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# POTENTIAL IMPLICATIONS OF BREXIT: A SUPERVISORY AND FINANCIAL STABILITY PERSPECTIVE

**Financial Stability Division**

# Contents

# Potential Implications of Brexit: A Supervisory and Financial Stability Perspective

## Executive Summary

The UK government is committed to holding a referendum before end-2017 on the question of whether the UK should remain in or leave the European Union. A UK withdrawal from the EU could have significant political, social and economic implications for Ireland. Given Ireland's strong linkages with the UK, it is within the objectives of the government to protect Ireland's economic relationship with the UK as much as possible. Furthermore, Irish financial authorities intend to work closely with their British counterparts towards ensuring that the economic fall-out of a potential Brexit would not be unfavourable to Ireland and that the strong relationship is maintained. This Report draws on analysis produced across a wide range of areas of the Central Bank of Ireland and examines potential economic and financial sector effects. It focuses in particular on issues relevant for the supervisory and financial stability mandates of the Central Bank and identifies a number of areas where further work might be needed.

### Scenarios

There are potentially three stages in the process of arriving at a new settlement between the UK and EU. First is a period of renegotiation of the terms of EU membership before the time of the referendum. In the event of a vote for the UK to leave the EU, the second stage will likely involve a negotiated withdrawal under Article 50 of the EU Treaties. Article 50 allows the UK to notify the EU of its withdrawal and obliges the EU to negotiate a withdrawal agreement over a two-year period. Following an exit, the third stage would be the transition to a new relationship between the UK and EU. The process would likely be prolonged and economic and financial sector effects could be significant, depending on the nature of the new relationship between the UK and EU.

Three potential Brexit scenarios are considered in this report, namely a Norwegian-type scenario whereby the UK becomes a member of both the EEA and EFTA (the best case); a scenario involving bilateral trade accords (the base case); and a scenario whereby no agreement is reached and the UK trades with the EU under WTO rules on a most-favoured-nation (MFN) basis (the adverse case). The best case would have relatively minor spillover

effects, as EEA membership offers full access to EU financial markets [redacted] it would leave the UK in a position where it would still have to adopt EU standards and regulations but would not have formal influence over EU policy design and implementation. Under the base case scenario, the UK and EU agree a bilateral trade treaty or treaties loosely modelled on EU/Swiss trade agreements. Access to EU financial services markets would vary across sectors and directives depending inter alia on the equivalence of regulations. [redacted] and would have economic and financial market spillover effects. Finally, the worst-case scenario is where the UK and EU do not conclude a trade agreement and instead the UK exercises its rights under the MFN clause of the WTO. Under this scenario the EU can restrict access to regulated financial services markets in the EU and a considerable impact on trade and investment could be expected. [redacted] it is not in the interests of either the UK or the EU, but could arise by default if no deal can be reached.

**Macroeconomic Effects**

The key economic channels through which Brexit would impact Ireland include trade, FDI and the labour market. Potential financial market effects include market volatility, likely depreciation of sterling vis à vis the euro and possible effects on sovereign bond yields. The effects may differ quite considerably depending on the nature of the exit scenario and different modelling approaches used. The estimates produced in Section 2.2 are for an impact on the level of real GDP (deviation from the baseline) ranging from -0.3 to -1.5 per cent after five years and -0.5 to -2.7 per cent after ten years. While not insignificant, these effects do not point to major macroeconomic adjustment. This largely reflects the degree to which the economy has diversified away from reliance on the UK economy over recent decades. The employment effects are estimated to be relatively modest, with the labour market reaction reflected more in wage effects, although a more pronounced effect on unemployment would be expected in the event of restrictions on access to the UK labour market. While inward FDI flows in some sectors might be boosted by a UK exit, this could be offset if the UK lowers corporate taxes or otherwise increases incentives for inward FDI flows. As always with model-based estimates, there is a significant degree of uncertainty surrounding the results and a number of caveats are noted in the report. The results represent the range of expected outcomes under different scenarios and more adverse outcomes cannot be ruled out.

The potential direct impact on the Central Bank balance sheet from financial market effects was assessed, notably the effect of an increase in credit spreads on Irish sovereign debt. Some impact would be expected on the scale of realised gains from disposals of the remaining floating rate notes as well as their carrying value. The potential impact is not thought to be significant or out of line with normal market risks.

**Banking Sector**

[redacted] The main effects would arise as a result of the expected slowdown in the UK economy and the impact on certain sectors. [redacted]

[redacted]

A disorderly Brexit is likely to be associated with a loss of access to European markets for UK based financial services firms. It is probable that some of these firms, including banks, will look to expand / relocate / set up operations in Ireland to mitigate these effects. In this event, the impact on the Irish banking sector may be significant, with positive and negative consequences from a macroeconomic perspective and a direct impact on the Central Bank's work (e.g. arising from increased numbers of authorisations, changes in type and complexity of business models, increase in the number of third country branch applications, etc.).

At this time, the probability and impacts of a Brexit are difficult to model. Notwithstanding this, [redacted] Moreover, Brexit will form part of the Central Bank's on-going supervisory engagement with all of the licensed banks conducting business in Ireland that would be materially impacted by this event. [redacted]

**Insurance**

Depending upon the exit mechanism and post-exit relationship with the EU, Irish insurers may face restrictions upon their ability to conduct cross-border insurance business into the UK, and vice-versa. The severity of this impact will vary depending upon the business models of individual insurers, the implications naturally being greater for those insurers whose business models are predominantly based upon underwriting UK based risks. Some rationalisation of the Irish cross border life and non-life sectors could be expected in the event that sales on a Freedom of Services basis would no longer be permissible. A requirement on Irish insurers to establish branches in the UK would result in smaller participants exiting the market, accelerating a trend towards market consolidation that is already underway;

Under a more adverse Brexit scenario, an inability of insurers based in the UK to access EU markets by any means would be likely to prompt a significant numbers of applications for authorisation in Ireland. Such an influx of UK based insurers could materially alter the size and composition of the Irish insurance sector, requiring increased supervisory resources and capabilities.

Volatility in financial markets could cause losses within Irish insurer's investment portfolios, with a consequent impact upon their overall solvency position, or the solvency position of UK-based parent undertakings. However the results of EIOPA stress tests have provided some indication of Irish insurer's resilience to significant market events.

No immediate risk-mitigation actions have been identified for the Insurance Directorate. The Directorate will assess the extent to which supplementary information and analysis on a Brexit has been considered within insurer's Own Risk and Solvency Assessment ("ORSA"). In the event that a Brexit appears more probable, the Directorate will consider the design and execution of specific stress tests that would deliver a more detailed understanding of vulnerabilities both within individual firms and the wider insurance sector.

**Markets Directorate Firms**

Based on the information that was available to the Markets Directorate at the time of drafting this assessment, it is anticipated that the overall business impact of a UK withdrawal on existing 'Markets Directorate firms' should be limited. Depending on the format of a Brexit, the loss of access to a UK client base may result in closures of certain firms although the removal of UK competitors may benefit other firms. Irish branches of 'UK firms' and UK branches of 'Irish firms' may be required to close and some migration of firms from the UK to Ireland may occur as a result.

A Brexit could be disruptive in the short term for funds (as well as other entity types) as a large degree of legal / contract novation and repapering may be required. The Markets Directorate would expect to have an increase in regulatory applications as a result of any form of Brexit, which would have staffing implications in relation to resourcing and expertise required.

Staff of the Markets Directorate work closely with their counterparts in the FCA / PRA in a number of areas (such as supervisory colleges, market abuse investigations and on policy work through European Supervisory Authority working groups). [redacted]

No items have been identified for immediate action by the Central Bank / Markets Directorate. This statement is subject to on-going review in accordance with developments that may arise.

**Financial Market Infrastructure**

The report also examines the possible impact of a Brexit from a financial market infrastructure (FMI), deposit guarantee scheme (DGS) and collateral framework perspective. The analysis points to the impact of a Brexit on the DGS and the collateral framework appearing to be manageable. However the potential effects of a Brexit may have significant impacts on FMIs especially in relation to Ireland. [redacted] Further work will be undertaken by the Financial Operations Directive, in collaboration with IFFS and other stakeholders, to put in place authorisation and supervisory processes and procedures should a CCP or CSD decide to re-locate to Ireland from the UK.

**Assessment**

Recent political events in the UK, including the results of the general election and the Labour Party leadership election, point to the difficulty in anticipating with any confidence how the UK referendum on EU membership will turn out. The financial sector effects of a UK withdrawal as outlined in this report include the impact on business activity and business models of Irish-based financial institutions, the potential for new international financial services firms or activities to locate in Ireland, and implications for the Central Bank relevant for its supervisory and financial stability mandates.

Overall, the effects of a UK withdrawal from the EU on Irish-based financial institutions could be material. Some impact on activity and profitability would be experienced and the extent of this would vary across firms and sectors and depending on the nature of the new relationship agreed between the UK and EU. Given the challenging environment facing domestic retail banks and non-life insurance companies, in particular, even relatively minor effects need to be factored into future planning. It is clear that firms across most parts of the financial sector have not given adequate consideration to potential implications of Brexit. The Central Bank has been engaging with them in this regard and the findings of this report as well as any follow-up work across Directorates provide a basis for further and more specific engagement.

A second channel through which Brexit would impact on the Irish financial system is foreign direct investment. New applications for financial services firms to locate here would pose challenges to the Central Bank from a supervisory perspective. Important issues for consideration in this regard include whether increased resources would be required to accommodate additional authorisation requests, whether the appropriate skills base exists for supervision of any new types of activity and whether any strategic consideration is necessary regarding the type of firms or activities that might seek to locate here.

Additionally, applications from financial market infrastructures including central counterparties (CCPs), securities settlement systems (SSSs), central securities depositories (CSDs) and payments systems are a possibility, although these could materialise even with no Brexit. [redacted] and further work will be undertaken by the Financial Operations Directive in order to prepare for any eventualities. No major effects on the deposit guarantee scheme or collateral framework are anticipated.

