \{[(1+\lambda x)^v(1+\lambda' j)^{v'}s(1-\alpha^*ß)(1-\tau) - (c'h''/r)]/(a+n+\delta)\}^{1/(1-ß)}$

Defining ß":= ß/(1-ß) and taking into account the production function we get:

(6) $y'\# = (1+\lambda x)^{v(1+ß")}(1+\lambda' j)^{v'(1+ß")}\{[s(1-\alpha^*ß)(1-\tau) - (c'h''/r)]/(a+n+\delta)\}^{ß/(1-ß)}$

Thus the semi-elasticity of y' with respect to the export-GDP ratio x is equal to $\lambda v(1+ß")$ where λx has been assumed to be close to zero so that $\ln(1+\lambda x)\approx\lambda x$.

It is assumed that the equilibrium price level P# is determined from the excess demand in the goods market (V'>0; V">0; V" represents the impact of investment on aggregate demand – in the steady state with k'# we have V" = a+n+δ):

(7) $dP/dt = V'(c(1-\alpha*ß)(1-\tau)y\#' + c'm' + V"y\#' - y'\#)P$

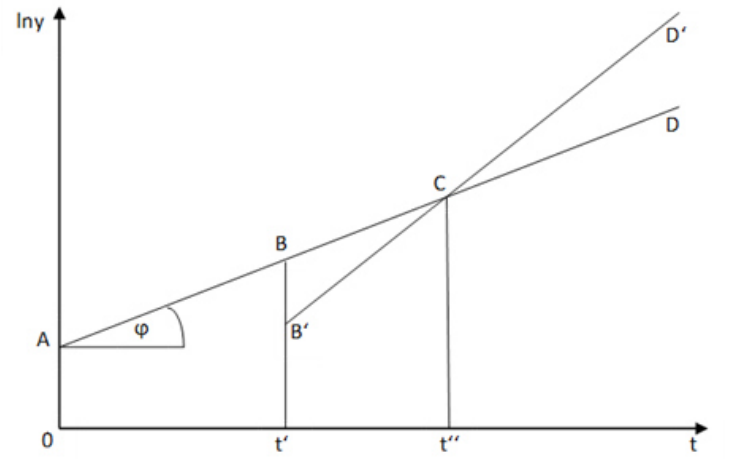
(8) $dP/dt + V'[1-(c(1-\alpha*ß)(1-\tau) + V"]y'\#P = V'c'm"; [\ldots]>0$

Hence the steady state solution – taking into account the solution for y'# - is given by

(9) $P\#=c'm"(1+\lambda j)^{v}(1+\lambda' x)^{v'}\{(1+\lambda j)^{v}(1+\lambda' x)^{v'}[s(1-\alpha*ß)(1-\tau)-(c'h"/r)]/(a+n+\delta)\}^{-ß/(1-ß)}/[1-(c(1-\alpha*ß)(1-\tau) + V"]$

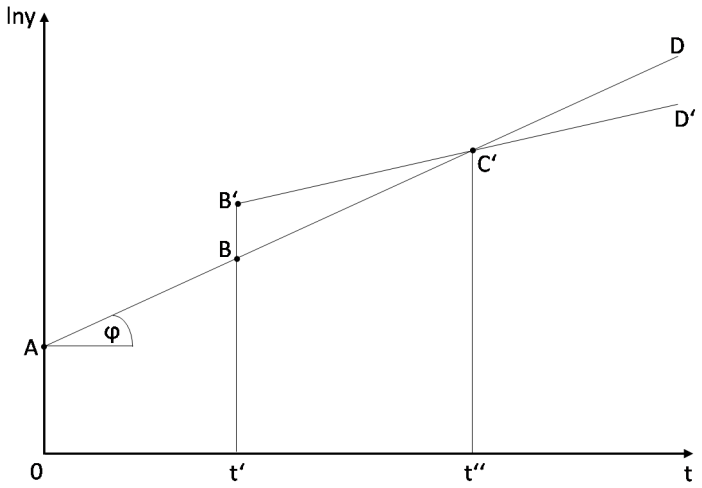
BREXIT could be expected to reduce j and x which will raise the long run equilibrium price level in the UK. A rise of the growth rate of knowledge as well as a higher growth rate of the population and a higher capital deprecation rate will – paradoxically at first sight – raise the price level. However, this is not really surprising since a rise of a or n or δ will reduce the level of the growth path in the steady state (see the subsequent Figure 5; if n is reduced by BREXIT and lower UK immigration, a likely outcome, the long run price level is reduced). This implies that a fall of the growth rate of knowledge – to be expected in the context of BREXIT as a consequence of reduced foreign direct investment in the form of greenfield investment – will go along with a fall of the steady state price level; note that this holds only if the nominal exchange rate is constant. A fall of the progress rate a in the context of BREXIT implies a one-off increase of the level of the growth path while the steady-state growth rate of per capita income y:=Y/L will, of course, reduce. It should be noted that in a small open economy one may replace r by r* + a' + R' where R' is the home country's risk premium and a' is the expected currency deprecation rate; this means that in a setting with zero inflation at home and abroad the interest parity should hold in the form r=r* + a' + R'. A rise of the foreign ownership share in the UK capital stock – a likely result in the context of BREXIT – will bring about a rise of the long run price level. A fall of the savings rate has an ambiguous effect on P# since both the numerator and the denominator (with c:= 1-s) have to be considered. The post-BREXIT UK might have to raise the income tax rate and this in turn will also raise the price level. The impact of the savings rate s on the steady-state price level is ambiguous as a rise of m' would raise the long run price level. If purchasing power holds in the form P=eP*, a relative increase of P/P* will go along with a nominal depreciation. A particular role of the demand for international reserves has not been considered here (but see WELFENS (2016)).

Figure 5: Enhanced Growth Model: Effect of a Rise of the Growth Rate of Knowledge on Per Capita Output (y): Path B'CD'



It cannot be excluded that the relocation of banks from London to Eurozone countries could contribute to a rise of the growth rate of knowledge in an important sector which is both human capital and ICT intensive. As regards BREXIT effects for the UK, one may assume that there will be a decline of the growth rate of knowledge in time t' so that there is a one-off rise of output per income (lny) followed by a lower permanent growth rate of output per capita (see the path B'C'D'). After point t'' output per capita will be lower than the value which would have been obtained on the original growth path ABC'D. The one-off rise of y implies that there will be a transitory short-term dampening of the price level in the UK (point t' should roughly be associated with the effective exit period and shortly before the exit date one may anticipate considerable financial market volatility; and high volatility if there should be political instability in the UK or failure to get political support for EU-UK agreements from parliaments and EU28 member countries – including, of course, Ireland). Denoting z:= Z/L as per capita income (Z is real income), it is clear that the change in z in an economy with inward foreign direct investment (α^* is the share of foreign ownership in the host country's capital stock, ß is the share of profits in Y) has to be derived from $z= y(1-\alpha^*ß)$ so that $lnz \approx lny - \alpha^*ß$ (assuming $\alpha^*ß$ to be close zero) and hence the overall BREXIT impact on per capita income is $dlnz/dBREXIT = dlny/dBREXIT - ßd\alpha^*/dBREXIT$; $dlny/dBREXIT$ is negative and $d\alpha^*/dBREXIT$ is positive so that two negative impacts will overlap with respect to the effect on per capital income and hence on per capita consumption and welfare, respectively. A two-way FDI setting also can be analyzed.

Figure 6: Enhanced Growth Model: Effect of a Fall of the Growth Rate of Knowledge: B'C'D'



A different but interesting setup would be where the production function – with real money balances as a production factor (entering firms' production functions in the form of a positive spillover effect of household's holding of real money balances; see WELFENS, 2011) - is given by $y' = (1+\lambda x)^{v}(1+\lambda' j)^{v'} m'^{ß'} k'^{ß}$ where $0<ß'<1$. Taking into account the equilibrium condition for the money market we can rewrite the production function as $y' = (1+\lambda x)^{v}(1+\lambda' j)^{v'}(h'' y'/r)^{ß'} k'^{ß}$ and therefore one can now write $y' = [(1+\lambda x)^{v}(1+\lambda' j)^{v'}]^{1/(1-ß')}(h''/r)^{ß'/(1-ß')} k'^{ß''}$ where $ß''' := ß/(1-ß')$; we must have $0<ß'''<1$ to make sure that the differential equation in k' is stable. The results in the above solutions change in the sense that with y' now ß/(1-ß) has to be replaced by ß'''/(1-ß''') which is larger than ß/(1-ß). As regards the impact of r on the steady state value y'#, the sign is now ambiguous. In the case of the UK (or the US or Eurozone) a monetary model makes particular sense. If the productivity of the City of London is reduced due to BREXIT and the relocation of London City banks from the UK to the EU27/Eurozone, ß' in the UK will fall and hence the long equilibrium output per labor in efficiency units (AL) will fall. The four key points of BREXIT reducing equilibrium long run output per labor in efficiency units thus are:

- ß' ß' will fall;
- x and j will fall, respectively (trade-related positive effect of the price level)
- a will fall: there will be a one-off increase of the level of the growth path, but the slope of the growth path of per capita income will become flatter so that BREXIT might bring about a permanent reduction of the growth rate of per capita GDP. It should be noted that – considering asymmetric FDI (only inflows into country 1) - per capita gross national income is $Z/L = y(1-\alpha^*ß)$. It will hold (with $z' := Z/(AL)$ that $z'\# = y'\#(1-\alpha^*ß)$ and hence ($z := Z/L$) we have $\ln z\# \approx \ln y\# - \alpha^*ß$ for the case that $\alpha^*ß$ is close to zero. Thus per capita income in the steady state will face a negative impulse from BREXIT for the growth of real GDP and a combined effect on the level of the growth path where the impact of the reduction of a on that level is positive while the rise of α^* - the share of foreign ownership in the UK capital stock – is negative.

As regards the EU27, one may expect (* for EU27 variables and assuming a symmetrical supply-side and growth modeling for the EU27 as for the UK):

- ß' ß'* will increase as the relocation of City of London banks to the Eurozone raises the productivity of real money balances;
- x* and j* will fall in the context of trade diversion in EU28
- a* could rise if higher FDI inflows from the UK and other non-EU countries post-March 29 2019 will contribute to a higher permanent knowledge growth rate in the EU27.

This rather simple supply-side and growth modeling can shed considerable light on BREXIT issues and the empirical implementation should not be particularly difficult.

Relocation Aspects

The ECB has emphasized that for regulatory requirements banks relocating from the UK to the EU27 would require a substantial presence – simply using shell companies in the UK would not be acceptable for providing services to the EU27 clients. One may emphasize that the relocation of London City banks could be somewhat delayed since the EU-UK agreement on a transition phase until the end of 2020 gives banks and other financial service providers some extra time beyond the initially envisaged year 2018 (and the hard BREXIT date March 29, 2019). The strict regulatory requirements in the EU27 can only be fulfilled with relative ease by the big City of London banks; rather conveniently by US, Japanese and British banks which already have subsidiaries or major branches in the EU27.

Hence BREXIT is likely to lead to a consolidation of EU27 banking business which could bring three important effects:

- a reduction of competition in the short run and medium term (in the long run, independent FinTech expansion might be stimulated by high profit margins in the EU27)
- a smaller number of big banks could help exploiting economies of scale in some fields so that BREXIT brings rather limited cost increases in these areas
- the task of prudential supervision in the EU27 could be facilitated by the consolidation process in the EU27 – but financial services supervisors in the EU27 certainly have less experience than some of their British counterparts
- it is unclear to what extent City of London banks will be able to rely on EU equivalence rules – here the EU would typically assume that UK regulations are equivalent to EU rules - as a basis for continued service provision from London: Thus there is some political uncertainty for services providers from London post-BREXIT.

Rising uncertainty for financial service providers amounts to a shifting upwards of the supply curve – due to higher marginal costs - so that BREXIT implies higher capital costs for EU27 clients. In a public statement, the Financial Markets Law Committee has emphasized (FMLC, 2018) that BREXIT and the UK's Withdrawal Bill raises several serious problems that partly refer to the future role of European Court of Justice (ECJ). The UK's Withdrawal Bill contains several expressions that stand for ambiguity and this will

create problems – possibly mitigated by some refinement in the UK's BREXIT policy – in EU28 financial markets.

The FMLC (2018, p. 2-3) has written in a letter to the Ministry of Justice. *"It is the view of the FMLC that such ambiguity in the guidance offered to judges will present legal uncertainty with significant market impact, supplementing the operational challenges caused by the increased likelihood of inconsistent first-instance judgments and the lengthier-than-usual waiting times for hearings at the Court of Appeal and Supreme Court, especially in the event that European and U.K. judges take differing approaches to interpretation…*

It is also possible that the ECJ would have adopted an interpretation with which the FCA would, questions of comity aside, not have been inclined to concur. Post-Brexit, such divergence could well see the question on the meaning of "spot contract" referred to the U.K. judiciary. The risks which the courts' approach might pose for the market would be the alternative risks of inadvertently regulating an unregulated and thriving foreign exchange spot market, which is essential to commercial activity of all kinds, or deregulating certain foreign exchange derivatives markets and potentially jeopardizing an equivalence decision."

The UK accordingly faces a double problem in the context of BREXIT:

- Increasing regulatory inefficiency in British financial markets;
- loss of equivalence space for banks and financial service providers for UK-based financial firms so that the relocation of such firms to the EU27 would have to be reinforced which would reduce UK GDP by about 2/3^{rds} of a percentage point for every percentage point of financial services GDP relocated to the EU27 (assuming that profit is 1/3rd of value-added).

The fact that the Financial Markets Law Committee has written such a letter to the UK Ministry of Justice a year before the BREXIT day of March 29, 2019, clearly points to serious legal uncertainty problems that will emerge in the context of BREXIT. This will not only mean higher capital costs for EU27 clients but could also bring higher capital cost for UK clients, namely in fields in which economies of scale are important. It is also clear that the negotiation position of the UK is rather weak as long as the British government aims at a hard BREXIT (read: no single market, no customs union). For the British public, many of these complex questions and issues must seem very opaque. It is the responsibility of the British Parliament, including the upper House of Lords, as well as the government to carefully consider these broader issues. The traditional modeling exercises have ignored these aspects of legal uncertainty (where legal concerns were already raised in FMLC (2017)) and the implication is obviously that the total economic BREXIT cost will be higher than that traditional model analysis suggests. For a No-Deal BREXIT, a real income loss of about 20% thus seem to be likely – an estimate which takes the 16% No-Deal BREXIT estimate of real income loss from WELFENS (2017c) as the basic point of reference. Even with a free trade agreement for goods between the EU and the UK, the No-Deal BREXIT estimate remains a valid point of reference: The welfare cost for the UK could probably be reduced by 1/3rd, but a welfare loss of about 12% still would be quite high.

Technical aspects of BREXIT affect many markets; not only financial markets. Rewriting contracts will be one key element of relocation to the EU27. There is, however, a serious political risk, namely that political instability in the UK or a major political disagreement between the EU and UK would lead to a No-Deal BREXIT. Those banks, insurance companies and other financial service providers that take a bet on organizing a relocation and transition to post-BREXIT Europe conveniently done in the year after March 2019 could suddenly face a much stronger risk exposure than initially anticipated once a No-Deal BREXIT should become reality. As regards insurance markets and companies, respectively, there are two issues: (i) Major EU27 insurance companies probably have high investment stakes in the UK and thus could be exposed to rising risk premiums in UK bond markets. (ii) One may also argue that it is quite strange that so many long-term insurance contracts – roughly 30 million – could become void through BREXIT and a lack of legal EU-UK agreement about contract continuity. If governments should not contribute to quick and fair solutions to this problem, the issue could become an additional driver for the expansion of populist parties.