**The Commission is requested to note:**

**The potential economic and financial sector impacts of a UK exit from the EU as laid out in this report, including:**

- **possible Brexit scenarios;**
- **potential impact on the Irish macroeconomy;**
- **potential impact across the Irish financial sector (banks, insurance, funds and financial market infrastructures);**
- **supervisory and financial stability implications for the Central Bank.**

## 1. Introduction

The UK government is committed to holding a referendum before end-2017 on the question of whether the UK should remain in or leave the European Union. A UK exit would have political, social and economic implications for Ireland, depending on the settlement that emerges. This preliminary report examines potential economic and financial sector effects with particular focus on issues relevant for the mandate of the Central Bank. The report draws on analysis produced across a wide range of areas of the Central Bank1 and is intended as a basis for consideration of whether further analysis is needed of potential effects or whether any preparatory actions are required to mitigate potential risks that might arise.

There are potentially three stages in the process of arriving at a new settlement between the UK and EU. First is a period of renegotiation of the terms of EU membership before the time of the referendum. Bilateral legal and technical discussions are currently underway and official negotiations are due to begin in October. It is unclear what these negotiations will cover but speeches from Prime Minister Cameron in recent months point to a focus on issues like immigration and welfare, better regulation, extending the single market in services and strengthening the position of non-euro area states in EU policy discussions. Some market uncertainty can be expected during this period, depending among other things on the probability that an agreement can be reached that would be accepted by the British public in the referendum.

In the event of a vote for the UK to leave the EU, the second stage will likely involve a negotiated withdrawal under Article 50 of the EU Treaties.2 Article 50 allows the UK to notify the EU of its withdrawal and obliges the EU to negotiate a withdrawal agreement over a two-year period. During this period EU laws would still apply to the UK but the UK would not participate in EU discussions or voting on its own withdrawal and there is no guarantee that the terms would be acceptable to the UK. While, the EU cannot block withdrawal or delay it for longer than the two-year period, the two-year time frame can be extended if both parties agree.

[1] [1] The Divisions that contributed to the Report include FSD, BSSD, IFFS, SMSD, Life, Risk, IEA, PSSD, ORD, FMD, PPD and SRU.

[2] A unilateral withdrawal is an alternative option, which would require the UK to repeal the 1972 European Communities Act, but is considered very unlikely. The implications of this scenario for Ireland can be compared to the worst-case scenario discussed in Section 2.

Following an exit, the third stage would be the transition to a new relationship between the UK and EU. This process would likely be prolonged and could be highly uncertain. Economic effects during this period would include the impact on economic growth, trade, the exchange rate, FDI flows and the impact on the UK financial sector, including loss of some business to other European financial centres including possibly Ireland. These will be largely determined by the nature of the new relationship between the UK and EU.

**Section 2** of this report looks at potential Brexit scenarios and possible macroeconomic effects. Three possible scenarios for this new relationship are identified in 2.1, namely a Norwegian-type scenario whereby the UK becomes a member of both the EEA and EFTA (the best case); a scenario involving bilateral trade accords (the base case); and a scenario whereby no agreement is reached and the UK trades with the EU under WTO rules on a most-favoured-nation (MFN) basis (the adverse case). The best case would have relatively minor spillover effects, as EEA membership offers full access to EU financial markets. [redacted] it would leave the UK in a position where it would still have to adopt EU standards and regulations but would not have formal influence over EU policy design and implementation. For these reasons this scenario is not formally assessed. Under the base case scenario, the UK and EU agree a bilateral trade treaty or treaties loosely modelled on EU/Swiss trade agreements. Access to EU financial services markets would vary across sectors and directives depending inter alia on the equivalence of regulations.[3] [redacted] and would have economic and financial market spillover effects. Finally, the worst-case scenario is where the UK and EU do not conclude a trade agreement and instead the UK exercises its rights under the MFN clause of the WTO. Under this scenario the EU can restrict access to regulated financial services markets in the EU and a considerable impact on trade and investment could be expected. [redacted] it is not in the interests of either the UK or the EU, but could arise by default if no deal can be reached, and as the effects would be significant it is therefore formally assessed. This section also notes potential implications of decreased UK influence in the setting of European regulatory policy.

Possible macroeconomic effects for Ireland under these scenarios are explored in section 2.2. The close relationship between the Irish and UK economies creates a particular exposure for

[3] Switzerland for example has equivalence under AIFMD, is being assessed under Solvency II, will try under MIFID but has failed under EMIR (Global Counsel Report, June 2015).

the economy from Brexit. The key economic channels through which Brexit will impact Ireland will be through the effects on trade, FDI and the labour market. The results show that the effects differ quite considerably depending on the nature of the exit scenario and different modelling approaches used. While inward FDI flows in some sectors might be boosted by a UK exit, this could be offset if the UK lowers corporate taxes or otherwise increases incentives for inward FDI flows. In section 2.3, the potential impact of the scenarios for the Central Bank's profitability and capital position are considered, notably through the effect of adverse movements in credit spreads on income and the value of the FRN portfolio.

**Section 3** discusses possible effects on the financial services sector, including banking, insurance and other financial firms, including funds. While the approach taken in this Section varies according to the nature of the issues that might arise for each sector and depending on the scenarios, for all sectors the following three questions are considered: (1) what are the possible implications for the sector; (2) what are the potential risks for the sector; (3) what supervisory/regulatory issues might arise for the Central Bank.

The most relevant potential implications for the Irish banking sector include effects on profitability and asset quality from the potential slowdown in UK and Irish economic growth. Financial market developments including increased market volatility, potential rating agency actions, impact on funding costs and losses incurred on available for sale assets are also discussed. [redacted] It is noted that the IMF FSAP provides an opportunity to undertake a stress test in order to better understand the magnitude of the risks under different scenarios. Finally, the section also examines direct regulatory impact on banks operating on a cross-border basis and the potential for a significant increase in authorisation requests, and the type of authorisation requests, for new banking licences.

Section 3.2 on the insurance sector considers the implications for life and non-life insurers whose business models are likely to be materially impacted by a Brexit. In addition, the more immediate effects of heightened financial market volatility are discussed as well as longer term issues for the sector as a whole. [redacted] insurers have not yet given sufficient consideration to potential impact and the Central Bank will continue to engage with firms on this issue – including through the Own Risk and Solvency Assessment (ORSA). As with other sectors, the potential exists for an increase in the volume of new licence applications and other additional supervisory requirements with resulting resourcing implications for the Insurance Directorate.

Potential effects on firms and sectors under the remit of the Markets Directorate are discussed in section 3.3. The section addresses MiFID Investment Firms and Client Assets, Fund Service Providers and Funds, market integrity issues, and regulated disclosures and short-selling. It is anticipated that the overall business impact of a Brexit on existing firms should be limited. However, a significant increase in regulatory applications from firms seeking access to the EEA market would be expected, including potentially for new types of business, e.g. Central Securities Depositories, Central Counterparty Clearing Houses etc. Some of these potential implications for financial market infrastructures are outlined in section 3.4. It is noted that these infrastructures may seek to establish in Ireland irrespective of the UK's standing vis-à-vis the EU but the probability would be increased if the UK were to leave the EU. This section also considers the issues that might impact on the deposit guarantee scheme (DGS) and possible outcomes on the collateral management framework.

**Section 4** provides an overall assessment of potential financial stability and supervisory/regulatory implications of Brexit for Ireland. It also describes ongoing supervisory engagement with firms on potential risks if a UK withdrawal occurs and considers further work that might need to be undertaken to further assess potential risks.

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## 2. Brexit Scenarios and Macroeconomic Impact

### 2.1 Brexit scenarios

This section will describe the scenarios by which the impact of Brexit will be assessed by the Central Bank. The scenarios assume that the British electorate vote to exit the EU in the forthcoming EU membership referendum. Three scenarios are considered:

- Best-case scenario: the UK leaves the EU and joins the European Free Trade Area ( "EFTA") and the European Economic Area ("EEA") in order to retain access to EU markets. [redacted]
- Base-case scenario: the UK and the EU conclude a bilateral trade agreement. UK GDP is adversely impacted. Sterling depreciation and declines in both UK property prices and financial markets follow. [redacted]
- Worst-case scenario: the UK and the EU do not conclude a trade agreement which leads to a significant negative adjustment to UK GDP. Sterling suffers a significant depreciation versus major currencies, a severe UK property market crash and adverse moves in financial markets follow. [redacted]

Each scenario is illustrative and intended as a guide to possible outcomes. They are not scientific and members of the taskforce are free to consider issues outside of these scenarios.

The scenarios assume that Brexit will result in a series of adverse shocks to international trade and economic growth. These shocks will have a negative impact on currency markets, financial markets and the UK property market. Brexit would also have implications for the structure of the financial sector in the UK, due for example to the effect on the attractiveness of the city of London as a location for inward FDI. These are the transmission mechanisms through which risks to financial stability, regulated entities and the Central Bank are likely to materialise.

In the best-case scenario the range of outcomes are benign and any increase in volatility does not persist. However, the base-case and worst-case scenarios have a range of adverse shocks that persist over the medium term. These scenarios differ in terms of how severe the shocks and the adverse reactions are. In the base-case scenario it is assumed that the shock results in a two standard deviation adverse change in financial variables, while in the worst-case scenario it is assumed that the shock leads to at least a three standard deviations adverse change in financial variables.

### 2.1.1 Scenario 1: Best-case Scenario

Prior to leaving the EU, the UK negotiates membership of the EFTA and the EEA. The UK maintains full access to the Single Market and while the economic fallout is minimised, the political cost for the UK is high; Britain remains a net contributor to the EU budget but would lose voting rights and influence. This scenario is both economically benign for Ireland [redacted] we do not recommend formally assessing the impact on supervised entities and financial stability under this scenario.