To the extent that leading banks from London will relocate to EU27 countries, the respective host countries of higher foreign direct investment inflows in banking can be expected to improve their ability in the field of product innovations in banking and financial services in the long run. The latter is particularly relevant if EU regulations create pressure that leading investment funds from the UK would also relocate certain activities to EU27 countries; the ESMA has generated some pressure for British investment funds to consider such relocation. It seems that the French government is offering considerable incentives to London bankers and UK investment funds to relocate to France, but British banks (as well as US and Japanese banks) have some caveats with respect to the credibility of generous French offers. Both the French and German governments seem to be active in encouraging London City banks to relocate activities to France and Germany, respectively. Luxembourg and Dublin could also benefit from relocation.

As regards the relocation of London banks to Ireland and continental EU countries, there is a minimum lead time for this relocation in the sense that banks which want to be operational in the EU27 as of April 2019 must have submitted a request for a license at the ECB – provided that one of the Euro 19 countries is the preferred location (those who rely on the transition period until end of December 2020 could wait until late 2019). Locational advantage for such relocations may be expected for Ireland, Germany, France, Luxembourg and the Netherlands. As regards the Netherlands, it seems that government is not eager to attract much additional financial sector activities from the UK since for small open economies such as the Netherlands a strong relative increase of the banking and finance sector implies additional stability risk in the future. Revisions from the forecasts by economic analysts have shown clearly negative BREXIT effects (WELFENS/HANRAHAN, 2017).

In late 2015, the short-term economic outlook forecasts of organizations such as the Office for Budget Responsibility in the UK, or international organizations such as the IMF or the OECD were prepared largely on the assumption that there would be no BREXIT-majority in the referendum of 2016. The same forecasts from the same actors made in late 2017 had to reflect to reality of the vote for the UK to leave the European Union. The revised forecasts show the negative effect of the BREXIT-vote even in the years to 2020. Selected graphs showing revised forecasts for real GDP and inflation can be found in the appendix

(Figs. 9 – 14). The BREXIT-related challenges for the EU could also be considerable. From March 2019, a large share of the EU banking market will be based outside of the EU and the Eurozone, respectively - namely in the UK. About 90% of the wholesale market (securities transactions, foreign exchange transactions and derivatives) lay outside the EU27 in 2014 and if that share should reduce to even 60% by 2020 this would represent a new risk that should be tackled by the EU and the Eurozone countries, respectively – without the EU single market, the euro-denominated banking activities in London would still be below 40% of the total euro-denominated business – namely having an order of magnitude comparable to the situation in 1985.

While the broad economic upswing in the EU27 could suggest that there are small risks in the context of BREXIT a view at the UK – with declining growth rates and modest prospects for medium term growth and signs of political stability – implies that risks for the overall EU28 could be considerable. Political stability issues have been visible in the UK, Germany and Italy in 2017/2018 (with a populist majority at the national elections in Italy in March 2018).

As long as the EU and the UK cannot find an agreement on a free trade agreement on financial services, the banks in the UK, which in the EU single market could offer financial services to all EU28 countries (single "passport"), are facing a serious transition period in the context of BREXIT: future relations of the UK with the EU in the field of financial services would be based on "regulatory equivalence arrangements" which stands for the EU's limited and revocable access given to third-country institutions in a particular field of financial services; the EU already has such agreements with the US and Singapore and one may anticipate that the banks in UK would get similar equivalence agreements. However, the basis of such agreements is indeed that the regulation of a particular field of financial services in the UK would be recognized to be equivalent to the respective EU regulation. To the extent that the UK's government is eager to adopt a new wave of deregulation – a tendency that already became obvious in 2017 (partly fueled by inherent pressure to follow US deregulation initiatives under the Trump Administration) – the EU will be hesitant to accord broad equivalence agreements. If there is no free trade agreement between the EU and the UK, there will be three important consequences for the UK:

1. Big banks in London will come under strong pressure to relocate activities from London to the EU27 countries which means a loss of highly remunerated jobs in banking and finance plus supporting services; the EU27 countries in turn will gain additional foreign direct investment, jobs and tax revenues.
2. The UK's current account position will be pushed towards a higher structural deficit which in turn should bring about a real devaluation of the British Pound so that higher overall FDI flows might be expected in line with the FROOT/STEIN (1991) effect.
3. The growth of output and national income will be dampened temporarily (WELFENS, 2017b).

As regards transition scenarios, the European Banking Authority (EBA) will impose a BREXIT-related stress test on the biggest EU28 banks in November 2018 that assumes a strong decline of real GDP by 8.3%. This is a stress test that also includes new IFRS9

requirements, for example that banks can adopt provisions for the anticipated future losses of asset positions. One may assume that a No-deal BREXIT would bring particular strong changes of economic variables in the UK and the EU27, respectively; a financial market crisis could erupt in the context of strong Pound devaluations and increases in risk premia.

A key problem with the EBA stress test is that November 2018 is much too late – financial markets could already be in turmoil by early autumn 2018 when the final round of EU-UK negotiations will take place. The positive side-effect of an EBA-sponsored banking stress test published in November 2018 will be very low in terms of reinforcing confidence. It would be of no advantage to include the IFRS9 accounting standard for the first time if this would bring a doubtful delay in the stress test (IFRS9 means that banks should avoid traditional problems, for example those visible in the Transatlantic Banking Crisis which meant that provisions could only be made for losses when they had been realized even though bank managers could clearly anticipate the respective losses). The rather late publication of the EBA/ECB stress test results in 2018 is mitigated by the IMF's Financial Sector Assessment Program update for both the UK and the Eurozone where results should be published in the middle of that year.

It is also clear that large insurance companies in EU27 countries could face serious problem in the context of higher risk premia and strong Pound devaluations in 2018/19 and here some timely stress tests organized by the EU insurance prudential supervisor would also be useful. Many insurance and reinsurance companies in the EU27 countries have high levels of investment in UK bonds – with its update analysis in the Financial Sector Assessment Program (FSAP), the IMF should, in the context of BREXIT, keep a close eye on both banking and insurance aspects in FSAP missions in Europe in 2018-2021 at least.

If one considers the overall institutional setting for prudential supervision and macroprudential supervision, one gets a rather complex picture which includes global International Organizations such as the IMF and the Bank for International Settlements (BIS) as well as EU institutions (ESRB, EBA, EIOPA, ESMA) plus national agencies. March 29, 2019, will be a decisive date as BREXIT will then be implemented. Table 1 highlights some of the key institutions relevant for financial market effects and regulations, respectively.

Table 1: International Institutional Setup of Prudential Supervision/Macroprudential Supervision in the EU28 in the Context of BREXIT

IMF FSAP	BIS Basel III Rules	ESRB (European Systemic Risk Board; head from ECB; first Vice-Chair.= Bank of England until March 28, 2019) EU28 plus Norway & Iceland as observers	EBA (European Banking Authority)	EIOPA (European Insurance and Occupational Pensions Authority) Problem with insurance companies that have heavily invested in UK bonds	ESMA (European Securities and Markets Authority)	National Super-visors
Monitor-ing & reg-ulations	Capital Require-ments etc.	Analysis of the macro-prudential EU28 risk situation	Ordered stress test for banks with respect to BREXIT: Nov. 2018	BREXIT-related studies	BREXIT-related studies; pressure on UK investment funds to relocate to EU27	Bank of England (BoE) with special role: BREXIT country
		ESRB will lose UK members on March 29, 2019; not clear how EU28 macro-prudential analysis could be obtained				EU27 wholesale banking market mainly regulated by BoE after March 29, 2019

A major contradiction of BREXIT will occur in the context of the historically growing role of the UK and the City of London, respectively, for EU27 financial services. As BAILEY (2018) has explained in his dinner speech in London, there is a massive problem of contract continuity. However, one may add two additional points that are rather strange in the context of BREXIT and stand for serious challenges:

- The Highlights to his speech note: "We are treating Brexit as a high priority and will do our utmost to make it work in the interest of the people of this country". This sentence shows a massive conflict of interest since the EU27 so far could trust that due to EU legislation in the field of prudential supervision, the Financial Conduct Authority would not just consider the interest of British citizens but also those of the EU27 partner countries where clients would expect adequate and innovative financial services from the City suppliers whose market share had grown over time in the context of competition and regulation in the EU single market. If, however, the Chief Executive of the FCA as early as in February 2018 explains that his focus apparently is only on the interest of British citizens there is a double British problem: it seems that the FCA is not properly understanding its responsibility within the framework of the European Systemic Risk Board which is an EU28 institution in which both the Bank of England and the Financial Conduct Authority are expected to fully cooperate with the other EU27 countries in order to come up with adequate macroprudential analysis and policy recommendations.
- The IMF's Financial Sector Assessment Program (FSAP) about the UK noted in 2016 that UK financial stability is a global public good since the City is the world's leading financial center (IMF, 2016). The theory of international public goods, however, suggests that there could be political failure to provide such an international public good. To the extent that a disorderly EU referendum in 2016 raises doubts about the credibility of the British political system, there are serious questions about whether or not one may expect the May government to provide the international public good of adequate financial sector regulation in the UK. The lower the degree of UK government credibility is, the stronger the incentive for EU27 partner countries to put considerable pressure on big financial service providers to relocate to the EU27 before March 29, 2019 – as of this date the EU financial market regulations and directives are no longer valid for the UK (except for a solution that might envisage an extension until the end of 2020 so that the transition period would still be covered).

It seems obvious that in the field of relocation of financial services form the City to EU27 countries there is an industrial policy issue, namely that some EU countries could exert substantial pressure on the relevant EU institutions to generate as many relocations from the City of London as possible. This EU27-UK conflict of interest could make a compromise on joint EU-UK post-BREXIT regulation of financial services a rather serious challenge.

3. BREXIT: Risk for EU28 Banking and Financial Market Stability

With the UK's exit from the European Union, the question of banking stability in the EU will again come to the fore. The politico-economic environment surrounding the British exit threatens a new and complicated situation – in the event that no deal is reached in the negotiations on the future free trade in the field of financial services between the two parties and no common UK-EU regulatory framework is established – which would entail that the EU banking system would, in effect, become dominated by British regulatory standards; at the very least in the crucial wholesale market where derivative transactions, foreign exchange transactions and large loans are made by banks to industrial clients. Banks from the EU27 (EU28 minus the UK) in London alone have over €1,000 billion in assets on the books, hardly less than the large UK-based international banks have. Moreover, US and Japanese commercial banks also have a strong position in London with largescale assets. How are the EU27-related bank activities and those aimed at the EU27 market by other financial service providers in London to be viewed?

The financial activities in London are, from an EU perspective, of a much greater dimension than the activities of the British bank HSBC, which was included in the annual report of the European Systemic Risk Board as being the only system-relevant British bank with cross-border European activities. This rather strict view can certainly be viewed with some level of skepticism, as there are other British banks, and equivalent institutions, whose sheer size make them clearly systemically relevant for the EU27 and Eurozone, respectively. Here, primary attention is given to clearing houses, through which the banks carry out large transactions, such as in the area of derivatives trading: About 90% of euro-denominated transactions in 2017 took place in London, where the EU will lose both access to information for oversight and powers of intervention from the end of March 2019 due to BREXIT.

If one accepts the estimate contained in a Bruegel study of February 2017 (SAPIR/SCHOENMAKER/VÉRON, 2017), if BREXIT is realized, then circa 35% of the, to date dominant, London-based institutional commercial banking from the EU27 will be transferred to the EU following the British exit, where prime locations to attract this business are Frankfurt, Dublin, Paris, Luxembourg and Amsterdam. London's market share of EU27 interbank transactions by UK and non-UK banks is about 90%, which means that the banking and financial center of the Eurozone and EU, respectively, would in future be situated outside of the European Union.

The possible new scenario would be highly problematic for the EU and the Eurozone following BREXIT, which is expected to occur on the 29 March, 2019, as following that date circa 60% of the EU wholesale banking market would still be based in London. From the perspective of stability, however, it would be advisable that substantially more than half of the EU market should be based within the EU27, which could only be achieved if, through the interaction and cooperation of sensible supervisory regulations by the European Central Bank (ECB) and sector-specific incentives for EU27 bank branches to transfer the relevant assets almost completely to the Eurozone or EU27. Moreover, particular incentives must be forthcoming from the side of the French, German or even

Dutch, Irish or Luxembourgian governments, or the EU itself, to attract banks from EU27 countries. Such an 'industrial policy' for the banking sector is required such that control and liability in the EU banking sector rationally go hand in hand. After more than four decades of EU membership, London had emerged as the core financial market of the EU, however the relatively surprising BREXIT decision now raises serious questions. Besides the required level cooperation between the EU and the UK via the Bank for International Settlements, the completion of BREXIT would lead to a very modest level of cooperation between the EU and the UK in the area of banking and financial services

The EU will not wish to allow the UK to continue to avail of the 'One Passport' banking approach which allowed London banks to offer their services across the entire EU on the basis of their British banking license. In the Eurozone, and more broadly in the EU, the ECB exercises banking supervision over the largest banks, thus, as a consequence of the UK's exit from the EU, the EU wholesale market, and also part of the EU interbank market, will in effect be primarily regulated by the Bank of England. The Bank of England may, according to suggestions of the current British government and indeed BREXIT-related legislation, take a different regulatory path to that of the EU, by becoming more strongly oriented towards deregulation – this development can already be seen in internal British government advice in 2017 and in January 2018; corresponding calls were made by the British banking sector in consultations with the May government. Thus it seems that the UK will follow the course towards deregulation set by the US under the Trump administration from March 2019.

From the EU perspective, this creates the risk that insufficient banking regulation on the part of the Bank of England could destabilize the EU wholesale banking markets and EU interbank markets, respectively. Conversely, the ECB would, as the institution responsible for financial market stability in the Eurozone, have no real chance to reliably and dependably carry out the commission with which it has been tasked. While the ECB – in cooperation with the national central banks and supervisory authorities of the EU member states – has primary responsibility for the area of so-called macro prudential banking supervision in the Eurozone and European Union, respectively – meaning questions of systematic stability in both the Euro area and EU – with BREXIT, this field will experience some banking supervision-related phantom pains: reliable cooperation with the Bank of England will be missing, as the BoE which is responsible for monetary policy and banking supervision in the UK will naturally be guided by British interests and laws. Thus from the 29 March, 2019, significant decisions regarding the stability of the EU banking system will be made in London – and Washington DC – which would represent a new and critical institutional contradiction in the EU.

The legitimacy of the Eurozone and the concept of European integration as a whole could be massively damaged in the event of a new banking crisis in the EU, which would add significant collateral damage to the economic costs of another banking crisis. If the US should create pressure on the UK in terms of banking deregulation, while the EU and its member states, respectively, would wish to implement a stricter regulation, the UK would surely succumb to American pressure: Opportunities to exert political pressure are far greater for the US than for the EU27. Thus the United Kingdom, by seceding from the European Union, could gain a controlling hand over the field of banking stability for the entire EU, which from a political viewpoint can only be deemed as an absurd situation.