### 2.1.2 Scenario 2: Base-case scenario

This scenario assumes that the UK and EU agree a bilateral trade treaty that is loosely modelled on EU/Swiss trade agreements. The EU has a trade surplus in manufactured goods with the UK while the UK has a trade surplus in financial services with the EU. The trade agreement allows for full access to EU goods markets but at the cost of only partial access to EU financial services markets. This quid pro quo scenario will have an impact on EU/UK trade, leading to economic and financial market spill-overs. [redacted]

#### i) Trade impact

The UK and EU conclude a bilateral trade agreement. The impact on trade is described below:

- **Goods:** The UK retains full access to EU Single Market in goods.
- **Services:** The UK negotiates partial access to EU markets in regulated financial services:
    - **Banking:** UK banks lose access to retail and commercial banking markets within the EU (and vice versa).
    - **Investment banking:** UK banks providing MiFID investment services retain access to EU markets, and vice versa.

  - **Insurance:** UK insurance entities retain access to EU (re)insurance markets on a branch (FOE) basis, and vice-versa. However, direct access via Freedom of Services would be unavailable.
  - **Investment firms:** UK MiFID firms retain access to EU markets (and vice versa) while UK investment firms lose access to AIFMD markets.
- **Impact on Financial Sector:** This scenario would diminish the attractiveness of London as a location for international financial services firms wishing to access EU markets. Some firms are likely to consider Dublin as a viable alternative location within the EU.

**ii) Central Bank impact**

- **Supervision:** The impact of this scenario on regulated entities is addressed through the existing supervisory engagement process. For example, the different transmission mechanisms will result in risks that are assessed under business model/strategy risk, market risk, operational risk, etc., as the case arises.
- **Central Bank balance sheet:** The impact that a financial market shock resulting from Brexit will have on the balance sheet of the Central Bank is assessed in section 2.3 - Impact on Central Bank's Profitability and Capital Position.
- **Policy:** The UK ceases to be a member of the EBA, EIOPA and ESMA. This could potentially alter the regulatory agenda. The Policy and Risk Directorate should conduct an assessment of the impact that Brexit may have on the policy and regulatory agenda.
- **Authorisations:** UK firms losing access to EU markets are likely to seek authorisation in another EU jurisdiction following Brexit. It is not possible to estimate the number of firms seeking authorisation, but a meaningful increase in the number of UK firms seeking an authorisation in Ireland should be expected (See Annex 1.2).

**iii) Macro-economic impact**

A macro-economic assessment of the impact of Brexit on the UK economy was recently undertaken by Open Europe and the London School of Economics and that work is utilised in this scenario. The loss of market access to certain parts of the EU Single Market in financial services is likely to have an adverse impact on UK GDP growth. The macroeconomic impact on Ireland is provided by the Irish Economic Analysis Division ( "IEA") in Section 2.2.

- **UK GDP:** Open Europe (see Annex 1.1) has run a detailed economic impact assessment of Brexit. They conclude that the base-case economic impact is a -0.81% hit to GDP extending from 2017 to 2030. A team of researchers at the London School of Economics have simulated the UK leaving the EU. They assess that the most optimistic impact on UK GDP is a static loss to UK GDP of -1.23% (see Annex 1.1). The possibility is that these losses would increase when moving from a static to a dynamic scenario.
- **UK property prices:** Any decline in UK GDP resulting from Brexit is assumed to negatively impact UK property prices. The impact would likely be greater in London on account of (i) the importance of financial services for London economy and (ii) the valuation of London property relative to its historical valuation trends. UK residential property is currently valued above the long-run mean valuation (Annex 1.4 for details). The impact on property prices is as follows:
    - **UK residential property prices (ex-London):** The scenario assumes that property valuations partially revert to the long run mean valuation and that this results in a decline in prices. The base-case scenario assumes a 50% reversion to the mean over 18 months. For example, if assessed presently this scenario would imply a 16% decline in UK residential property values (ex-London).
    - **London residential property prices:** Residential property prices in London are valued at record highs (currently 2.7 standard deviations above the long-run average). The scenario assumes that price declines account for 50% reversion to the long-run mean valuation. For example, this would imply a peak-to-trough house price decline of 23% in London.
    - **Mortgage arrears:** Mortgage arrears would be expected to increase. Further work is recommended in order to determine sensitivities. Between 2007 and 2009, UK residential mortgage arrears and repossessions increased from 0.69% to 1.83% of mortgage balances outstanding. See Annex 1.8.
    - **Commercial property prices:** This scenario assumes that prime commercial yields increase to long-run average of 5.4% (from 4.1% presently).

## iv) Financial market impact

The macro-economic impact would play out over the medium-term; however, the financial market impact would be front-loaded and occur in the months following a Brexit referendum.

**Table 2.1.1: Base-case scenario impact**

| Instrument | Magnitude | Change | Description |
|---|---|---|---|
| GBP/EUR | 2 std. dev. | -4.9% | depreciation of Sterling in first month |
| UK 2 year gilt yields | 2 std. dev. | 48.3 | increase in 2 year gilt yields (bps) |
| UK 10 year gilt yields | 2 std. dev. | 44.8 | increase in 10 year gilt yields (bps) |
| Irish sovereign bonds | TBD * | | Expect some adverse move in yields |
| Corporate bond markets | Spreads over sovereign widen by up to 200bps for IG Corporates | | |
| - Bank debt | | | Up to 150bps widening across the rating structure |
| UK Equity market | Similar to 2001-03 | | 30% decline with 20% in Brexit month |
| UK residential property (ex London) | 50% mean reversion | -16% | price decline over 18 months |
| London residential property | 50% mean reversion | -23% | price decline over 18 months |

* It is not possible to assess the impact of Brexit on Irish sovereign bond yields.

- **Exchange rates:** The scenario assumes that Sterling/Euro exchange rate will depreciate by up to two standard deviations of monthly returns. Volatility of this magnitude is consistent with the price behaviour of Sterling/Euro and Sterling/Deutschmark around major financial market events. See Annex 1.5 for details.
- **UK bond yields:** The scenario assumes a two standard deviation increase in UK government bond yields across the yield curve. See Annex 1.6 for details. If this scenario was assessed in July 2015, it would have corresponded to a 48 basis points (bps) increase in the 2-year yield and a 43bps increase in the 10-year bond yield.
- **Irish bond yields:** The perceived credit worthiness of the Irish sovereign will be a key determinant of Irish government bond yields. As such it may be useful to consider the likely evolution of Irish debt/GDP ratios in conjunction with economic scenarios detailed in Section 2.2. While it is prudent to assume that an event such as Brexit will have a negative impact on Irish government bond yields, it is difficult to be prescriptive about the magnitude of that impact. **Other sovereign bond yields:** to be assessed.
- **Corporate bond spreads:** The base-case scenario assumes that investment grade corporate spreads widen by up to 200bps over benchmark sovereign yields while spreads on senior bank debt move to 150bps over benchmark. This move would be proportionate across the ratings universe.

- **Equity indices:** The scenario assumes that equity indices decline by 30% in a 12 month period following Brexit with 20% decline occurring in the first 2 months. This is similar to the decline in the FTSE 100 index in the 2001-2003 equity bear market.

### 2.1.3 Scenario 3: Worst-case scenario

This scenario assumes that the UK leaves the EU without concluding a trade agreement. Instead, Britain exercises its rights under the Most-Favoured-Nation ("MFN") clause of the World Trade Organisation ("WTO") agreement. Under this scenario, the EU can restrict access to regulated financial services markets in the EU. In retaliation, the UK closes off access to financial services markets to EU firms.

#### i) Trade impact

**The negative impact on trade** would be considerable with regulated financial services being among the most heavily impacted sectors. Access to the Single Market in financial services by British firms is lost following Brexit. Irish regulated firms that either sell into the UK market or procure services from British regulated entities are likely to face severe disruption to trade up to and including a loss of access to the UK market.

- **Impact on Financial Sector:** This scenario would be severely damaging to the City of London as a location for international financial services firms who want to access EU markets. Some firms would view Dublin as a viable alternative location within the EU.

#### ii) Central Bank impact

- **Supervision:** The impact of this scenario on regulated entities is addressed through the existing supervisory engagement process.
- **Central Bank balance sheet:** The impact that a financial market shock resulting from Brexit will have on the balance sheet of the Central Bank is assessed in section 2.3 - Impact on Central Bank's Profitability and Capital Position.
- **Policy:** The UK ceases to be a member of the EBA, EIOPA and ESMA. This could potentially alter the regulatory agenda. The Policy and Risk Directorate should conduct an assessment of the impact that Brexit may have on the policy and regulatory agenda.

- **Authorisations:** UK firms losing access to EU markets are likely to seek authorisation in another EU jurisdiction following Brexit. It is not possible to estimate the number of firms seeking authorisation but a significant increase in the number of UK firms seeking an authorisation in Ireland should be expected. (See Annex 1.2).

**iii) Macro-economic impact**

A macro-economic assessment of the impact of Brexit on the UK economy was recently undertaken by Open Europe and the London School of Economics and that work is utilised in this scenario. The loss of market access to certain parts of the EU Single Market in financial services is likely to have an adverse impact on UK GDP growth. The macroeconomic impact on Ireland is provided by the Irish Economic Analysis division ( "IEA") in Section 2.2.

- **UK GDP:** Open Europe (see Annex 1.1) has run a detailed macro-economic impact assessment of Brexit. They conclude that the worst-case scenario is a -2.2% hit to GDP extending from 2017 to 2030. A team of researchers at the London School of Economics have simulated the UK leaving the EU. They assess that the most optimistic impact on UK GDP is a static loss to UK GDP of -3.09% (see Annex 1.1).
- **UK property prices:** Any decline in UK GDP resulting from Brexit is assumed to negatively impact UK property prices. The impact will be greater in London on account of (i) the importance of financial services for London economy and (ii) the valuation of London property. UK residential property is currently valued above the long-run mean valuation (Annex 1.4 for details). The impact on prices is as follows:
  - **UK residential property prices (ex-London):** The worst-case scenario assumes a 100% reversion to the long run mean valuation, leading to significant declines in property prices. As an example, if this scenario were to materialise presently it would result in a 32% decline in residential property values (ex-London).
  - **London residential property prices:** Residential property prices in London are valued at record highs (currently 2.7 standard deviations above the long-run average). The scenario assumes that price declines account for 100% reversion to the long-run mean valuation. As an illustration this would imply a peak-to-trough house price decline of 47% in London.

- **Mortgage arrears:** Mortgage arrears would be expected to increase and further work is recommended in order to determine sensitivities. Between 1989 and 1992, UK residential mortgage arrears and repossessions increased from 0.83% to 4.24% of mortgage balances outstanding.
- **Commercial property prices:** This scenario assumes that prime commercial yields increase to long-run average of 8.0%. For example, if rental yields increased from the current value of 4.1% to 8.0%, this would imply a 48% decline in prime commercial property values. This scenario is more severe than the downturn in UK commercial property during the global financial crisis.

### iv) Financial market impact

While the macro-economic impact would play out over the medium-term, the financial market impact would be more immediate.

**Table 2.1.2: Worst-case scenario impact**

| Instrument | Magnitude | Change | Description |
|---|---|---|---|
| GBP/EUR | 4 std. dev. | -9.7% | Similar to ERM crisis |
| UK 2 year gilt yields | 3 std. dev. | 72.4 | increase in 2 year gilt yields (bps) |
| UK 10 year gilt yields | 3 std. dev. | 67.1 | increase in 10 year gilt yields (bps) |
| Irish sovereign bonds | TBD * | | Expect some adverse move in yields |
| Corporate bond markets | Spreads over sovereign widen by up to 450bps for IG Corporates | | |
| UK Equity market | Similar to 2007-09 | | 40% decline |
| UK residential property (ex London) | 100% mean reversion | -32% | price decline over 18 months |
| London residential property | 100% mean reversion | -47% | price decline over 18 months |

* It is not possible to assess the impact of Brexit on Irish sovereign bond yields.

- **Exchange rates:** This scenario assumes that the Sterling/Euro exchange rate will depreciate by four standard deviations of monthly returns followed by several volatility aftershocks. This is equivalent to the depreciation of Sterling against the Deutschemark following Britain's exit from Exchange Rate Mechanism ("ERM"). If this scenario was assessed in July 2015, this would correspond to a 10% point weakening of Sterling versus the Euro in month 1 followed by a further weakening in month two.
- **UK bond yields:** The scenario assumes a three standard deviation increase in UK government bond yields across the yield curve. For example, if this scenario was

assessed in July 2015, it would have implied to a 72bps increase in the 2-year yield and a 67bps increase in the 10-year bond yield.

- **Irish bond yields:** The perceived credit worthiness of the Irish sovereign will be a key determinant of Irish government bond yields. As such it may be useful to consider the likely evolution of Irish debt/GDP ratios in conjunction with economic scenarios detailed in Section 2.2. While it is prudent to assume that an event such as Brexit will have a negative impact on Irish government bond yields, it is difficult to be prescriptive about the magnitude.
- **Corporate bond spreads:** The worst-case scenario assumes that corporate spreads widen to 450bps over benchmark yields. This is similar to the widening in corporate bond spreads during 2008/09. This move in spreads move would be proportionate across the ratings universe.
- **Equity indices:** The scenario assumes that equity indices decline by 40% in the 18 month period after Brexit with 25% decline occurring in the first two months. This is similar to the equity market correction from late 2007 to early 2009.

[redacted] The usefulness of this type of scenario is in assessing the maximum potential downside-risk to financial stability from a remote but high-impact event.

### 2.1.4 Impact on regulatory policy and framework

The three European Supervisory Authorities[4] (ESAs) main agenda is to play a central role in the regulation and policy framework so as to develop and maintain a single rule book with a set of harmonised prudential rules which institutions and financial markets throughout the EU must respect. The UK actively contributes via the ESA governing bodies and working groups and this significant participation (both in terms of expertise and resources) will cease within a Brexit scenario.

Due to the size of their financial sector and the broad range of activities it engages in, the UK is a prominent voice and major contributor on a number of key policy issues addressed by the ESAs. As the Irish legal system corresponds to a certain extent with the UK legal system and Ireland's financial sector somewhat depends on UK infrastructure, Ireland and the UK tend to, though not always, have common views on framing regulatory and legislative requirements and would ally themselves in ESA discussions. Whilst the effect of their absence would be considerable at an overall level, from an Irish perspective our participation would not change significantly at EBA and EIOPA [redacted]

As the UK is not a member of the SSM, they currently provide a useful independent perspective to ESA discussions and this type of contribution may be diluted significantly if the UK were no longer involved. The knock on effect on voting rights will also need to be considered to ensure adequate representation of SSM and non-SSM participants.

The regulatory framework which will govern the UK post Brexit will depend on whether they opt to remain within the EEA or not. If not, the UK regime would need to be assessed under the third country equivalence regime. Any scope for potential regulatory arbitrage would need to be considered by the ESAs.

Overall, whilst the effect on the UK's involvement at the ESAs or lack thereof would be immediate, it is unlikely that the impact would be excessively negative in terms of Ireland's participation. That said, as previously noted, Ireland's policy positions are often aligned with the UK at ESA level. To this end, Ireland could prepare for a potential Brexit by further

[4] European Banking Authority (EBA), European Securities and Markets Authority (ESMA), European Insurance and Occupational Pensions Authority (ESMA).

strengthening relationships with other Member States with similar policy perspectives within the ESAs. However, this may not necessarily replace fully the value added by our relationship with the UK - therefore it would also be imperative for Ireland to continue to foster these positive relationships that have been developed with the UK through our involvement in the ESAs on an on-going basis, even in a post Brexit scenario.

### 2.2 Macroeconomic assessment

The close relationship between the Irish and UK economies creates a particular exposure for the Irish economy from Brexit. The economic impact of Brexit on Ireland will, ultimately, be influenced by the nature of the withdrawal agreement between the EU and the UK and the subsequent evolution of the UK economy. The nature and scale of the eventual macroeconomic impact of Brexit for the Irish economy will be influenced by the extent to which the exit arrangements bring about any change to the free movement of goods, services, capital and labour, currently facilitated through the operation of the EU Single Market. The key economic channels through which the macroeconomic effects of Brexit will be felt will be through the effects on trade, FDI and the labour market.

#### 2.2.1 The impact on trade

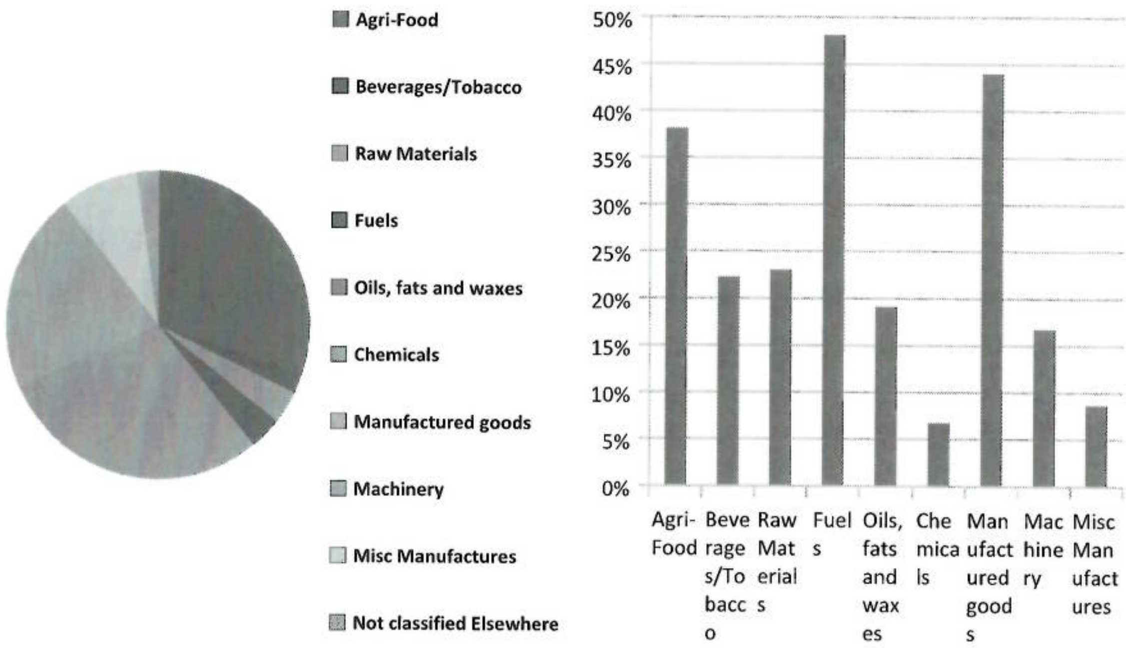
Although still of considerable significance, the importance of the UK as a trading partner for Ireland has declined sharply since Ireland's EU accession, when more than half of Ireland's trade was with the UK. In 2014, the UK accounted for close to 14 per cent of Irish goods exports and just below 18 per cent of Irish services exports, making the UK the second largest single-country destination for goods exports and the largest single-country destination for services exports. In comparison, the EU excluding the UK, now accounts for close to three times the volume of good exports to the UK and around twice the volume of services exports to the UK. This indicates the high dependence of Ireland on the broader EU market.[5]

As regards the composition of trade, the main goods exported by Ireland to the UK in 2014 were food and live animals (30% of total goods exports to the UK), chemicals and related products (29%), and machinery and transport equipment (14%) – see left hand side of Chart 2.2.1. To get a better sense of those sectors most exposed to the UK market, and which would be most affected by the introduction of tariff and/or non-tariff barriers to trade, it is useful to look at sectoral export shares to the UK as a percentage of total exports (right hand side of Chart 2.2.1). Looking at this breakdown confirms that, on the goods side, the UK is a particularly important export destination for indigenous firms. In particular, the UK accounts for a significant share of exports for sectors such as agri-food, clothing and footwear, wood and paper products and building materials. On the services side, almost one-third of computer

[5] A similar point applies to the dependence of the UK on the EU market. At present, close to 50 per cent of UK goods exports and 40 per cent of UK services exports go to EU countries.

services exports go the UK, which is also a significant export market for transport services (15%), financial services (14%) and insurance (13%).