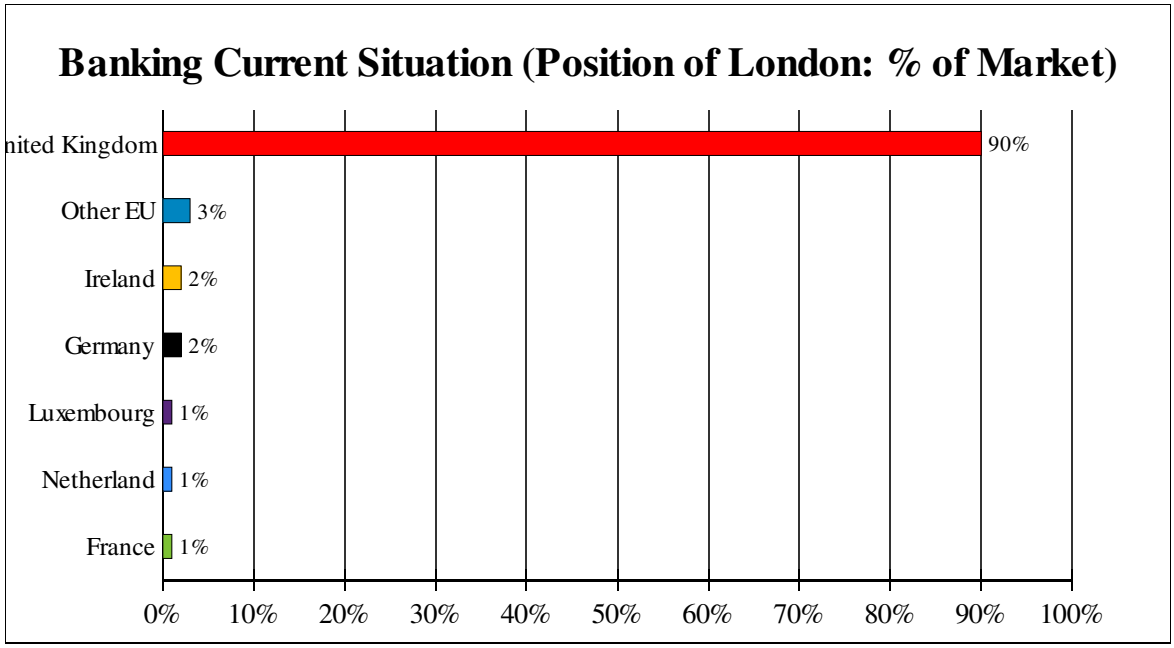
There is certainly no systematic incentive for the British parliament or indeed government to consider the interests of EU financial market stability. To date, neither the EU nor the governments of EU member countries (nor even the European Central Bank) have sought to address the serious implications of the topic discussed here which is evidence of a level of political carelessness that is as strange as it is risky. The Transatlantic Banking Crisis of 2007-09 has demonstrated just how dangerous a serious banking crisis can be for the real economy – in Germany real income in 2008 fell by almost 5%. Without the massive unconventional monetary policy measures implemented by the central banks in the Eurozone, the UK and the US, it is unlikely that the relevant economies would have emerged from the crisis as quickly as they did – with, however, the repercussions of the capital market distortions and particular issues in relation to the long-standing zero-interest policy of the aforementioned central banks which continue to be felt today. Political actors in the EU should, therefore, considering the issues and arguments presented herein, should act immediately. As long as it apparently under serious consideration in Berlin for the UK to keep access to the EU Single Market, at least in banking, from London in return for a financial contribution to the EU, can one argue that the Federal Government has taken leave of its senses. The relevant London clearing houses, which engage in euro-denominated transactions, should be subjected to the supervision of the ECB; or the relevant businesses should be forced to transfer such activities to the EU. From a British perspective it would not be acceptable if a large share of the Pound denominated financial wholesale markets would be based outside of the UK – in the Eurozone for example – and would be regulated by non-UK authorities. As a large share of jobs and income interests in the London financial sector are at stake due to BREXIT, the May government will certainly wish to energetically defend the locational advantage of the City of London. The EU, on the other hand, will not be capable of giving in on this issue, meaning that the European Union should seek to agree Directives which are aimed at safeguarding stability for the EU during 2018. The United Kingdom will – and this has nothing to do with the EU adopting a difficult negotiating position – have to shoulder the high economic costs of BREXIT.

One should not rule out that the EU and the UK could agree on regulatory equivalence rules in some fields so that the UK could still be in a position to offer some specialized financial services from London directly to clients in the EU27. However, the fields in which regulatory equivalence would apply obviously should be quite restricted from an EU perspective and indeed could be further narrowed once the UK embarks upon an explicit broad policy of banking deregulation. The Transatlantic Banking Crisis has already shown how important financial accelerator elements could be for a financial crisis that ultimately translates into a crisis of the real economy (HENDRY/MUELLBAUER, 2018) – the financial accelerator could be important both for firms' investment decisions and for households' consumption and labor supply decisions. The US Council of Economic Advisor's Annual Report 2017 has shown that net wealth effects in the Great Recession associated with the Transatlantic Banking Crisis were much smaller than the respective effects during the Great Depression (Council of Economic Advisers, 2017; see appendix).

The banks in the UK, and in the City of London especially, represent almost 90% of the EU27 wholesale banking market (Figure 6) and even after BREXIT, taking into account some relocation effects of London banks to Ireland and continental EU countries, 55-65%

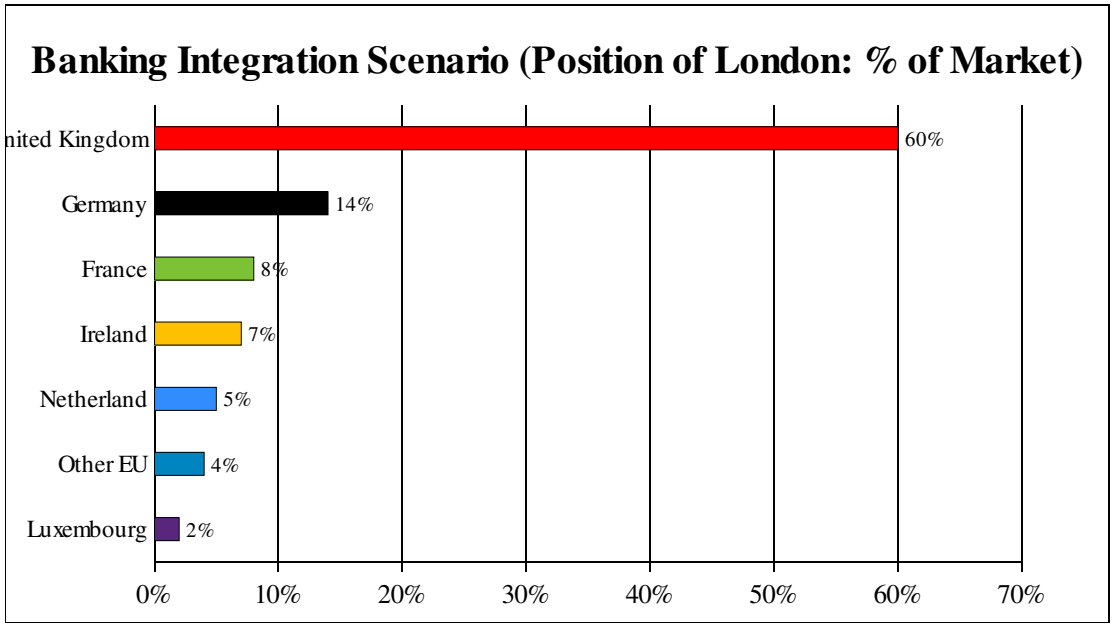
(Figure 7 and Table 2) of the EU27 wholesale market will still be off-shore and effectively regulated by the Bank of England.

Figure 7: Banking Current Situation (Position of London, % of Market)



Source: EIIW adaptation of data available in Sapir, A.; Schoenmaker, D.; Véron, N. (2017), Making the best of Brexit for the EU27 financial system, POLICYBRIEF Issue 1, February 2017 (Tab. 3, P. 5). http://bruegel.org/wp-content/uploads/2017/02/Bruegel_Policy_Brief-2017_01-060217.pdf
Note: Market shares as a percentage of the total European wholesale markets.

Figure 8: Integration Scenario (Position of London, % of Market)



Source: EIIW adaptation of data available in Sapir, A.; Schoenmaker, D.; Véron, N. (2017), Making the best of Brexit for the EU27 financial system, POLICYBRIEF Issue 1, February 2017 (Tab. 3, P. 5). http://bruegel.org/wp-content/uploads/2017/02/Bruegel_Policy_Brief-2017_01-060217.pdf
Note: Market shares as a percentage of the total European wholesale markets.

Table 2: Wholesale Banking in London (at end of 2014)

Bank Types	Total assets		Wholesale banking in London		Relocation potential Wholesale banking for EU27 clients		
	Asset (€ billions)	% of total UK banks	Asset (€ billions)	% of total assets	Asset (€ billions)	% of wholesale	% of total assets
Major UK international banks	4,583	45%	1,375	30%	275	20%	6%
Major UK domestic banks	1,489	15%	0	0%	0	-	0%
Other UK banks	321	3%	0	0%	0	-	0%
Rest of the world investment banks	2,221	22%	2,221	100%	777	35%	35%
Rest of the world other banks	591	6%	591	100%	207	35%	35%
Branches of EU banks	1,018	10%	1,018	100%	509	50%	50%
Total UK banking system	10,223	100%	5,205	51%	1,768	34%	17%

Source: Adapted from Sapir, A.; Schoenmaker, D.; Véron, N. (2017), Making the best of Brexit for the EU27 financial system, POLICYBRIEF Issue 1, February 2017. http://bruegel.org/wp-content/uploads/2017/02/Bruegel_Policy_Brief-2017_01-060217.pdf

Note: Total assets based on Burrows, Cumming and Low (2015) and for branches from EU banks on ECB (2015). Bruegel estimates for wholesale banking (issuing and trading securities, foreign exchange, derivatives) in London and for wholesale banking for EU27 clients. The final columns (wholesale banking for EU27 clients) are estimates for the business moving to EU27 after Brexit.

To some extent one may argue that the City of London banking community represents an international division of labor and that the EU27 has no good reason to pursue the relocation of EU27 banking services activities from London to the EU/Eurozone. There are, however, several pragmatic counter-arguments:

- The incentive for the UK to implement banking regulation which takes EU interests into consideration is very low so that a big wholesale banking EU27 market in London represents a risk for the real economy of the EU in the future;
- EU countries' governments – and possibly the EU Commission/the European Parliament – will want to make sure that a big internationally competitive system of banks offering the whole range of modern banking services is subject to EU regulations on the one hand, on the other hand they want to potentially use such banks for international politics.

Three particular transitory risks related to relocation are to be mentioned:

- If the relocation of activity X initially based in London to Eurozone country Ei (i=1, 2…19) takes place, one might face the problem in country i that the national supervisory authority lacks the expertise required so that new transitory policy risks emerge.

- Relocation could raise the costs of the provision of the respective financial service, at the same time there could be opportunities for innovation spillover effects.
- The relocation of London bank activities to the EU27 could bring about political tensions between the EU and the UK.

An interesting option to minimize political friction between the UK and the EU could be an agreement that EU28-US negotiations are envisaged for a 'new TTIP' project. For the Trump Administration this might be an interesting option in the sense that its priority for bilateral agreements are compatible with the negotiations between the US and the EU where the European Commission indeed is the relevant negotiating actor for international trade treaties involving EU countries. Such a joint EU27+UK approach would be possible only if the UK agrees to remain in the EU customs union.

From a research perspective, the analysis of international spillover effects will be quite crucial in the context of BREXIT. There are certainly options for EU-UK regulatory cooperation in principle. However, to the extent that BREXIT brings a strong long run output decline and thus puts pressure on the UK government to adopt reduced corporate tax rates and lighter financial regulation in the UK, the EU27 will not consider options of regulatory cooperation with considerable interest. There is also a particular research need to analyze how big the "forced" FDI relocation towards the EU27 in the banking and insurance sector will be and to assess the current account and nominal plus real exchange rate effects for the UK and the EU27, respectively. As regards the results from the Financial Sector Assessment Program updates in the UK and the Eurozone in 2018, the IMF reports which are expected to be published in summer 2018 should be very useful. However, the IMF's FSAPs in EU28 countries cannot replace necessary cooperation with the European Systemic Risk Board. If macroprudential analysis in the ESRB in 2017/18 should be rather restricted and not deliver a comprehensive analysis for the EU28 countries, the cost of BREXIT could be much higher than otherwise since the analytical gaps imply lack of risk management from the side of policymakers.

EU-UK Free Trade Agreement and EU-UK Foreign Investment Agreement

If BREXIT does indeed take place, the EU-UK relations should in future be governed by a Free Trade Agreement (FTA) - which will is expected to include free trade in goods and to a limited degree some services – and a Foreign Investment Partnership Agreement (FIPA); the latter is a natural complementary element to an FTA and should indeed be negotiated in parallel to the FTA since the optimal allocation of resources in the EU27+UK space would go along with considerable additional adjustment costs if a FIPA would only be negotiated some years after BREXIT; it is obvious that import tariffs and other trade impediments will stimulate additional foreign direct investment under the heading of tariff jumping. The existing intra-EU bilateral Investment Treaties do not create a level playing field for UK foreign investors interested in greenfield or brownfield (international M&As) investment in the EU. The competence for international investment treaties is with the EU and the European Commission, respectively, where the rather opaque circumstances which led to the EU obtaining this competence are remarkable (MEUNIER, 2017) – in addition to the traditional competence in the field of international trade treaties where the EU naturally is the negotiator for all EU member countries as the European Union is a customs union: By definition it has a common external trade policy.

If the UK should face similar conditions in the field of foreign direct investment as the US in the EU28, this would mean that foreign investment barriers for UK investors with an interest in FDI in the EU27 would rise by about a quarter. This follows from the CEPR report on TTIP (FRANCOIS ET AL. 2013) where survey results from the literature were reported and the assumption is made that a Transatlantic Trade and Investment Partnership would reduce transatlantic investment barriers for US firms by one quarter, namely the EU barriers for US multinationals would come down to the same level as intra-FDI barriers within the EU. The increase of FDI barriers for UK firms in the post-BREXIT EU27 could bring about a negative investment and employment effect for the EU27. FRANCOIS ET AL. (2013) had estimated that TTIP and the assumed reduction of transatlantic investment barriers would increase US FDI in the EU and hence employment by 11% in US subsidiaries in the EU; at constant productivity this would imply an increase of EU real gross domestic product by 0.33% since the share of US investors in total EU capital stock is 3% according to BEA statistics. If the UK share in EU27 is 1.5% of the total capital stock, the FDI barrier effect would reduce employment in UK subsidiaries by 0.165% assuming UK firms are quite similar structurally to US subsidiaries in the EU. As regards the UK FDI effect of BREXIT, one should consider the following five BREXIT-related effects:

- the aforementioned FDI barriers effect which would be irrelevant only if there is an EU-UK Investment Treaty that avoids new barriers for UK investors in the EU;
- the tariff-jumping positive FDI effect that is related to gaps in an EU-UK FTA on goods;
- the regulation-induced FDI effect that is largely related to banking and insurance services as well as investment funds, namely to the extent that EU regulatory authorities require physical presence and separate capitalization of UK service providers in the EU27;
- the FDI effect that is related to real exchange rate effects of the Euro (19 countries are in the Euro area in 2018) and the EU27 countries' currencies, respectively; if there is a real appreciation of the Euro, the FDI Froot/Stein effect – related to international M&As – should be negative;
- the negative FDI stock effect for UK firms that stems from an undermining of existing British production networks in EU27 countries, namely to the extent that the type of EU-UK Free Trade Agreement adopted will require a minimum content of value-added in EU firms in a way that UK firms will have to give up part of existing EU production networks; competitors in the EU and from other investor countries can be expected to have a specific benefit from this induced selling of UK assets in the EU27 countries. The British "terms of capital" will worsen in the sense that the relative price of UK assets sold in the EU27 is declining along with a declining price of UK assets that can be purchased by EU27 investors in the UK due to the Pound depreciation effect.

As regards the overall capital account, this leaves open portfolio investment dynamics and changes in relevant rules – here it is not fully clear whether or not the EU and the EU Commission, respectively, have the competence to negotiate relevant rules. To the extent that banking equivalence rules are negotiated between the Eurozone and the UK it seems that rather the ECB is the key actor on the EU27 side.

4. Risk Management Analysis and Perspectives in EU28

As regards broader risk management perspectives, one would expect the EU28 countries to also take a critical look at the field of financial markets and banking which obviously are critical with regard to the economic stability of EU28 and indeed OECD countries in 2018/2019: Is this happening as part of a rational international transition process in the BREXIT dynamics in 2017/2018? No. The Bank of England apparently was partially blocking adequate analysis at the European Systemic Risk Board (ESRB: responsible for macroprudential supervision) and BREXIT could become a blind flight.