**Figure 2.2.1: Exports by commodity (Pie chart) and UK Share of exports by commodity (RHS)**




Using the approach of Byrne and O'Brien (2015) also confirms that the domestic dominated sectors (goods and services combined) are more reliant on the UK market. Of total Irish exports to the UK, on a value-added basis, 62.7 per cent come from the domestic dominated sectors while 37.3 per cent come from foreign dominated sectors (see Table 2.2.1). In total, the UK exports of domestic dominated sectors make up 26 per cent of their total world exports while, for the foreign dominated sectors, the corresponding figure is 7 per cent.

**Table 2.2.1: UK Trade by Foreign/Domestic Dominated Sectors**

| | Goods | Services | Total |
|---|---|---|---|
| **Exports to the UK by Foreign Dominated Sectors** | 43.9% | 31.0% | 37.3% |
| **Exports to the UK by Domestic Dominated Sectors** | 56.1% | 69% | 62.7% |

*Note: Sectors included as foreign dominated in this table are: Printing and reproduction of recorded media, Chemicals and Chemical Products, Basic Pharmaceutical products and pharmaceutical preparations; Computer, electronic and optical products; Electrical Equipment; Telecommunications, Computer and information services; Audio visual and related services).*

While the potential impact of Brexit on trade typically focusses on the export side, it is important to note that there are some important consequences for imports as well.

Approximately one-third of goods imports into Ireland come from the UK. This largely reflects the sizeable presence of UK retailers in the Irish retail market, many of whom import most of what they sell, giving rise to significant supply chain linkages with the UK. In addition, UK wholesalers are important suppliers to domestically-owned retail outlets. Consequently, any imposition of trade barriers or tariffs between Ireland and the UK as a result of Brexit would not only reduce trade volumes but increase import prices, which would almost certainly be passed on to consumers.[6]

### 2.2.2 Employment

While employment data by export category is not available, inferences as to the potential labour market impact of Brexit can be drawn by examining the pattern of sectoral employment. As noted above, around 30 per cent of Irish goods exports to the UK come from the agri-food sector and the UK is, by far, the most important export destination for that sector. In terms of employment, this sector's share of total employment is slightly less than 2 per cent. The employment shares of other goods producing sectors which are heavily dependent on the UK, such as clothing and footwear, and basic manufacturing and materials, is even lower. While these sectors would have accounted for a greater share of employment in decades past, this is no longer the case. Overall, those goods producing sectors which are more heavily dependent on the UK market now account for a relatively modest share of total employment.

The largest component of services exports to the UK, computer services, is measured in the category 'Information and communication' in the QNHS employment data. The latest data indicate that 82,000 people are employed in this sector. This number refers to total employment in the sector and, given the geographical diversity of ICT exports, the share of employment in the sector which is directly exposed to a UK shock is likely to be low. However, the exposure to the UK of employment in the transport sector, along with the hospitality sector (which combined account for over 12 per cent of total employment), is likely to be greater. With regard to financial services and insurance, the impact on employment, which could either be positive or negative, will be highly dependent on the nature of the UK's exit arrangements and the subsequent relationship with the EU in this area. Overall, therefore, the impact of Brexit on total employment in services sector is

[6] Assuming that any potential depreciation in Sterling following a Brexit is not sufficient to offset the impact of higher tariffs on the margins of retailers in Ireland.

difficult to determine - some sectors may be impacted adversely, while others may either gain or lose employment.

A further potential issue which could impact on the labour market is the possibility that Brexit arrangements may constrain, in some way, the free movement of labour between Ireland and the UK, as a consequence of some restriction on the movement of labour from the EU to the UK. Were this to happen, the impact would be to reduce the migration of workers between the two countries and reduce the extent to which the UK labour market would act as a safety valve limiting any future rise in Irish unemployment. It is difficult to make any plausible assessment of the quantitative impact of such a change, as it would depend on the extent to which the movement of labour was restricted. Also, it is worth noting that there has been a notable shift in the choice of destination of emigrants from Ireland over the past decade, with a sharp decline in the proportion of those going to the UK.

### 2.2.3 Effects on FDI

A separate issue to be considered is the extent to which foreign direct investment (FDI), both into the UK and Ireland, could be affected by Brexit. At present, the UK receives the second largest FDI inflows in the world and the largest in the EU. Approximately, half of the UK's FDI inflows originate outside the EU, with the bulk of these coming from the US. Just under half of the total stock of FDI in the UK is concentrated in financial services. The nature of the Brexit arrangements and any subsequent UK policy responses in this area will determine the extent to which FDI inflows into the UK are affected by UK withdrawal from the EU. To the extent that Brexit affects UK access to EU markets for goods and services and makes the UK less attractive as an export platform, then Brexit may discourage new green-field investment in the UK and also lead some firms currently based in the UK to consider relocating. To the extent that this occurs, Ireland could expect to pick up some share of the relocating FDI or new green-field investment which might otherwise have gone to the UK. At present, just over 3% of FDI which flows into the EU from outside comes to Ireland. However, a factor limiting the diversion of FDI flows from the UK will be the extent to which the UK would respond to such a development with lower corporate taxes or other incentives (as EU state aid rules may no longer apply in a Brexit scenario). To the extent that some parts of the financial services sector may be particularly sensitive to corporate taxes, any such response by the UK could limit the potential positive impact for Ireland on FDI flows.

### 2.2.4 Macroeconomic implications - a model-based approach

In this section, the potential macroeconomic impact of Brexit over a ten year horizon is examined. In the absence of a fully functioning structural model of the Irish economy, a Bayesian Vector Autoregression (BVAR) model is used to evaluate the sensitivity of key Irish macroeconomic aggregates to shocks which approximate what could be expected in the case of Brexit.[7] As with any such exercise a high degree of uncertainty attaches to these simulations. No model will capture the full complexity of the issues, particularly given the historically close ties between the UK and Ireland. Moreover, any policy responses which would be inevitable during any negotiation and implementation phase of a Brexit are not considered in this analysis.

The key channel through which Brexit would impact on the Irish economy is a reduction in foreign demand. Shocks to foreign demand for Irish goods and services consistent with two plausible post-Brexit scenarios are calibrated to trace through the impact on other variables of interest in the model. These include: real exports, real GDP, the real effective exchange rate, compensation of employees, and the unemployment rate. The BVAR is estimated using quarterly data from 1980Q1 to 2014Q4.[8]

The fall in foreign demand that would be expected after Brexit, arises due to the potential increase in tariff and non-tariff barriers which will permanently reduce the level of bilateral trade with the UK. On top of this, it is considered likely that the level of demand in the UK generally would be lower, as UK GDP would be below what it would otherwise have been had it stayed in the EU. The magnitude of these effects depends on the nature of the relationship between the UK and the EU post-Brexit, with two scenarios considered most plausible from a number of previous studies:[9]

1. The UK does not negotiate a bilateral free trade treaty with the EU on exiting, and access to the Single Market is subject to the barriers common to other WTO members without a free trade agreement (*Worst-case Brexit*);

[7] The model is similar to that used in Bermingham and Conefrey (2014). The BVAR is estimated in log levels with lag length as suggested by the Akaike Information Criterion and shrinkage achieved with the standard Minnesota prior.

[8] Data sources include Eurostat, CSO, ECB and BIS. Where published quarterly data are not available for some variables prior to 1997 the series are backcast using the Central Bank's model database.

[9] See for example, Ottaviano *et al* (2014), Open Europe (2015), Aichele *et al* (2014).

2. The UK negotiates a bilateral trade treaty with the EU to retain access to the Single Market as a member of the European Free Trade Association similar to Switzerland (*Base-case Brexit*).

In order to evaluate the impact of these two scenarios we first need to construct a "status quo" baseline for foreign demand over the ten year simulation horizon. For the first three years we use the projections for Irish foreign demand from the June 2015 ESCB Broad Macroeconomic Projection Exercise, with the remaining seven years derived from long-term projections for UK, US and euro area growth from the latest OECD Economic Outlook. Given the results of the BVAR, we then construct baseline paths for the other variables in the model conditional on the baseline path for foreign demand. The results presented below show the difference between the level of these variables in the baseline case and the alternative scenarios of *Worst-case Brexit* and *Base-case Brexit* over a ten year horizon.[10]

To calibrate the shocks to foreign demand consistent with these two scenarios it is necessary to make some assumptions on economic growth in the UK in each scenario and the impact of trade barriers on the share of the UK in Irish foreign demand over the scenario horizon.

For the first issue, a number of studies have been conducted with estimates differing quite considerably depending on the assumptions and approaches adopted.[11] The impacts of Brexit on UK GDP over a ten year horizon from these studies range from a decline of 1-2 per cent relative to the status quo baseline in the case of a *Base-case Brexit*, to 2.5-14 per cent in the case of a *Worst-case Brexit*. The higher estimates place more weight on models which take account of the negative impact on GDP growth in the UK arising from the lower productivity that would likely arise with any retrenchment of that country from EU trade and factor flows (dynamic effects). For our purposes, we take a simple average of the impacts from these studies on UK GDP growth.

For the second issue, which reflects the fundamental structural impacts of Brexit on the level of bilateral trade between Ireland and the UK, it is necessary to take a stance on the potential level of diversification that Irish exporters could achieve in the event of a *Worst-case Brexit*. In the first *Worst-case Brexit* scenario we assume that Irish exporters diversify into alternative markets such that that the share of the UK in Ireland's foreign demand halves over

[10] The results are the impact post-Brexit. No adjustment is made to reflect the period that would be between an exit vote in the referendum and the formal exit itself.
[11] See the references in Footnote 3.

the ten year horizon, from its current level of 15.7 per cent to 7.8 per cent. The rationale for this follows from the results in the literature on the benefits of forming a free trade area (FTA), with estimates for the additional levels of bilateral trade between members of an FTA compared with non-FTA members ranging from 30 to 90 per cent over a ten year horizon.[12] Assuming that such effects are symmetric, leads to the reduction in the UK weight in determining foreign demand for Irish goods and services over the simulation horizon in the first *Worst-case Brexit* scenario. In an alternative *Worst-case Brexit* scenario we assume no diversification, such that the UK share in foreign demand remains at its current level over the simulation horizon.

The results of the scenario analysis are shown in Figure 2.2.2. These can be interpreted as deviations from the baseline levels in per cent, except for the unemployment rate which is expressed in percentage points.

**Scenario 1: Worst-case Brexit with diversification**

- No FTA.
- UK share in world demand declines as exporters diversify.
- World demand 1.3 per cent lower than baseline after ten years.

**Scenario 2: Base-case Brexit**

- FTA.
- UK share in world demand remains at current level.
- World demand 0.5 per cent lower than baseline after ten years.

**Scenario 3: Worst-case Brexit with no diversification**

- No FTA.
- UK share in world demand remains at current level.
- World demand 2.5 per cent lower than baseline after ten years

[12] Baeir and Bergstrand (2007) and CEPR (2013).

**Figure 2.2.2: Impact of Brexit**

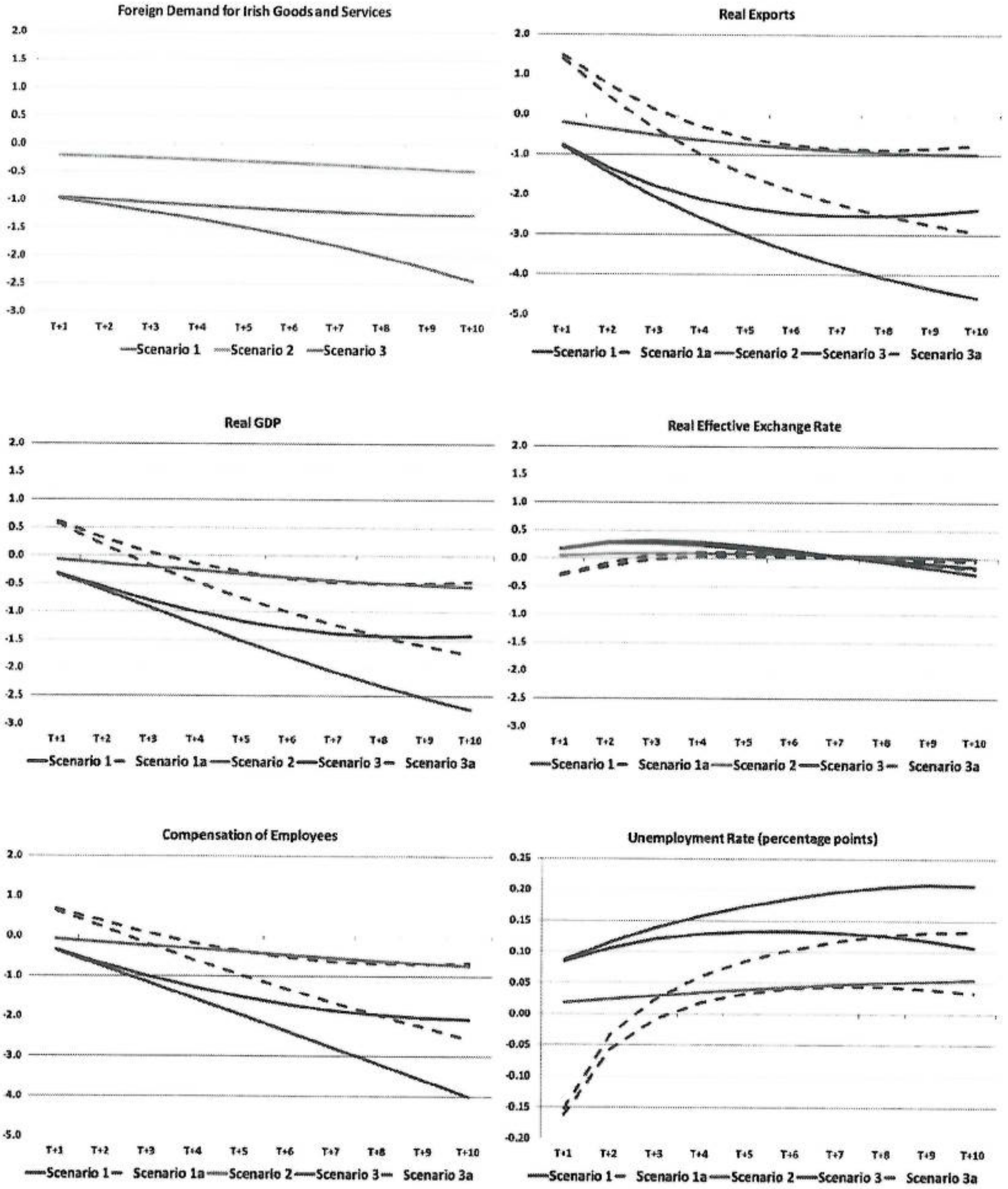


**Table 2.2.1 Model Based Estimates of Brexit Impact**

| | Scenario* | Deviation after 5 years | Deviation after 10 years | Implied Elasticity w.r.t. World Demand |
|---|---|---|---|---|
| *World Demand* | 1 | -1.14 | -1.27 | |
| | 2 | -0.31 | -0.49 | |
| | 3 | -1.49 | -2.45 | |
| *Real Exports* | 1 | -2.33 | -2.37 | 1.9 |
| | 1a | -0.59 | -0.76 | |
| | 2 | -0.75 | -0.98 | |
| | 3 | -3.04 | -4.57 | |
| | 3a | -1.50 | -2.94 | |
| *Real GDP* | 1 | -1.17 | -1.42 | 0.9 |
| | 1a | -0.29 | -0.46 | |
| | 2 | -0.32 | -0.56 | |
| | 3 | -1.52 | -2.74 | |
| | 3a | -0.75 | -1.76 | |
| *Compensation of Employees* | 1 | -1.51 | -2.08 | 1.2 |
| | 1a | -0.38 | -0.67 | |
| | 2 | -0.40 | -0.74 | |
| | 3 | -1.97 | -4.00 | |
| | 3a | -0.97 | -2.57 | |
| *Unemployment Rate (percentage points)* | 1 | 0.13 | 0.11 | -2.3 |
| | 1a | 0.03 | 0.03 | |
| | 2 | 0.04 | 0.06 | |
| | 3 | 0.17 | 0.21 | |
| | 3a | 0.09 | 0.13 | |

* *Scenario 1: Worst-case with diversification, Scenario 2: Base-case, Scenario 3: Worst-case without diversification*

*Scenario Xa: Scenario X with an assumption of greater FDI gains*

The model used in this analysis yields elasticities with the expected sign and of a similar magnitude to previous work. For a one per cent increase in world demand, Irish exports and real GDP increase by 1.9 and 0.9 per cent respectively. While the reaction of the unemployment rate in terms of elasticity is reasonably high at 2.3, the actual impact on the unemployment rate in percentage points terms in the various scenarios considered may seem small given the reaction of exports and GDP. It must be noted, however, that the relationship between exports, and output more generally and unemployment is weaker in Ireland than in other countries given the relative flexibility of Ireland's labour market. The Irish labour market reaction to negative shocks is reflected in prices (i.e. employee compensation) more so than in other countries, and less so in numbers unemployed. A key element of this regularity in the data is the relatively high tendency for Irish to emigrate in the face of a weak labour market. The extent to which any Brexit arises in tandem with restrictions on access to the UK labour market would obviously have a more pronounced impact on Irish unemployment than what is considered in the current analysis.

### 2.2.5 Additional Considerations

#### i) Exports/FDI

The scenarios above make no assumptions on any prospective export or FDI gains that the Irish economy may make in the event of a *Full Brexit*. It would seem reasonable to assume that the Irish economy would attract some UK based firms following a *Full Brexit* so as to gain/retain access to the Single Market. Currently UK exports to the EU amount to approximately 12.5 per cent of UK GDP. If we assume that 4.2 per cent of these exports are rechanneled through Ireland, which is consistent with the Irish share in UK foreign assets (ONS 2014), then the impact of a *Full Brexit* would not be as severe. The level of exports, GDP, etc. consistent with this assumption relative to the baseline scenario over the simulation are shown as Scenario 1a and 3a in Figure 2.2.2.

#### ii) Sterling

The long-term outlook for the Sterling/Euro exchange rate is highly uncertain in the case of a Brexit, however, the most common expectation is that Sterling would depreciate somewhat in the period immediately following an exit from the EU. The impact of a Sterling depreciation would, all else being equal, make it more expensive for Irish goods and services to be sold in the UK. However this depends on a number of factors, and in particular on the ability of Irish exporters to price to market given the margins earned on their UK exports. If Irish exporters have sufficient scope to reduce their prices in the UK and not erode their margins completely then the impact of the Sterling depreciation on the volume of trade would be small. It must also be noted that the price of UK imports into Ireland would also be lower following a Sterling depreciation. As the UK is Ireland's most important source for energy imports, the costs of production for energy intensive industries (both foreign dominated and indigenous such as agri-food) would be lower. This could offset any negative impact on their margins arising from a need to reduce prices in the UK to maintain market share following GBP depreciation. The impact on wider producer prices and consumer prices in Ireland of a Sterling depreciation would tend to lead to lower rates of inflation domestically.

### 2.3 Impact on Central Bank's Profitability and Capital Position

The possible negative connotations of Brexit for the Irish economy, discussed elsewhere in this paper, may prompt an increase in credit spreads on Irish sovereign debt should the UK electorate vote in favour of a withdrawal from the European Union. By way of historical and international context, the Central Bank dividend is a disproportionately large share of Irish government revenue (i.e. 2-3% per cent share depending on the measure). The question arises as to the likely impact of such a scenario on the Central Bank's profitability and its capital position. Such a scenario raises two questions:

#### 2.3.1 Will an adverse movement in credit spreads negatively impact the level of income?

The Central Bank derives its income (and profitability) from 5 key sources (Table 2.3.1). The most likely impact of an increase in credit spreads would be to reduce the scale of *realised* capital gains from disposals of the remaining floating rate notes (FRNs). This could occur because (i) the value of the bonds will fall as credit spreads increase, and (ii) the speed of sales could be slower if there was to be a sufficient deterioration in financial stability conditions within the Irish financial system.