The ESRB is the institution, created in 2010 after the banking crisis of 2007-09, which is supposed to deal with macroprudential supervision issues (i.e. the interaction of risk factors that could trigger new banking crisis or major recession/crisis). That type of supervision requires an understanding of the potential systemic risk that emerges from the interaction of individual banks in a stress situation, shocks in foreign exchange markets, real estate markets or natural resources markets or shocks associated with fiscal or monetary policy; or political risk – the latter has become a broader challenge in the OECD countries as has been emphasized by the BIS Annual Report in 2017.

From a broader perspective one should also consider the full responsibility of the ESRB:

1. The ESRB has 28 member countries and is not the sum of the UK plus 19 Eurozone countries, the macroprudential perspective for all the EU28 countries is crucial.
2. An adequate macroprudential supervision at the ESRB will only occur if there is full cooperation between the Bank of England and the other EU27 countries – not least since the majority of EU27 wholesale banking transactions take place in the UK. Only if a carefully drafted EU-UK treaty section should take this issue of cooperation fully into account could one anticipate that no serious macroprudential policy gaps will emerge in the context of BREXIT; hence the EU-UK negotiations in 2017 are decisive.
3. There is the critical question of what role the Bank of England and the UK would play in the case of systemic instability associated with BREXIT in 2019 and 2020, particularly in the potentially dangerous transition period until 2020 (as assumed here); if the EU's agreements with the UK – to be completed by end of October 2018 - would not have a clear commitment that the Bank of England and the UK government would do whatever it takes not only to avoid instability in the United Kingdom but to also help avoiding and minimizing banking system and macro instabilities in the EU27, then the BREXIT process would be highly risky for the whole of Europe.

Leaving the EU puts a broader responsibility on the UK than simply considering narrowly defined national interests. It should be clear that before any EU-UK Free Trade Agreement

can be negotiated, the EU27 must make sure that there is an agreement in the field of joint prudential supervision and cooperation, respectively, for 2018-2020. Such an agreement is conflict-prone since the May government has already signaled in 2017 – according to internal discussions as reported in the Financial Times – that a new wave of banking deregulation should be considered. Such deregulation along with a parallel US banking deregulation under Trump could create the next banking crisis (interestingly, David Davis, the Exit Minister, has emphasized that the UK wants to implement the highest standards, but is this promise credible?). It can be shown that there is a trilemma in the case of flexible exchange rates (WELFENS, 2017c), namely that it is impossible to have both flexible exchange rates, free capital flows and adequate banking regulation.

5. Policy Conclusions and New Proposals

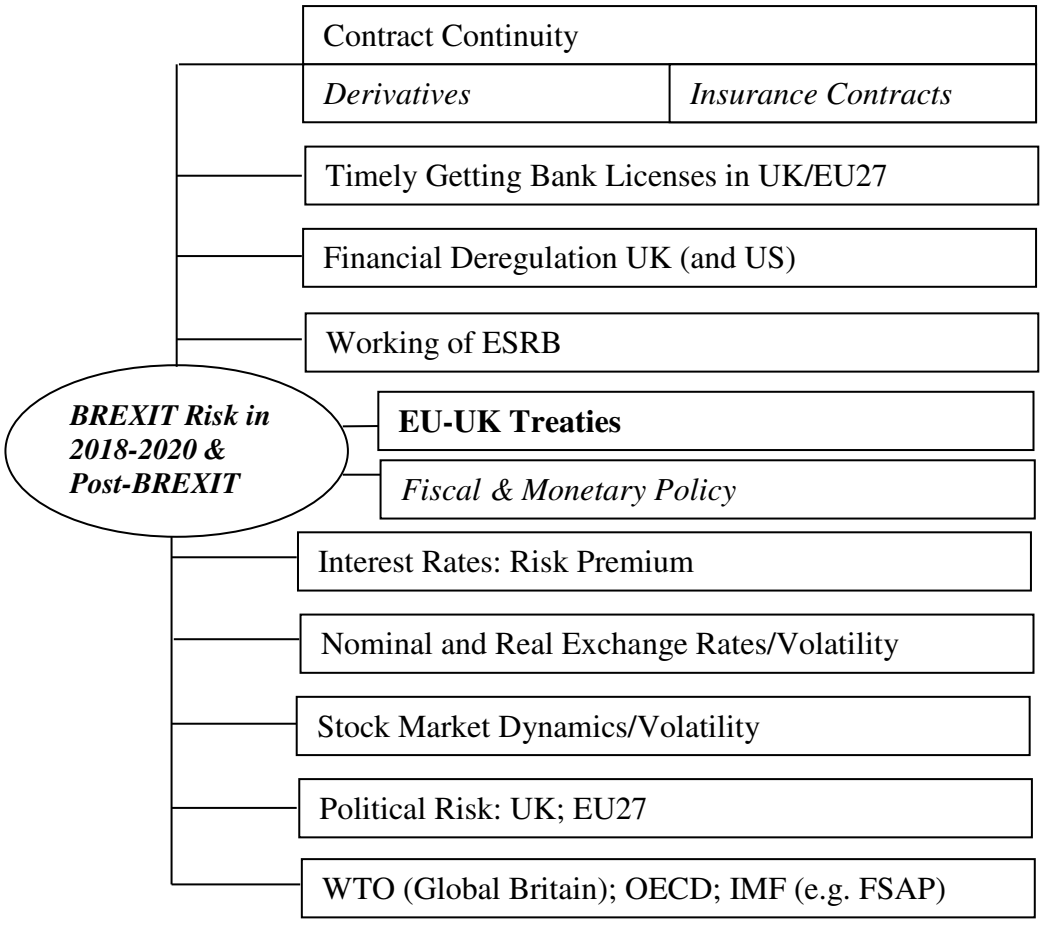
There is no doubt that BREXIT economic dynamics are associated with considerable risk, such as credit risk, market risk and operational risk, that, for example, will emerge in the context of relocating banking services from the UK to EU27 countries or to New York - which some US investment banks consider to be the best place for offering certain banking services to the EU once the UK has left the European Union; namely without an EU-UK free trade agreement on banking services which is what the EU chief negotiator Michael Barnier has announced in December 2017 to be the offer from the European Commission.

With a considerable relocation of City of London banks and investment funds from the UK to the EU27 in 2018 there will be negative effects on employment and output in the UK in the medium term; a short-term Pound depreciation effect is also to be anticipated. The main BREXIT-related risks to be anticipated and which require policy actions are as follows (see Figure 8)

- Problem of contract continuity
- City of London banks and UK banks, respectively, should timely organize to get a license for the EU27/Eurozone and EU27 banks in turn should get, in a timely manner, a license from the Bank of England if they want to continue to provide financial services in the UK after BREXIT
- Increased volatility of UK interest rates
- Increased volatility of British Pound exchange rates – this could reduce UK FDI inflows
- Political instability in the UK and associated with this a worsening of the UK's credit rating
- Rather modest free trade and investment agreement between the EU and the UK which could also undermine ratings for both the UK government and UK firms – higher cost of capital will impair UK long run output growth
- If confidence in the broader EU28 area should weaken there is a risk of a new Euro crisis: With political risk premia increasing for some EU27 countries – including Greece – the prospects for sustained output growth in the EU will be dampened.

- To the extent that a major relocation of specific London City activities take place in favor of EU27 countries, there is a risk that a lack of experience on the part of national regulators in these countries and of the ECB could bring about inadequate regulation of "new" financial market activities in the EU27. Such a lack of regulatory experience could, for example, refer to derivative markets in the EU post-BREXIT and the associated increased financial market volatility would add to the real output cost of BREXIT in the EU – and through spillover effects in the UK as well. The EU27 thus should be interested in enhanced regulatory policy cooperation in many fields of financial markets, however, there is some probability that political tensions between the UK and the EU27 would indeed undermine prospects for such cooperation in regulation. In addition, there is the problem that the May government might switch to a course of deregulation shortly after BREXIT. It is noteworthy that on September 18, 2018, the vice-chairmanship of Mr. Mark Carney from the Bank of England ends at the ESRB. Beyond this date the cooperation in the field of macroprudential supervision is likely to weaken in the EU28 area – as the Bank of England's willingness to cooperate with partners from EU27 in the field of prudential supervision could weaken; and it seems that this process has already started in 2017 (with the Bank of England playing an active role and the ESRB not really fulfilling its mandate).

Figure 9: Lack of Prudential Expertise and Experience in EU27 Countries: Risk Perspectives on BREXIT



There is some risk that BREXIT could lead to a political rift between the UK and the EU27. A serious breakdown in UK-EU relations could be avoided by the European Union adopting a strategy which goes beyond the offer of a free trade agreement plus cooperation in security and science:

- One should consider a combination of a (limited) Free Trade Agreement between the EU and the UK with an international investment treaty between the EU and the United Kingdom. The European Union has the full competence – since the Lisbon Treaty – to negotiate international investment treaties.
- The EU could thus offer the UK that it would largely have the same FDI freedoms in the EU27 as the EU member countries within the EU; such an offer should be made conditional on EU-UK cooperation in key international FDI policy fields, for example vis-à-vis China where both the EU27 and the UK have an interest in achieving a more level playing field. To date, the firms from EU28 countries rarely enjoy full or majority ownership in certain sectors in China while Chinese investors in the EU28 have almost full freedom to acquire majority ownership in firms in the EU – and indeed to have 100% ownership. This topic should be picked up in the EU-UK negotiations and could help to reinforce economic links between the UK and the EU27; and in this spirit a parallel future enhanced free trade agreement between the EU27/UK and the US could be designed so that joint Western interests in the field of multinational investment are adequately pursued.

BREXIT involves serious political risk since the May government in the UK, facing bitter internal infighting and having lost a snap election in June 2016, could fall or not achieve a majority in Parliament for the Exit Treaty and the envisaged EU-UK Free Trade Treaty. The UK government certainly has the political right to implement BREXIT – or to stop it if deemed adequate -, but why the Bank of England has the right to effectively block an effective macroprudential risk analysis of the ESRC is worrisome. Rational decision-making in Western countries is crucial, as the cost of a thorough lack of risk management would be borne by all EU countries, not just the UK.

One can only recommend the establishment of an innovative framework for EU-UK cooperation in both macroprudential supervision and in joint banking crisis management. An EU-UK Joint European Banking Stabilization Fund (JEBSFU) that would have a volume of several hundred billion € should be created so that in a crisis liquidity could be injected into the UK financial market and/or the Eurozone financial market. It thus would be expected that the European Central Bank would help in stabilizing a banking crisis in the UK –reflecting the structural interest of the EU/Eurozone to benefit from a stable EU wholesale banking sector that is dominantly located in the UK; and in a mirror perspective it would be expected that the UK would help overcoming a Eurozone banking crisis. The latter idea partly is not very far from an explicit Euro membership and the broader topic raises, of course, the question of whether or not it was wise for the UK not to join the Eurozone right from the beginning and thus be able to have had a strong influence on institutional dynamics of the Eurozone. This would also have required that the UK would have borne a fair share of the cost of fighting the cost of the Spanish crisis, for example, in which the exposure of UK banks was very similar to that of German banks and French banks, respectively (WELFENS, 2016; in reality, the UK was a free rider in the Spanish banking crisis of 2012-2015). The litmus test for EU-UK economic policy cooperation would be the JEBSFU; if such a fund could not be created, the EU would have a strategic

interest to actively push for a broad relocation of EU27 wholesale banking market services from the City of London to the EU27.

Turmoil in financial markets and a sharp BREXT-linked recession in Europe in the medium term would impose unnecessary high costs on all OECD countries. The ESRB not only has the option of considering EU or IMF economic forecasts for the UK and the EU27, it should also carefully study the BREXIT studies from various expert groups, including for example the comprehensive study of Rabobank (see EIIW monitoring page, appendix) which has developed a simulation for the No-Deal case according to which the UK could dip into a recession – and long run output decline could be as high as 18% in the UK.

It is the very task of the ESRB to analyze systemic risk and there is no doubt at all that BREXIT entails such risk for the more than 500 million inhabitants of the EU and potentially for all OECD countries. The sudden shift from high growth and prosperity to instability and very volatile financial markets was characteristic of the Asian crisis in 1997/98, but it should not be excluded that such negative dynamics could indeed emerge from the BREXIT process and to walk blindly into such a dangerous trap would be both tragic and costly for Europe and the West, respectively. Indeed, in the BREXIT process, the UK not only has responsibility for British citizens but also for prosperity and stability in the whole of Europe. It's a strange and dangerous idea to create a new institution such as the ESRB in 2010 and then not want to use this crucial financial EU regulatory platform – with options for timely warning or policy recommendations - when it is most needed.

The EUROPEAN PARLIAMENT (2017) has summarized some key elements of the macroprudential policy framework (Appendix 6). Policymakers in Europe should analyze to what extent one should anticipate increased future FDI outflows from the UK and the EU27 to non-OECD countries, since here a broader liberalization tendency beyond the narrow BREXIT tendencies could be relevant; and also the correlation between FDI regulatory restrictiveness for the aggregate and various subsectors (Banking&Insurance; Financial Services) should be studied carefully. It is also unclear how the IMF could make an optimal update of its Financial Sector Assessment Programs if the ESRB wants to restrict its main role to looking into shadow banking problems and a split risk screenshot for 20 EU countries. It is obvious that the ESRB has contributed greatly to analytical progress in many fields which are important for prudential supervision at the macro level in the first six years since its establishment, however since June 2016 there are important new challenges in the form of BREXIT. The European Parliament and other relevant institutions should raise critical questions about the working of the ESRB.

It would be a disaster for the EU if inadequate work at an EU institution, here the European Systemic Risk Board, should contribute to the next banking crisis in Europe – possibly associated with another expansion of populist anti-EU political groups. In the book An Accidental BREXIT (London: Palgrave Macmillan), this author has shown that the Leave-majority at the EU referendum could be derived largely as an indirect response on the part of the British public to the Transatlantic Banking Crisis (WELFENS, 2017a). There is need to deepen the financial risk analysis in various ways in future research.

Rising US Regulatory Influence on the UK Policy

BREXIT will induce US banks with major activities in the City of London to relocate part of their activities to EU27 countries and part of the current UK activities to New York which in some fields is a second-best location for certain financial services – with relevant economies of scale – that will be offered to clients in EU27 countries. Thus far the relocation to the US has not been much discussed, although it is highly relevant for regulatory dynamics in OECD countries. With the global financial center of New York indirectly reinforced trough BREXIT, the international spillover impact of US banking deregulation will be gaining importance. Excessive US deregulation, which is pushed by the Trump Administration, will thus have a strong impact on British banks in the UK – often being major rivals for leading US banks. From this perspective, BREXIT reinforces the global economic power of the US and also raises the likelihood of a new US-UK deregulation wave. Once the US starts a broad deregulation of international banking the UK government is likely to follow the course of the United States; beyond the course it would normally have realized. This, in turn, raises the pressure on the whole of Europe to follow suit meaning future US banking deregulation and indirectly BREXIT therefore raise the probability of another major Western banking crisis. If the US combines an aggressive corporate tax policy reform – which is partly effectively an export subsidization policy – with broad financial market deregulation and a protectionist trade policy, this is likely to create new political tensions between the EU and the US.

Technical Problems To Be Solved

The problems of contract continuity should be solved within the framework of EU-UK negotiations. If this would not be achieved there would be additional risks in financial markets and in the real economy of EU28 countries. As regards financial regulations post-BREXIT, one should consider the following two key policy options:

- there could be the creation of a joint EU-UK regulatory committee on banking and financial markets in the EU28 which would develop a joint regulatory policy – with a joint review by the IMF's FSAP team every two years.
- There could be a special membership option for UK authorities in the ESRB whose structure should be streamlined at the same time since 57 member institutions is too large to have an effective institution.