**Table 2.3.1: Decomposition of Central Bank Income (2014)**

| Source | 2014 % of Gross Income | Assessment of Impact of Higher Credit Spreads |
|---|---|---|
| Interest Income from Special (IBRC) Portfolio | 36% | **No Impact:** Coupons are set with respect to 6 month Euribor and a fixed spread. |
| Interest Income from Investment Portfolio | 17% | **Small Impact:** [redacted] With respect to the marked-to-market portfolio, the return is influenced by the relevant market yields. |
| Interest Income from Monetary Policy Securities and Operations | 7% | **No Impact:** Interest is set at ECB MRO Rate. |
| Realised Capital Gains (Mostly Sales of IBRC Portfolio) | 30% | **Adverse Impact:** The *realised* capital gains are a function of (i) discount rate used to estimate the NPV of portfolio- higher credit spreads would reduce capital gains (ceteris paribus); and (ii) the speed of sales which is linked to financial stability conditions in Ireland – a deterioration in conditions could lead to a slower pace of sales. |
| Other Income (Levies, Writeback Provisions *etc*) | 10% | **No impact:** These sources of income tend to be set exogenously. |
| Total Gross Income | 100% | |

*Source: 2014 End-Year Financial Accounts*
*Notes: Assessment does not take into account second round effects of BREXIT such as impact on Euribor and Eurosystem Monetary Policy.*

### 2.3.2 Will an adverse movement in Irish credit spreads impact adversely the carrying value of the Central Bank's marked-to-market portfolios?

The Central Bank has two significant marked-to-market portfolios (Table 2.3.2). An increase in credit spreads would decrease the carrying value of the FRN portfolio, reducing current profits [redacted]

**Table 2.3.2: Central Bank Marked-to -Market Portfolios (2014)**

| Portfolio | End-Aug Market Value | Assessment of Impact of Higher Credit Spreads |
|---|---|---|
| Floating Rate Notes (IBRC Portfolio) | €33.61bn | **Adverse Impact:** Despite the FRN cash flows being linked to a floating reference rate, there is in fact very significant scope for price volatility on these long-dated instruments as the reference rate (Euribor) and the discount |

| | | |
|---|---|---|
| | | rate (Irish sovereign yields) are not necessarily strongly correlated. |
| Investment Portfolio (MTM) | €7.13bn | [redacted] |

As there is no active market for Irish FRNs, they are valued using an internally developed discounted cash-flow model. The coupons on the FRNs are dependent on the position of the EURIBOR forward curve, which is not directly related to Irish credit spreads. However, the discount rate applied to these cash flows is dependent upon the Irish sovereign yield curve. A rise in Irish credit spreads would reduce the present value of these cash flows and the value of the FRN portfolio.

The FRNs are held on the balance sheet at market value but the accounting rules regarding gain and loss recognition on these securities differ. Unrealised gains are transferred to the revaluation account at year-end and are not available to be paid to the Exchequer until they become realised. The unrealised gains therefore remain on the balance sheet as a buffer against future declines in market value. However, should unrealised losses exceed revaluation gains on a security, unrealised losses are immediately recognised in the Profit and Loss Statement. Therefore, should Irish credit spreads widen sufficiently to eliminate the revaluation gains, this loss would be immediately apparent in the Profit and Loss Statement. This would deplete profitability and potentially cause capital buffers to decline should it result in an overall loss being recorded by the Central Bank.

### 2.3.3 Impact on FRN Valuation, Profitability and Central Bank Capital Levels

The impact on the value of the FRN for the range of shocks considered is shown in Table 2.3.1. As at 31st August, the value of the FRN portfolio stood at €33.61bn. Given that the bonds were acquired at par, the value of the FRN portfolio would need to fall below the value of nominal holdings (€23.534bn) in order for a loss to be incurred which reduces current year profitability, and potentially the Central Bank's capital (i.e. a decline in value greater than the revaluation reserve of €10.076bn). Any decline in value less significant than this amount would be matched by a reversal of unrealised gains held in the revaluation reserve. [redacted]

[redacted]. This is due to the current buffer between the spread applied to the EURIBOR on each FRN and the (lower) credit spreads prevailing on Irish sovereign debt in the market.

[redacted]

[redacted]

## 3. Financial Sector Effects

### 3.1 Banking

This section of the report considers the potential impacts of a UK exit from the EU on the Irish banking sector. While we recognise that there could be some potential benefits (e.g. arising from foreign direct investment into Ireland instead of the UK), our main focus in this section is on considering the downside risks. The section is split into three parts. The first part takes a more macro view, looking across the Irish banks and considers direct / immediate risks and secondary impacts. The second part considers the issues on a bank by bank basis and summarises the interaction we have had with the banks on this issue and their consideration of this matter. The third part outlines the next steps we are planning.

The scenarios outlined in Section 2.1 are also considered, focusing primarily on the potential impact on the systemically important banks currently operating in Ireland. The most relevant potential impacts considered are:

- UK economic developments;
- Financial market impacts, including increased volatility in particular for FX rates, rating agency actions, increased funding costs, losses incurred on available for sale assets;
- Consequential impacts on Irish GDP and resultant impacts on employment, etc.; and
- Impact on Irish borrowers dependent on UK business;
- Direct regulatory impacts on banks operating on a cross border basis and the potential for significant increases in authorisation requests for new banking licences.

#### 3.1.1 Macro risks

There are several channels through which the systemically important banks could be negatively impacted as a result of Brexit. The more severe scenario will obviously have a more significant negative impact. Further work is necessary to quantify the impacts more precisely, but some high-level analysis is presented below.

**i) Transmission channels for banks**

There are three main channels through which slower UK growth could affect the Irish financial system. The first channel is the direct credit risk exposure Irish banks have through their UK subsidiaries. The second is via lending to Corporate/ SME exporters dependent on the UK economic growth and a gradual deterioration in retail portfolios as a result of a UK slowdown. The third is via financial markets. The analysis presented below is based on a UK slowdown scenario but it is not a forecast. That said, the sequencing of how events could unfold is important for understanding the transmission channels, impacts on banks, and possible follow-up work.

In terms of sequencing, it is more likely that currency, bond, and money markets would be the first to be affected, becoming more volatile with increased uncertainty regarding Brexit. This could be followed by rating agency watches on UK banks and sovereign in the event of a sharp slowdown. The slowdown the UK domestic economy and external trade would then feed into reduced growth in Ireland, and depending on severity, potential credit losses in UK then Irish portfolios. It is [redacted] It is worth noting that Standard and Poor's has already placed the UK on credit watch negative in June 2015 with Brexit cited as a rationale.

**ii) UK credit risk exposures**

Currently, the five retail banks have a total loan exposure of approximately [redacted] Chart 3.1.1 illustrates the exposures on a bank by bank basis, while Chart 3.1.2 shows the mix of counterparties for each banks UK gross loans. [redacted]

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[redacted]

[redacted] go

[redacted]

[redacted]

[redacted]

[redacted]

**iv) Impact of a slowdown on domestic commercial portfolios**

In terms of the domestic loan portfolios, any negative economic effects experienced by Irish Corporate and SME exporters to the UK through sterling weakness or a decline in economic growth could impact the repayment ability of commercial borrowers. Likewise, the tourism and hospitality sector could be affected by a reduction in UK visitors. Second-round effects could also lead to higher unemployment related to those sectors and/or an impact on consumer and business confidence and spending/investment.

[redacted]

Overall, the sectors that would probably be most affected would be tourism and hospitality, agriculture and food, and service exporters. For example, based on 2010-2011 figures from the Department of Agriculture, Food and the Marine, 43% of total food and live animals and beverages exports go to the UK. This rises to greater than 85% for "Cereals & cereal preparations", "Vegetables & fruit" and "Feeding stuff for animals".

**v) Impact of a slowdown on domestic retail portfolios**

The domestic retail portfolios are not as directly exposed to UK macroeconomic developments as the direct UK exposures considered above in sub-section (ii). [redacted]

[redacted]

[redacted]

[redacted]

[redacted] The risk transmission channels will be assessed further through on-going supervisory work and through upcoming stress test exercises (FSAP/ EU Stress test) and where a sufficiently stressful UK and domestic slowdown can be traced through to loan losses in the domestic retail portfolios.

**vi) Funding costs**

The overall impact will largely depend on the direction of policy and market interest rates that will accompany a Brexit and the funding mix and balance sheet adjustments undertaken by the banks in response to future economic developments in the UK and Ireland. This determines the required funding and therefore the cost. [redacted]

[redacted]

[redacted]

[redacted]

**vii) Available For Sale (AFS) portfolios**

[redacted]

[redacted]

### 3.1.2 Micro risks

As part of our on-going supervisory work Banking Supervision: Supervision Division has engaged with the authorised banks to understand their perspectives on the risks presented by Brexit and their preparedness for it. [redacted] The impacts and their assessments are summarised below with more detail provided in **Annex 2.**

**i) Significant Institutions (SIs)**

[redacted]

[redacted]

**ii) Less Significant Institutions (LSIs)**

[redacted]

[redacted]

**iii) Impact on the Central Bank's supervision and resolution of the banks**

One of the impacts outlined in Section 2.1 is a significant increase in the number of authorisation requests. This is not considered in detail in this section, as while it is probable that banks will look to Ireland, the impact will be gradual under the base and worst case scenarios. Clearly there could be significant macro-economic impacts arising from a sizeable increase in the Irish financial services sector, which would need to be considered from a financial stability perspective.