If the UK would want to adopt a new wave of deregulation – a likely policy perspective post-BREXIT in an environment of reduced long run UK growth – the suggested cooperation options might, however, not work. At the bottom line, BREXIT seems to much more complex than most voters and indeed politicians in the UK had expected in 2016. The fact that the UK has strongly specialized in financial services makes BREXIT particularly complex. Since the relocation of financial services firms to the EU27 will have a strong current account effect for the UK, a scenario analysis of the EU, the OECD and the IMF should take the relevant macroeconomic effects into account. It would also be adequate to regularly analyze BREXIT in an explicit two-country open economy model with trade, foreign direct investment, portfolio investment, and innovation dynamics. To aggregate FDI and portfolio investment seems to be inadequate to fully understand

BREXIT dynamics; and FDI analysis to some extent would have to make the crucial distinction between greenfield investment and brownfield investment.

Suggested Reform Initiative at the IMF

The IMF should consider changing its Financial Sector Assessment Program framework; for countries with considerable expected international spillover effects, the FSAP analysis should be modified in the sense that not only national financial sector stability aspects are considered: Aspects of international interdependency should be taken into account so that, for example, the FSAP for the UK and that for the Eurozone should be jointly considered when the FSAP missions are prepared and the FSAP reports should take due account of international interdependency aspects. It is indeed noteworthy that in an average month the UK's Financial Conduct Authority exports about 250 million trade reports to European partner countries while it receives some 12 million trade from EU partner countries reports (BAILEY, 2017); this is an import of data which is only 4.5% of the data volume exported so that a considerable asymmetry of international transactions in financial markets is visible: The City of London is a global financial center with strong relevance for EU/Eurozone financial market stability.

The board of directors of the IMF should approve national FSAP update reports on internationally systemically relevant countries – analytically this includes the Eurozone and the UK - only if adequate simulation discussions with the governments and central banks of the systemically relevant countries have taken place and international spillovers have been simulated. This should then reflect in an analytical sense a two big countries (or n-big countries) interdependency approach where a big global financial center country such as the UK has an international effect on the Eurozone and from there repercussion effects will affect the UK. All the relevant interdependency effects might be adequately considered in an EU28 context, particularly after the creation of the ESRB, but with BREXIT the situation will look more complex in Europe. The IMF would be wise to anticipate this new setting and to encourage a cooperation framework for macroprudential supervision in Europe that takes into account the interdependency aspects UK/EU27.

Slow Negotiations Reinforcing Risks for Banks and Financial Markets in the OECD

With the EU-UK negotiations making very slow progress, there is an increasing risk that a lack of timely clarity about negotiation results will contribute to nervous financial markets. Banking instability as well as insurance company risk – often involving financial conglomerates (83 in Europe in 2016, up from 75 in 2009) - could emerge in the context of BREXIT and such risks should be managed adequately. With many insurance companies invested in Pound-denominated bonds there is some risk that insurance companies could be part and parcel of macroprudential risk. BREXIT risk could hit international capital markets in a period of rising US interest rates – since late 2017, partly reflecting concerns about the US federal tax and debt policy, respectively - which would make risk management more difficult than in a period of stable US interest rates. The contradictory BREXIT policy statements of the May government also makes it rather difficult for market participants to anticipate the outcome of the BREXIT negotiations.

The transition stage reduces adjustment costs for the real economy in the EU28 in the short term, but it is unclear what the effects on medium-term stability in Europe will be. To the extent that the transition stage until the end of 2020 is anticipated as a credible outcome, banks and other financial services providers could postpone part of the planned comprehensive adjustments (which were initially planned for the case of BREXIT implementation on March 29, 2019). This could mean that the adjustments in financial sectors come rather late – and could overlap with an advanced interest rate cycle in the US and rising risk premia in OECD stock markets; the latter partly related to an international trade war which seems to have started under the Trump Administration in 2017/18. Issues of how to integrate the UK in the future post-BREXIT work of the ESRB are crucial, the option of an observer status clearly seems to be insufficient from the point of interest of EU27 countries. Once the UK has left the EU – and is not even a member country of the European Economic Area – it would be rather difficult to obtain an observer status at the ESRB unless the negotiations between the EU and the UK create a special arrangement for this. Principles of regulatory policy cooperation in Europe should be part of the EU-UK treaties and it seems appropriate to also take into consideration the views of Switzerland, as an important financial market actor, into consideration.

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Appendices

Appendix 1: A Simple BREXIT Macro Analysis of the Goods Market Equilibrium in the Context of an Asymmetric FDI

The impact of BREXIT on the UK is crucial, but there is also the question of to what extent the EU27 or the Eurozone will be affected by the UK's leaving of the EU. Consider a simple macro model (without government expenditures, but with cumulated FDI inflows) where one can write the goods market equilibrium condition for the medium term as (with positive parameters c, x, j – the three parameters are in the range of 0,1 - and q* denoting the real exchange rate eP*/P:=q* and τ is the income tax rate; Y is real gross domestic product, I is real investment, exports X are proportionate to foreign real gross national income (* for foreign variable, α is the share of country-1 investors in the foreign capital stock of country 2, ß* is the share of profits in foreign gross domestic product) Z*:=Y*(1-αß*) and also a positive function of q* (by assumption with an elasticity of one); hence X= xq*Z* Import volume J is assumed to be proportionate to disposable national income (J=j(…)Y) and to be a negative function of q* (with an elasticity of imports with respect to q* of -1), real imports expressed in domestic goods units are q*jZ so that we can write (with consumption being proportionate to disposable national income Z:= (Y+αß*q*Y*)) in a stochastic context with a white noise error term ε:

(1) $Y = c(1-\tau)(Y+\alpha ß^*q^*Y^*) + I + xY^*(1-\alpha ß^*)q^* - j(1-\tau)((Y+\alpha ß^*q^*Y^*) + \varepsilon$

(2) Hence $Y = I/s' + [(xq^*/s' + ((c-j)/s')(1-\tau)\alpha ß^*q^*]Y^* + \varepsilon$; where $s' := 1 - c(1-\tau) + j$

The expectation value E(Y) therefore is

(3) $E(Y) = (1/s')E(I) + [(xq^*/s' + ((c-j)/s')(1-\tau)\alpha ß^*q^*]E(Y^*)$

Moreover, with $s'' := 1/s'$ – we have for the variance

(4) $V(Y) = s''^2V(I) + [(xq^* + (c-j))(1-\tau)\alpha ß^*q^*]^2 s''^2V(Y^*) + 2[((xq^* + (c-j))(1-\tau)\alpha ß^*q^*]^2 s''^4 cov(I,Y^*)$;

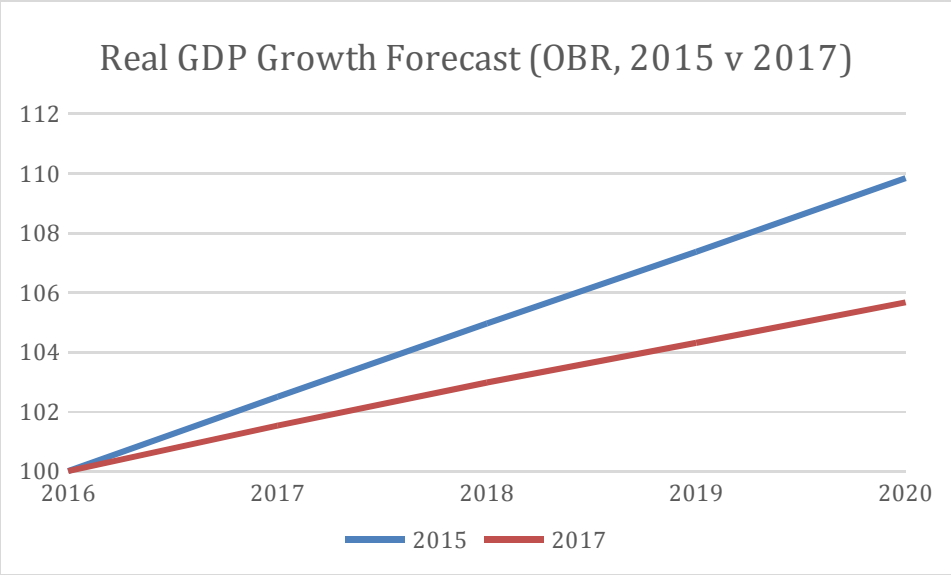
The country's investment will be proportionate to the foreign country's GDP. Obviously the share of cumulated ownership abroad (α) contributes to a higher variance of Y. A necessary and sufficient condition for this is a positive covariance.

Here it is assumed that the higher the export-GDP share, the higher should be the covariance cov(I,Y*); from a Eurozone country perspective – with UK being the foreign country – the output variance V(Y) is raised in a double way through the UK's BREXIT. The variance of the UK's output will increase which, in turn, will raise the variance of the Eurozone country's output. Moreover, the covariance cov(I,Y*) could increase as investment in the Eurozone country will be correlated positively with Y*. If the Eurozone

country is itself a strong producer of capital equipment, the implication should be that the rate of return of equipment producers is reduced so that stock market values of that sector will fall. There is a caveat to this view since import tariffs in some sectors of EU countries will indirectly stimulate British tariff jumping investment in Eurozone countries. This in turn should stimulate production of capital equipment in major capital equipment producer countries. If exports to the UK are replaced in the medium term and long term by outward foreign direct investment and UK production, respectively, the covariance cov(I,Y*) should fall. Hence the output variance in Eurozone countries should increase temporarily. To the extent that BREXIT has negative output effects on the EU27 – here the link should be (following standard QUEST results from the EU Commission's macro model) roughly that 6% income reduction in the UK will bring about 1% GDP reduction in the EU27 – there will be a negative repercussion effect on UK output. Part of negative output effects in EU27 countries could be linked to slightly higher financing and hedging costs that are associated with a relocation of banking activities from the "City of London", usually considered to represent big economies of scale effects, to EU27 countries. If there is a hard BREXIT, in the sense that there is not EU-UK treaty on BREXIT, there could be large financial shocks in the UK and the EU27 countries whose main banking wholesale market is in London.

Appendix 2: Implied Economic Effects of BREXIT – Forecast Revisions

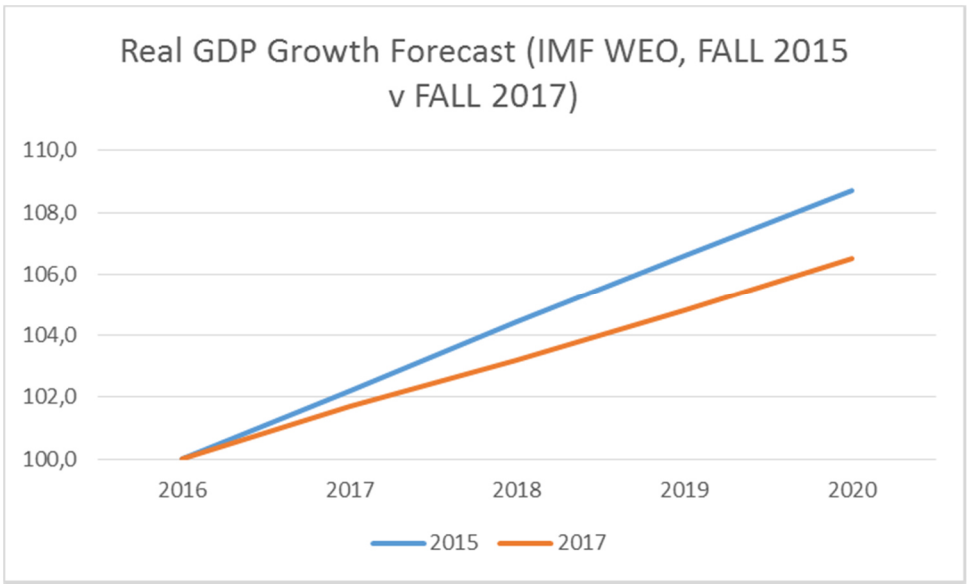
Figure 10: Impact of Revised Office for Budget Responsibility Forecasts for UK Real GDP



Source: Welfens (2017), The True Cost of BREXIT for the UK: A Research Note, EIIW Discussion Paper No. 234, www.eiiw.eu (Base year 2016=100)

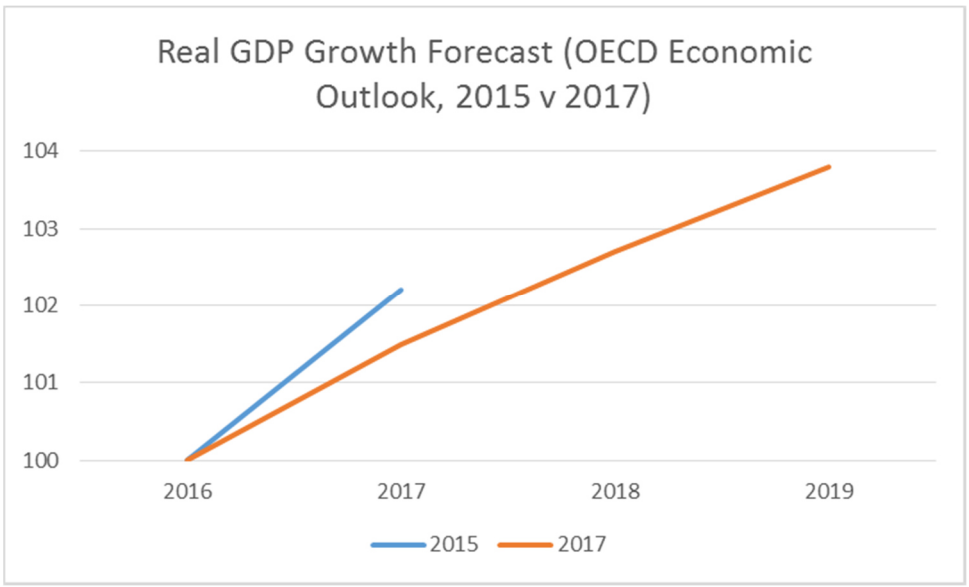
The following figures (Figs. 11-15) are from WELFENS/HANRAHAN (2018).

Figure 11: Impact of Revised IMF Forecasts for UK Real GDP



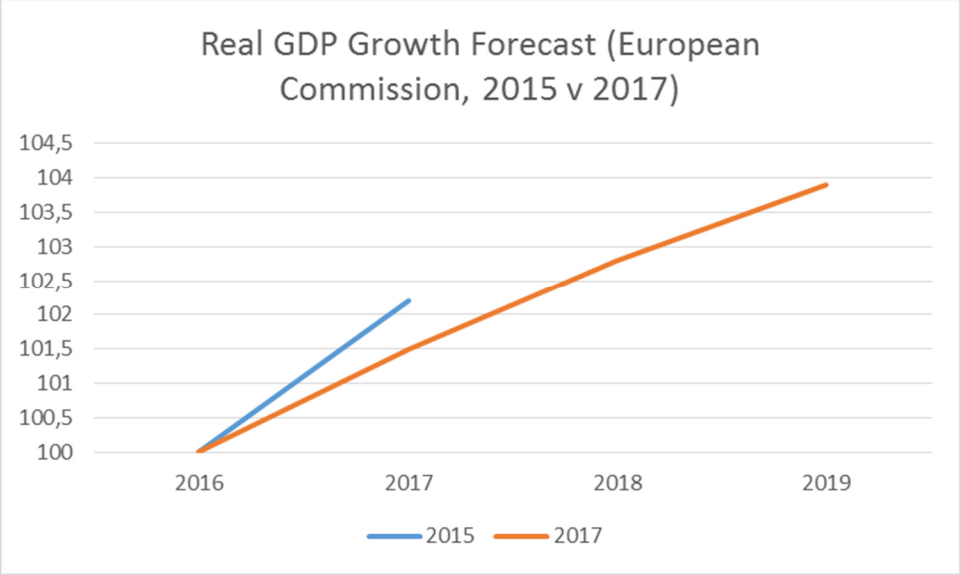
Source: IMF, World Economic Outlook Database, October 2015 and 2017, own calculations, (Base year 2016=100)

Figure 12: Impact of Revised OECD Forecasts for UK Real GDP



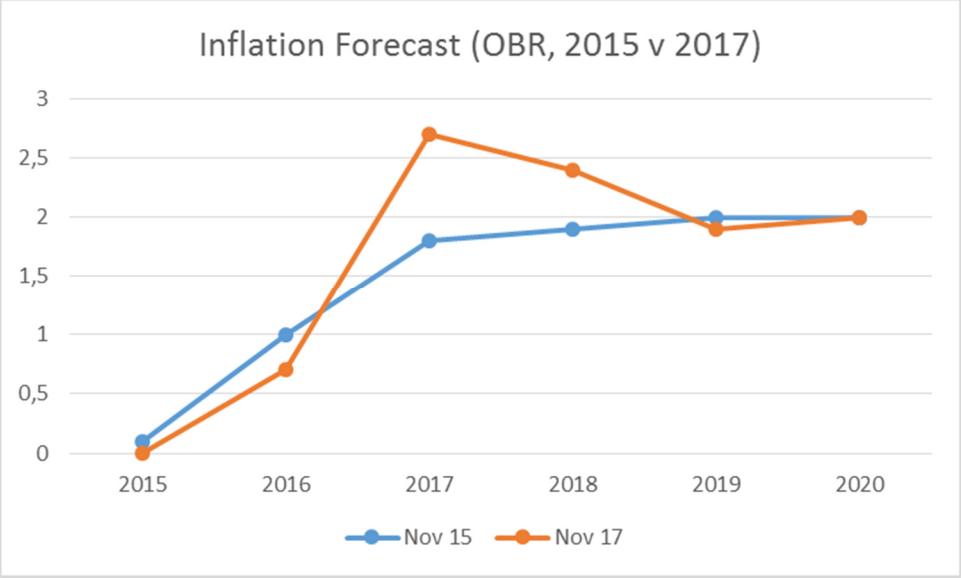
Source: OECD Economic Outlook, 2017 Issue 2 and 2015 Issue 2, own calculations (Base year 2016=100)

Figure 13: Impact of Revised European Commission Forecasts for UK Real GDP



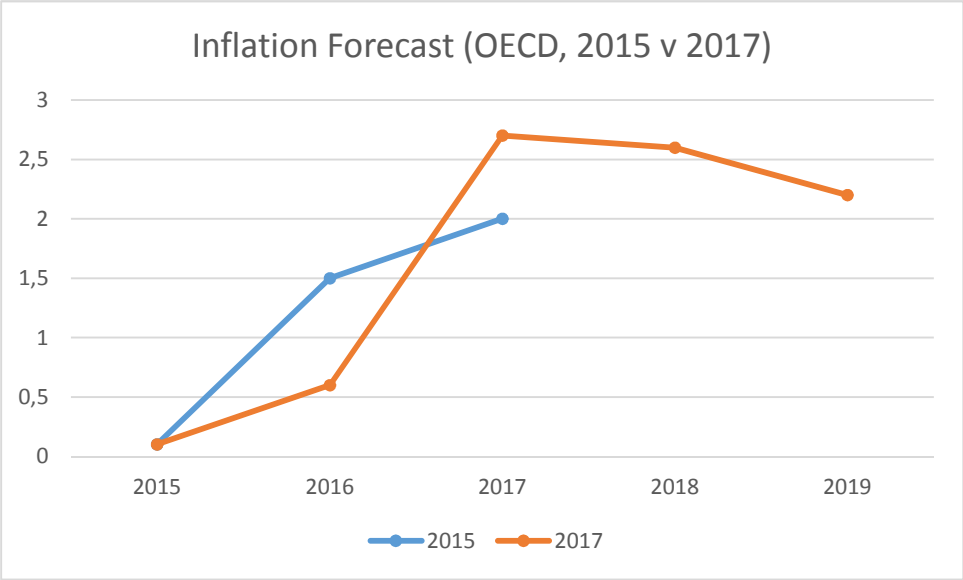
Source: European Commission, European Economic Forecast, Autumn 2015 and Autumn 2017 (Base year 2016=100)

Figure 14: Impact of Revised OBR Forecasts for UK Inflation



Source: OBR, Historical Official Forecast Database, http://budgetresponsibility.org.uk/data/

Figure 15: Impact of Revised OECD Forecasts for UK Inflation



Source: OECD Economic Outlook, 2017 Issue 2 and 2015 Issue 2

Appendix 3: FDI impediments in OECD countries

Table 3: FDI Impediments in OECD countries (selected sectors) - Countries ranked based on column 1 "Total" in order from lowest to highest

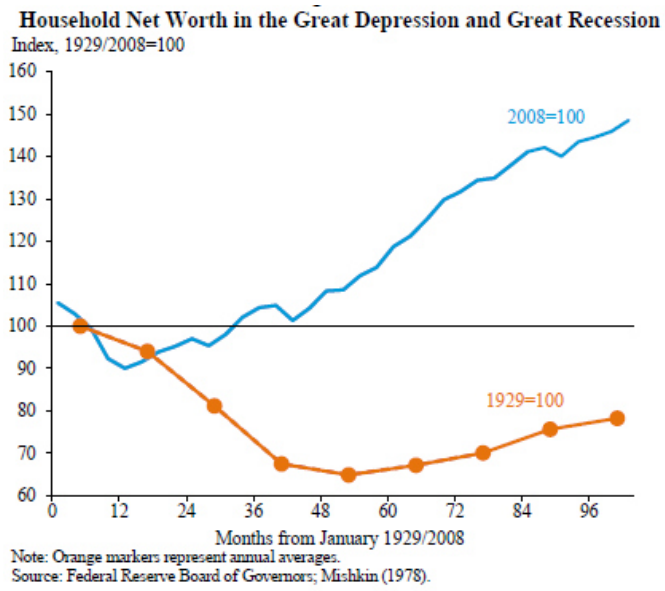
OECD FDI Regulatory Restrictiveness Index					
2016					
	Total	Banking & Insurance	Financial Services	BI / Total	FS / Total
Luxembourg	0.0040	0.0000	0.0020	1.1130137	0.9109589
Portugal	0.0070	0.0230	0.0020	0	0.68867925
Slovenia	0.0070	0.0000	0.0020	0.575	0.425
Czech Rep.	0.0100	0.0000	0.0020	0.36144578	0.06024096
Netherlands	0.0150	0.0000	0.0670	0	0.03508772
Estonia	0.0180	0.0000	0.0540	0	0.2
Finland	0.0190	0.0090	0.0050	0	0.33333333
Spain	0.0210	0.0000	0.0670	0	3
Germany	0.0230	0.0600	0.0050	0.47368421	0.26315789
Latvia	0.0260	0.0090	0.1330	1.25555556	0.44444444
Hungary	0.0290	0.0000	0.0090	2.60869565	0.2173913
Greece	0.0320	0.0280	0.1190	0.875	3.71875
Denmark	0.0330	0.0000	0.0110	0	0.31034483
Belgium	0.0400	0.0230	0.0170	0.73053892	0.22155689
United Kingdom	0.0400	0.0000	0.0330	0.26744186	0.41860465
Ireland	0.0430	0.0115	0.0180	0.16949153	0
France	0.0450	0.0565	0.0200	0	0.96153846
Slovak Rep.	0.0490	0.0000	0.0020	0	0.21153846
Italy	0.0520	0.0000	0.0500	0	0.01481481
Japan	0.0520	0.0000	0.0110	0.34615385	5.11538462
Chile	0.0570	0.0000	0.0020	0	0.5
Sweden	0.0590	0.0000	0.0000	0.77720207	1.20725389
Turkey	0.0590	0.0000	0.0420	0	4.46666667
OECD - Average	0.0670	0.0300	0.0330	1.04166667	0.0125
Poland	0.0720	0.0000	0.0020	0.29411765	0.2

Switzerland	0.0830	0.0500	0.0020	0	0.02777778
Norway	0.0850	0.0250	0.0170	3.28571429	0.28571429
United States	0.0890	0.0500	0.0330	0	0.04081633
Austria	0.1060	0.0000	0.0730	0	0.28571429
Israel	0.1180	0.0200	0.0000	0	3.19047619
Korea	0.1350	0.0000	0.0020	0	0
Australia	0.1460	0.1625	0.1330	0.60240964	0.02409639
Canada	0.1660	0.0600	0.0100	0	0.71186441
Iceland	0.1670	0.1220	0.0370	0	0.825
Mexico	0.1930	0.1500	0.2330	0.56179775	0.37078652
New Zealand	0.2400	0.2500	0.0030	0.44776119	0.49253731

Source: OECD http://stats.oecd.org/Index.aspx?datasetcode=FDIINDEX# accessed on 21.02.2018

Appendix 4: Household Net Worth in the Great Depression and the Great Recession

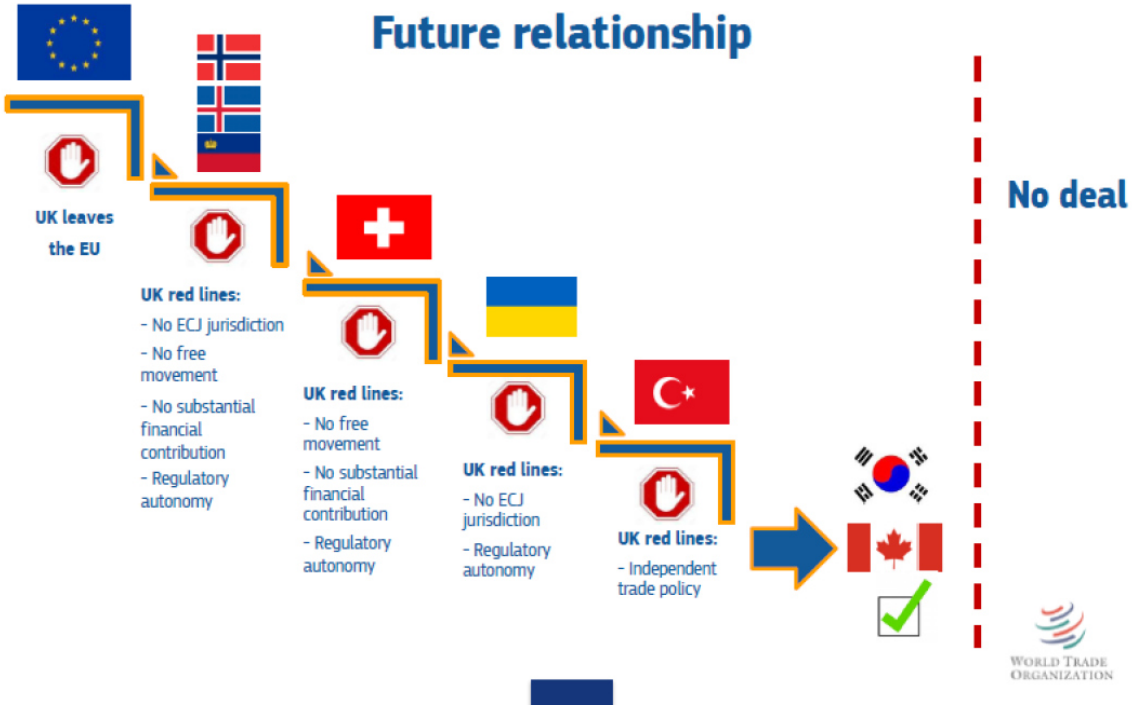
Figure 16: Comparing US Output Loss in the Great depression and During the Great recession (2008 onwards)



Source: Council of Economic Advisers (2017). Economic Report of the President. p. 29

Appendix 5: Possible Future UK-EU Relationship

Figure 17: Possible Future Relationship Scenarios (slide presented by EU Chief Negotiator Michel Barnier to European Commission



Source: European Commission (2017).
https://ec.europa.eu/commission/sites/beta-political/files/slide_presented_by_barnier_at_euco_15-12-2017.pdf

Appendix 6: The EU macroprudential policy framework (source: European Parliament (2017), IPOL/EGOV (Figs. 17-21))

Figure 18: EU Macroprudential Policy Framework

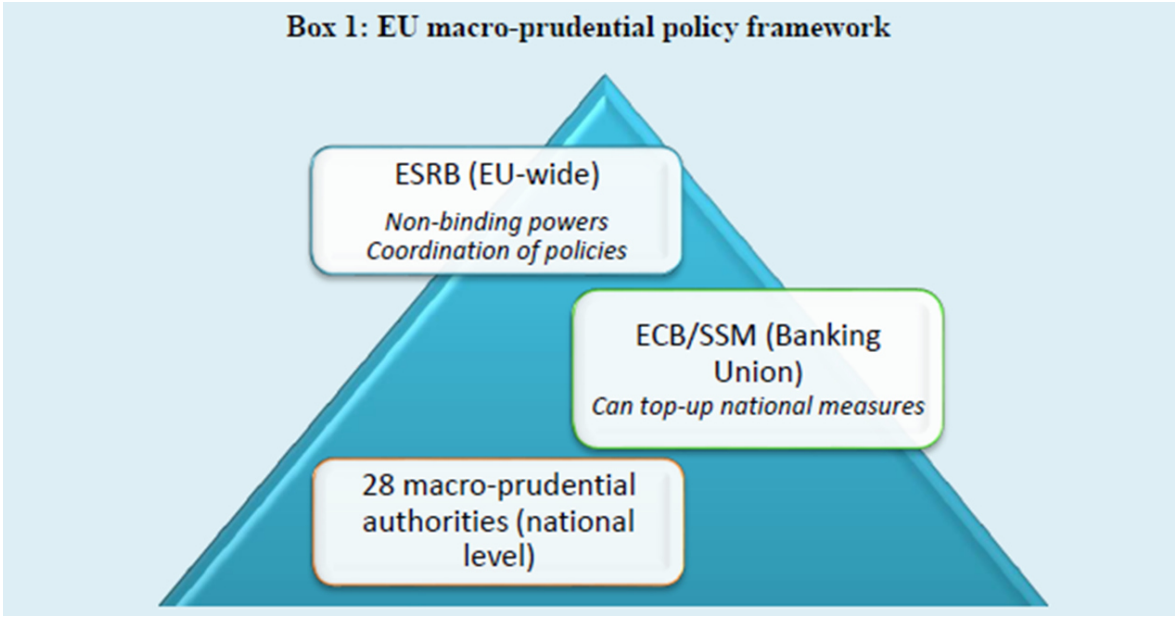
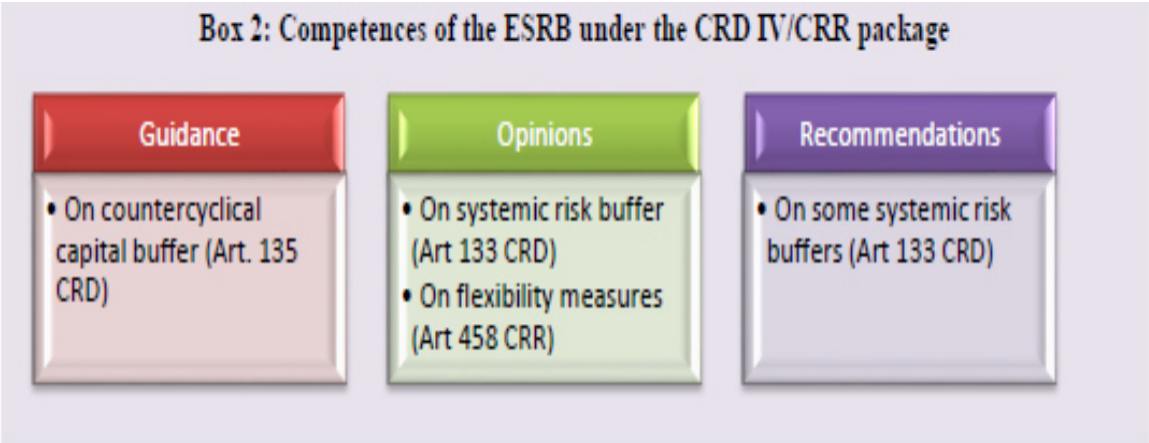


Figure 19: Competences of the ESRB under the CRD IV/CRR Package*,**



**CRD IV/CRR: Capital Requirements Directive IV/Capital Requirements Regulation*
***The banking regulation, i.e. the 'CRDIV/CRR' package, which entered into force in January 2014, foresees new macro-prudential instruments that can be activated at national level with varying procedures for consultation at the EU level. CRD IV/CRR has entrusted the ESRB with a new coordination role in the activation of some of these new macro-prudential instruments;*
Last, the Single Supervisory Mechanism Regulation (SSMR) entrusts the ECB with new binding macro-prudential powers within the Banking Union.

Figure 20: ESRB Governance

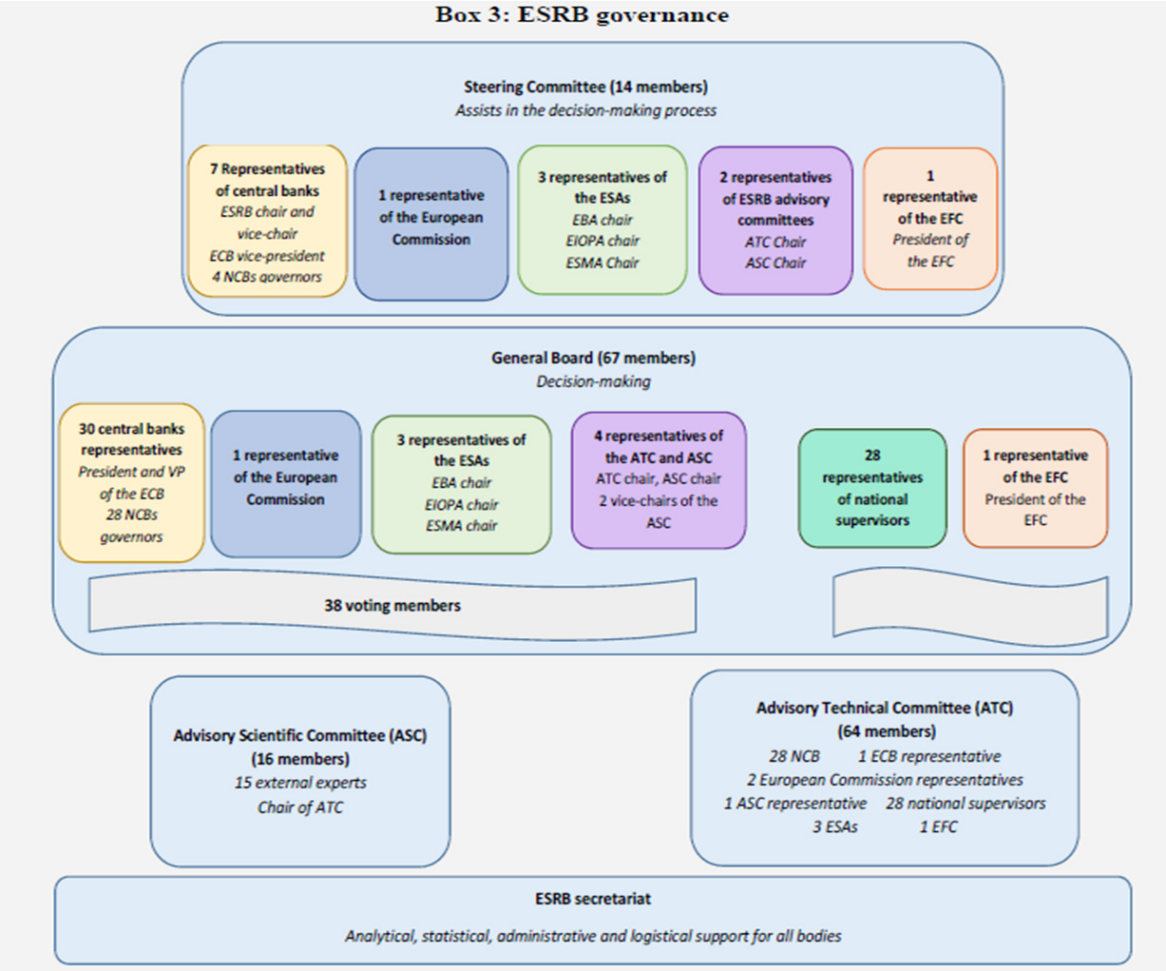


Figure 21: National Macroprudential Authorities

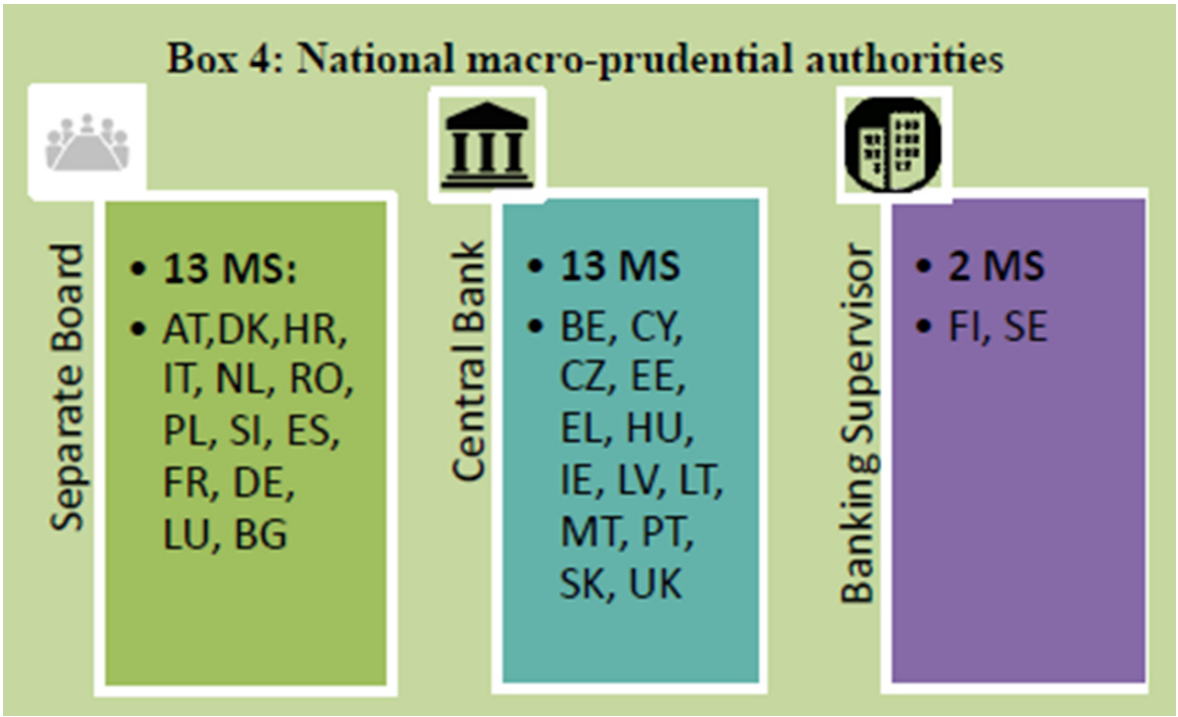


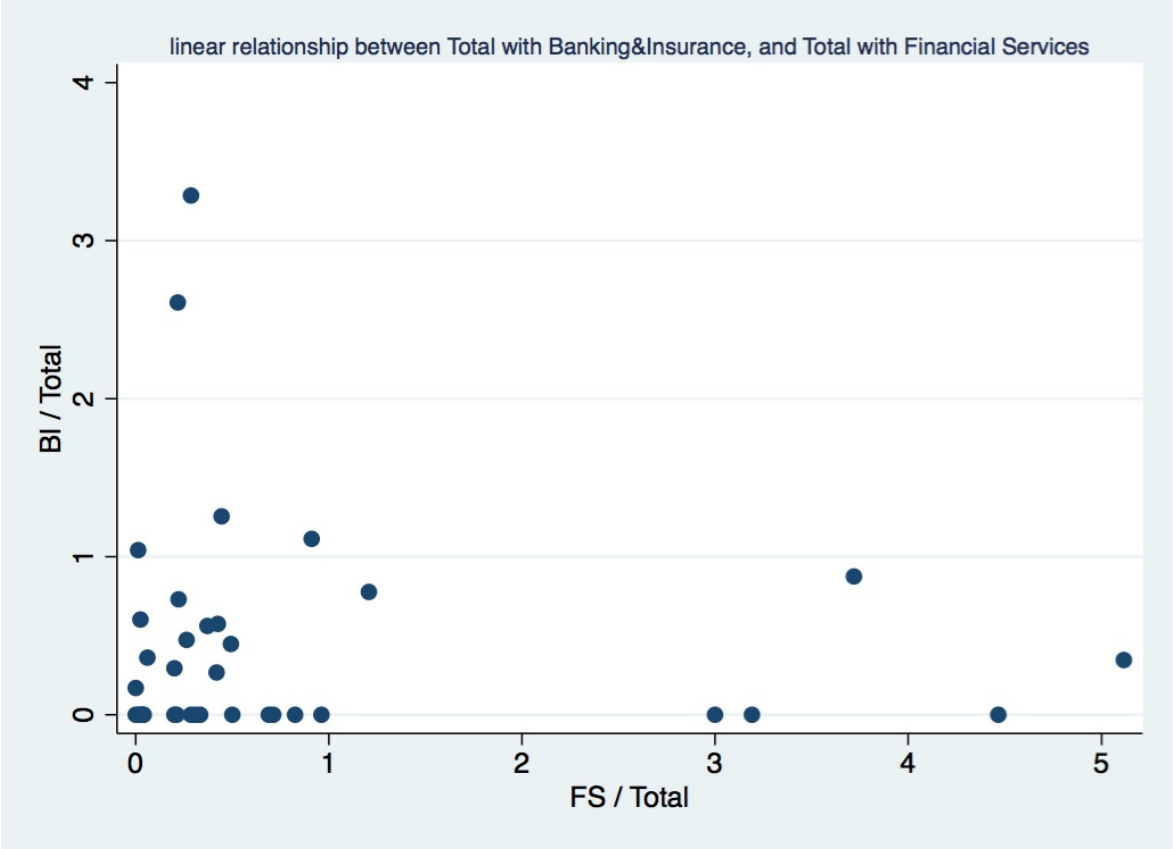
Figure 22: CRD IV/CRR Macroprudential Toolkit

Box 5: CRD IV/CRR macro-prudential toolkit

Counter-cyclical capital buffer	Systemic Risk Buffer	G-SII/O-SII buffer	Sectoral risk weights	Flexibility package
•Additional capital requirements •Mandatory buffer •Varies accross the cycle (from 0% to 2.5 %) •Depends on the geographic location of the risk	•Additional capital requirements •Optional buffer •Reflects the 'structural' component of systemic risk •Various activation procedures depending on the level	•Addtional capital buffers for globally systemically important institutions (G-SII) or domestic systemic institutions (O-SII) •Mandatory fo G-SII, optional for O-SII •O-SII buffer capped at 2 %	•Risk-weights for real estate exposures can be increased for financial stability purposes (Articles 124 and 164 CRR)	•Possibility to derogate temporarily from the single rulebook for financial stability purposes (Article 458 CRR) •Includes capital requirements, large exposures and risk weights for real estate

Appendix 7: OECD FDI Regulatory Restrictiveness Analysis

Figure 23: Linear Relationship Between Total with Banking&Insurance and Total with Financial Services



The relationship displayed in the scatterplot above is not monotonic, thus for a deeper analysis either a transformation or another type of test entirely would be appropriate. However, most of the data is 0, therefore the suggestion would be change to another test. The upper two data points may have to be removed as outliers for Norway and Hungary. Even though using a Spearman's correlation test on the current dataset might not lead to a valid result, the output appears below:

```
. spearman BITotal FSTotal

 Number of obs =      36
Spearman's rho =       0.0115

Test of Ho: BITotal and FSTotal are independent
    Prob > |t| =       0.9470
```

A Spearman's correlation was run to assess the relationship between Total with Banking&Insurance, and Total with Financial Services using a small sample of 36 countries. There was a weak positive correlation between Total with Banking&Insurance and Total with Financial Services, which was not statistically significant at the level of .05, rs = .0115, p = .9478.

Figure 24: Linear Relationship Between Total Sectors and Banking&Insurance

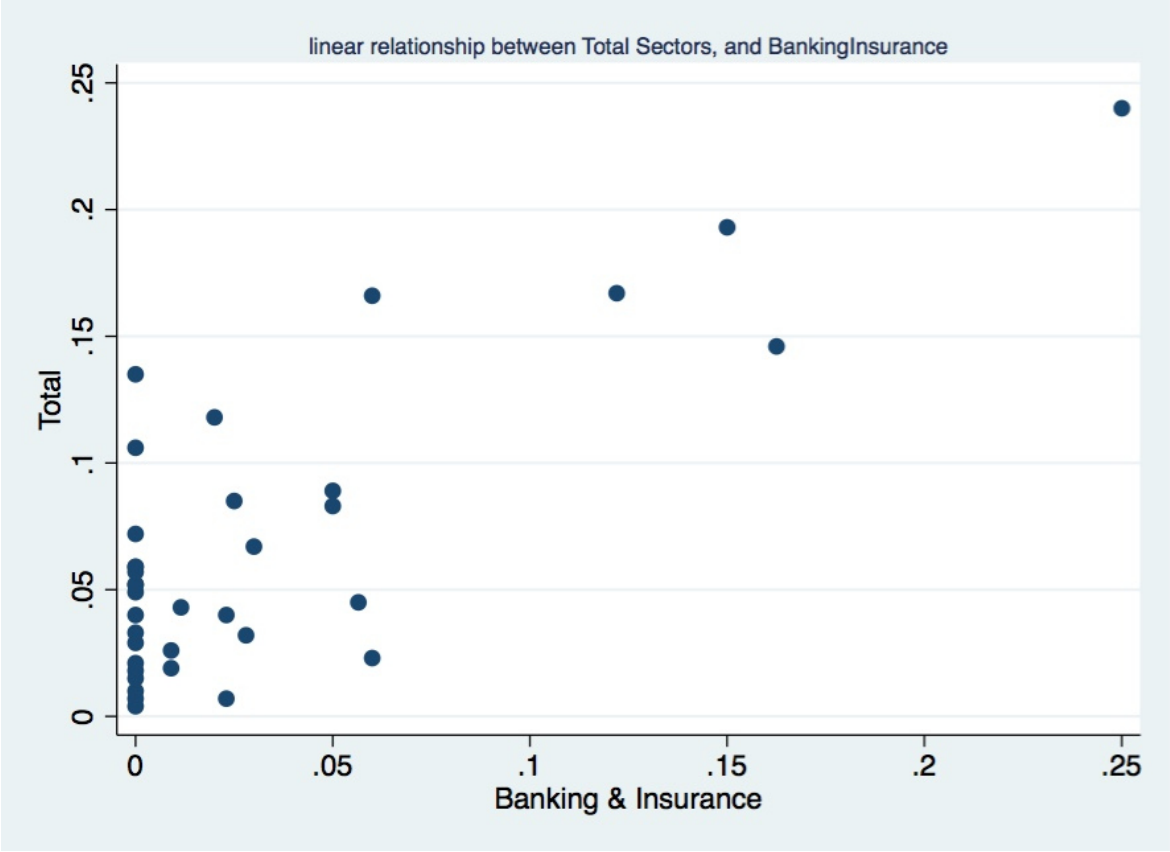
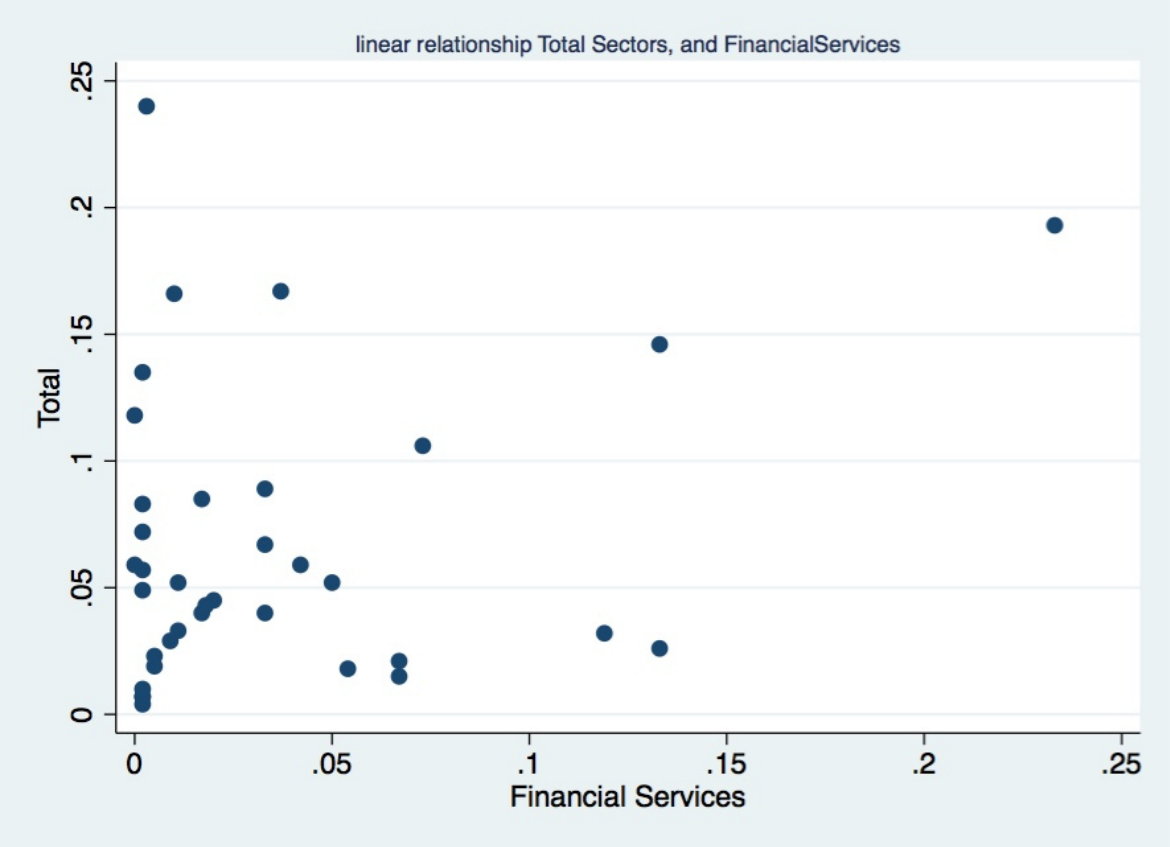


Figure 25: Linear Relationship Between Total Sectors and Financial Services



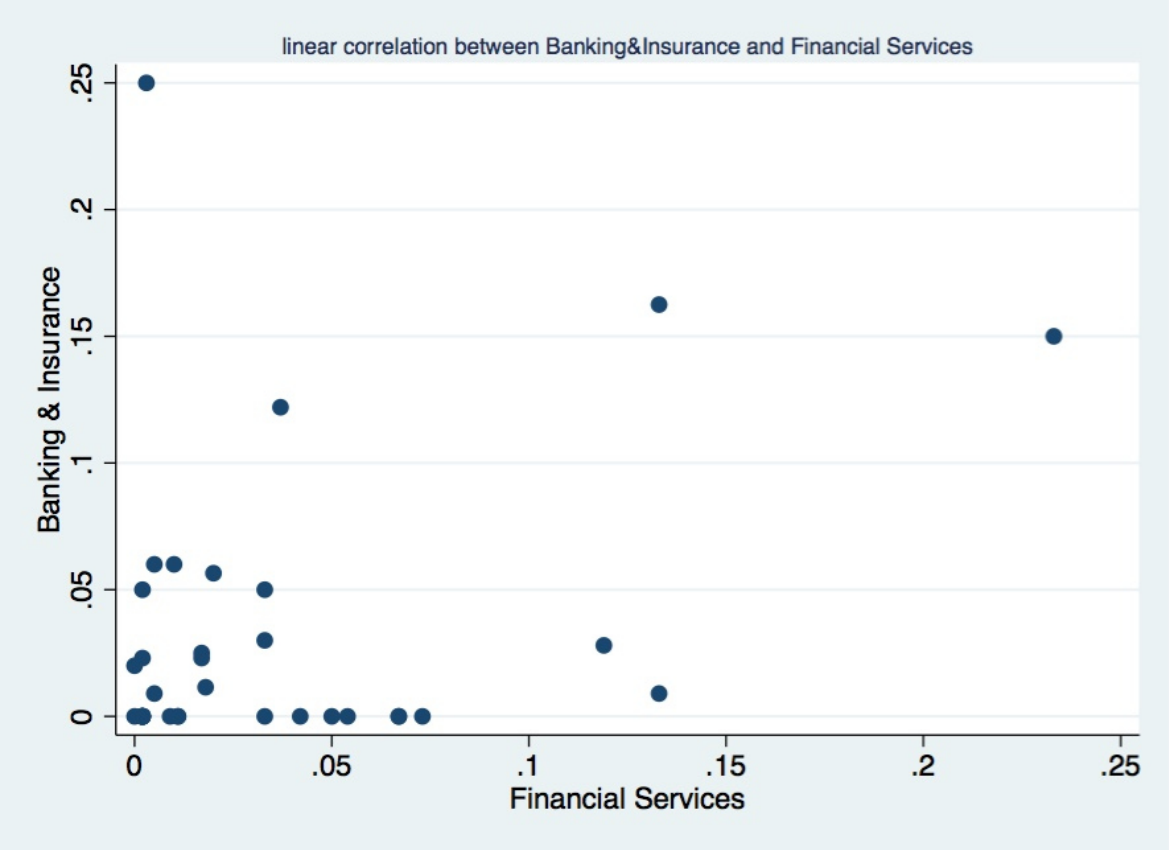
We have a positive significant correlation between Total and Financial Services (at the significance level of .05).

```
. spearman Total FinancialServices

 Number of obs =      36
Spearman's rho =      0.0885

Test of Ho: Total and FinancialServices are independent
    Prob > |t| =      0.6079
```

Figure 26: Linear Correlation Between Banking&Insurance and Financial Services



Appendix 8: Banking and Insurance in Europe

Many insurance companies and financial conglomerates, respectively (in Europe there were 83 conglomerates in 2016, up from 75 in 2009) could be exposed to BREXIT risk and increased risk premia on Pound-denominated bonds in the context of BREXIT. The knowledge about systemic risk is rather limited; insurance companies could be exposed to spillovers from banks on the one hand, on the other hand insurance companies could themselves be a source of spillovers for other financial sector institutions.

The ESRB has published a report on insurance companies in 2017 (ESRB, 2017, Recovery and resolution for the EU insurance sector: a macroprudential perspective, August 2017, Report by the ATC Expert Group on Insurance). One may quote some critical insights here as a quote:

"Within Europe and North America respectively, there could be large spillovers a between different sectors, including insurers. In Asia, non-life insurers and reinsurers seem to be highly interconnected with other sectors in the region. In terms of spillovers across the regions, Europe and North America appear to be the most interconnected, with insurers (in particular life insurers) from Europe having a high potential to transmit spillovers to

the American financial market (IMF 2016a)....A separate analysis for Europe indicated that, before the global financial crisis, insurers were recipients of spillovers from other sectors although, more recently, they seem to have become a source of spillovers (IMF 2016a). Insurers may pose systemic risks arising from their funding and investment activities. Collectively, insurers are among the largest investors in financial assets in the EU. They can contribute to systemic risks through various channels, which include taking up more risks, increasing commonality in asset composition within the financial sector, leading to increased exposure to common shocks ("tsunami risk"), or increasing procyclicality in their investment behaviour. For instance, analysis by the Bank of England concludes that the systemic risk associated with activities of the UK insurance sector that propagate or amplify shocks to financial counterparties or markets may be the greatest source of systemic risk from insurers for the UK (French et al 2015)...

Disruption to systemically important financial counterparties can occur if these institutions no longer have access to funding from EU insurers. Insurers hold large amounts of debt securities and shares issued by banks and other financial institutions in the EU. From the perspective of banks' balance sheets, these accounted for 4% of total bank funding in the euro area in 2014 (ESRB 2015), while, on average, around 13% of debt issues by euro area banks is held by insurers domiciled in the euro area and Sweden...This figure is even higher in some EU Member States, e.g. 28% in Belgium, Greece and Slovakia and 37% in France. The ECB has emphasised that contagion risks from ownership links to banks and other financial institutions are among the most significant risks (ECB 2008)."

ESRB (2015), Report on systemic risks in the EU insurance sector, December

French, A., Vital, M. and Minot, D. (2015), "Insurance and financial stability", in Bank of England (2015) Quarterly Bulletin, Vol. 55 No 3, pp. 242-258

IMF (2016a), Global Financial Stability Report: Potential Policies for a Successful Normalization, April

Appendix 9: Degree of EU Liberalization in CETA

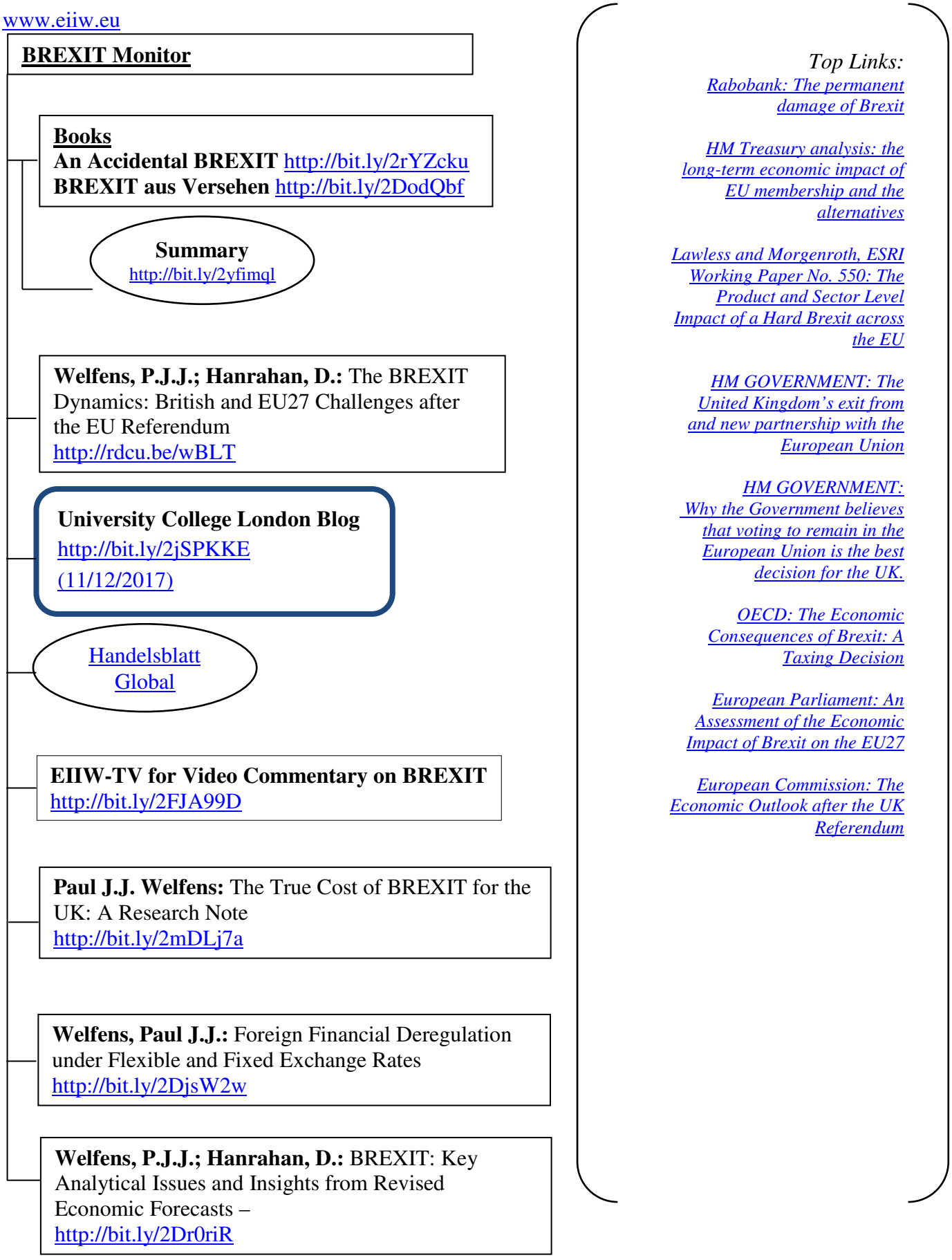
Table 1: Degree of EU liberalisation in CETA

Most liberal and most restricted quartiles marked in green and orange respectively

Description	Market Access	National Treatment	*Share of total services exports**	*Share to the EU**
			Insurance, Pension & Financial services	
Financial services, insurance and pension fund services	21	27	*29.4%*	*41.2%*
			Other Business Services	
Research and development services	68	68	*28.1%*	*34.6%*
Market research, management and consulting and related services	100	100		
Legal, accounting, auditing and book-keeping services	57	52		
Taxation services	83	82		
Architectural, engineering and other technical services	84	85		
Agricultural, mining and manufacturing services	88	89		
Other business services	72	72		
Real estate services	98	97		
Leasing or rental services without operator	92	91		
Sewage and refuse disposal, sanitation and other environmental protection services	92	100		
Retail trade, wholesale trade and repair services	93	96		
Other services not elsewhere included	99	99		
			Travel	
Hotel and restaurant services	100	100	*13.0%*	*42.6%*
			Transportation	
Land transport services	20	33	*11.2%*	*45.0%*
Water transport services	0	0		
Air transport services	14	21		
Supporting and auxiliary transport services	45	69		
Postal and courier services	50	100		
			Telecoms, computer, information services	
Telecommunications services	90	90	*7.8%*	*42.9%*
Computer and related services	100	100		
News agency services	91	91		
			Intellectual Property	
Intangible assets such as patents and copyrights	100	100	*5.6%*	*35.2%*
			Personal, cultural and recreational	
Recreational, cultural and sporting services	21	21	*1.2%*	*23.8%*
Education services	46	46		
Health and social services	32	39		
			Government services	
Public administration, services to the community as a whole	0	0	*1.1%*	*22.4%*
			Construction services	
Construction work; real estate and land acquisition	94	93	*0.7%*	*44.8%*
N.B. Scores range from 0 to 100; 0 indicates unbound restrictions and 100 shows full commitment. The scores combine reservations applying to cross-border trade (modes 1 & 2) and investment (mode 3) where the lowest overall value (most restricted) is reported.			*Data from ONS Pink Book 2017 (authors' own calculations)*	
* The sectors defined in the ONS Pink Book (in the grey rows) have as far as possible been matched with the sectors in CETA (in the first column), but due to some differences in classification the sectors are not perfectly comparable.				

Source: Magntorn, J.; Winters, A.L. (2018), Can CETA-Plus solve the UK's services problem?, UK Trade Policy Observatory, Briefing Paper 18 – March 2018

Figure 27: Elements of Brexit Monitor



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