In the base case scenario it is assumed the UK would retain its existing resolution framework under the recently transposed the EU Bank Recovery and Resolution Directive ("BRRD"). Assuming no change in this regard, we do not believe there would be any material issues arising under this scenario. In the worst case scenario, where the UK no longer comes within the BRRD or the EBA, this could lead to more complex recovery and resolution planning for UK licenced institutions, with the UK essentially inheriting "third country" status. Whilst UK GSIFIs would still continue to engage through FSB Crisis Management Group arrangements and meet TLAC standards, EU authorities would have to engage with the UK authorities, to redefine the recovery and resolution college framework between the two jurisdictions. [redacted] However, in the case that the 2009 UK Banking Act is left largely unchanged following Brexit, the UK's resolution regime should remain relatively similar to the BRRD framework.

The potential increase in the volume of new licence applications that would occur in either the base or worst case scenarios, would have a material impact on the resource requirement in Banking Supervision to enable the Central Bank to authorise, supervise, and engage with international regulators. There would also be implications for resources required in the Special Resolution Unit. [redacted] The potential for additional workload may arise through, inter alia:

- increases in the number of entities seeking a banking licence in Ireland in order to avail of passporting rights within the EU (particularly for retail and commercial banking) and to address any issues with UK entities passporting into Ireland (i.e. they will have to incorporate or leave);
- increases in the complexity, impact and risk profile of non-domestic financial institutions in Ireland;
- BSSD will need to supervise (in cooperation with host authorities) and closely monitor the impact on the viability of UK based branches and subsidiaries of Irish parented financial institutions and deal with any regulatory fallout;
- all new Irish licenced institutions and authorised branches will have to comply with the BRRD. Significant institutions and cross-border groups will come under the direct responsibility of the SRB, in accordance with the SRM Regulation, while less significant institutions will come under the responsibility of the Central Bank in terms of resolution planning and decision making. There would be attendant requirements for supervisory work (i.e. recovery plans);
- attendance at supervisory and resolution colleges may increase/change in order to accommodate the newly established entities in Ireland; and
- the Central Bank may have to undertake equivalence reviews of host jurisdictions regulatory, resolution and supervisory regimes for newly authorised financial

institutions with parents based in non-EU countries (currently 52% of 'foreign banks' licenced in the UK are non-EU based banks)

### 3.1.3 Conclusions and next steps

It is clear that Brexit could have a material impact on the Irish banking system, and Central Bank's supervision thereof. [redacted]

In addition, further Central Bank work is required at a macro level. The IMF FSAP provides an opportunity to undertake a stress test which can consider some of the potential macro impacts on Ireland from a Brexit and deliver a more granular understanding of the risks to the banking sector, including how an external shock in the UK propagates through the Irish financial system. To this end, supplementary information and analysis will be sought from the banks ahead of the upcoming FSAP and as part of regular supervisory engagement. Using this and working closely with the Economics Directorate (Financial Stability Division and Irish Economic Analysis), we will consider this with reference to wider macro risks (e.g. vulnerable sectors, employment, etc.).

### 3.2 Insurance

This chapter will assess the potential impact of a Brexit on the Irish insurance sector, under each of the scenarios outlined in Section 2.1, the key supervisory risks and potential courses of action open to the Insurance Supervision Directorate, should such an event occur.

We will first consider the following the impact of the Brexit exit mechanism on the Irish insurance sector, with a particular focus on life and non-life insurers whose business models are likely to be materially impacted by a Brexit; then consider the immediate financial market impact, and longer term macroeconomic implications upon the Irish insurance sector as a whole. Finally, the key supervisory implications and proposed next steps for insurance supervision will be summarised.

As with the Banking section above, we have sought to highlight the key risks and challenges associated with a Brexit, rather than any potential benefits to the Irish insurance sector or wider economy.

#### 3.2.1 Overview of the Irish insurance sector

The 153 life and non-life insurance undertakings regulated by the Central Bank wrote gross premiums totalling €52bn in 2014. Of this, 51 life insurance undertakings wrote €37bn of gross premium, 102 non-life undertakings wrote €15bn of gross premiums in the same period. The insurance industry employs 27,000 people directly, and contributes €1.6bn in taxes to the exchequer each year[14].

Consistent with the international nature of the financial services sector in Ireland, foreign risk business greatly outweighs Irish risk business, and has grown significantly over the last 10 years, as illustrated in the charts below. A significant volume of both life and non-life business is written on a cross-border basis between Ireland and the UK, both "inwards" (Irish risks written by UK authorised insurers) and "outwards" (UK risks written by Irish authorised insurers). Insurance is written on both a Freedom of Services ("FoS") basis – i.e. directly, and on a Freedom of Establishment ("FoE") basis – i.e. via a branch. In general, smaller insurers conduct business via a FoS model, whilst larger insurers have established branches and operate on a FoE basis.

[14] Insurance Ireland Annual Report, 2014.

**Chart 3.2.1 – premium income of non-life insurers**

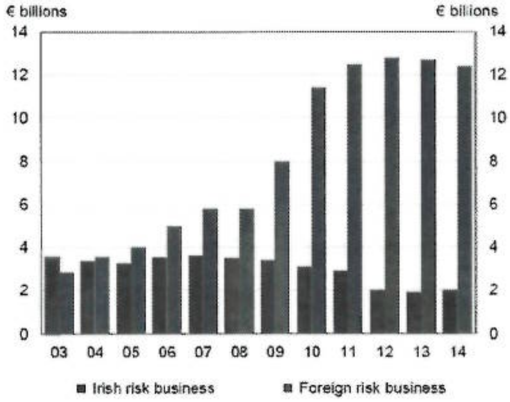
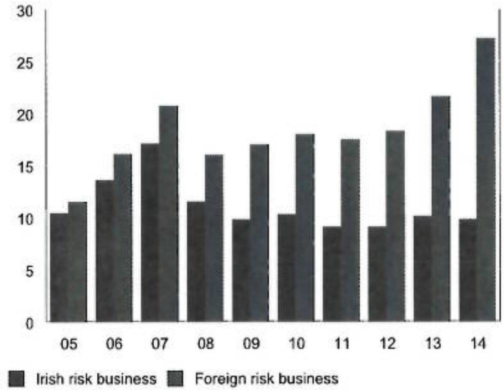



**Chart 3.2.2– premium income of life insurers**




As the chart below illustrates, significant premium volumes are being written on both an "inward" and "outward" basis, by a large number of life and non-life insurers who would each be directly exposed to a Brexit.

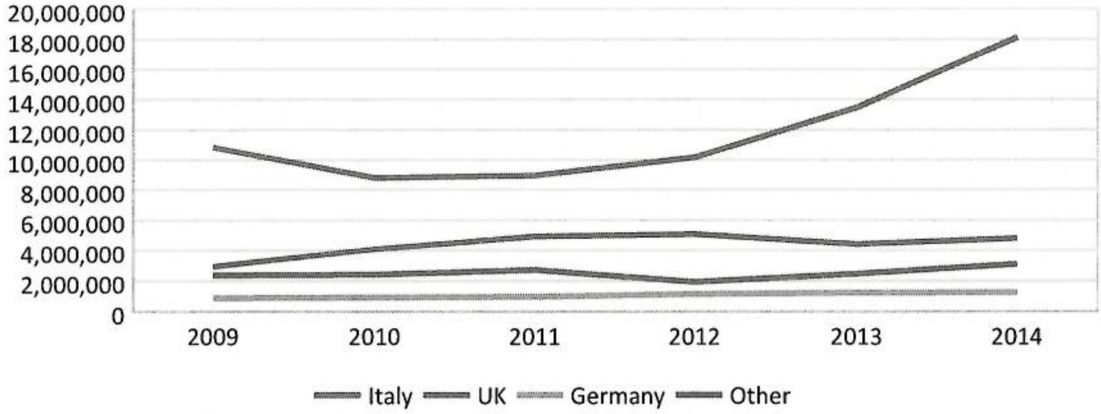
**Table 3.2.3 – cross border insurance market between Ireland and UK**

| | **Total - Outwards**[15] | | **Total - Inwards**[16] | |
|---|---|---|---|---|
| | No. Insurers | UK GWP ( €bn) | No. Insurers | Irish GWP ( €bn) |
| Life | [redacted] | [redacted] | [redacted] | [redacted] |
| Non-life | [redacted] | [redacted] | [redacted] | [redacted] |
| **Total** | [redacted] | **€8.6** | [redacted] | [redacted] |

Life insurance sales to the UK in 2014 represented 18% of the Irish cross-border life market – see chart 3.2.4 below. Products sold consist largely of "offshore bond" products, which offer tax-efficient investment growth, as well as variable annuities. Within the Irish life insurance sector, exposure to the UK is concentrated within a small number of life insurers, which between them write [redacted] of life insurance premiums to the UK, and for whom the UK market represented at least [redacted] of their total business in 2014 (see Annex 3, Table 3 for details). Within the non-life sector, concentrations of risk within product type or group of insurers were less notable.

[15] "Outwards" denotes UK risks written by Irish authorised insurers.
[16] "Inwards" denotes Irish risks written by UK authorised insurers.

**Chart 3.2.4 - premium trends in cross border life market 2009 – 2014 (€'000)**




### 3.2.2 Brexit implications

The fallout from a Brexit may impact the Irish insurance sector in various ways. Firstly, depending upon the exit mechanism and post-exit relationship with the EU, Irish insurers may face restrictions upon their ability to conduct cross-border insurance business into the UK, and vice-versa. However the severity of this impact will vary depending upon the business models of individual insurers, the implications naturally being greater for those insurers whose business models are predominantly based upon underwriting UK based risks. Secondly, volatility in financial markets could cause losses within Irish insurer's investment portfolios, with a consequent impact upon their overall solvency position, or the solvency position of UK-based parent undertakings. Thirdly, a slowdown or reduction in UK GDP anticipated in both the "Base-case" and "Worst-case" scenarios may result in contagion to a recovering Irish economy, which in turn could impact insurer's premium income and overall financial performance.

#### i) Exit mechanism

Under the Best-case scenario, there is likely to minimal impact upon insurers conducting insurance business on either "Outwards" to the UK from Ireland, or "Inwards" from the UK to Ireland. As both sales of insurance could continue on both a FoS and FoE basis, we would therefore not anticipate material change in the status quo, either an influx of applications for authorisation, or establishment of branches in Ireland.

**ii) Base case scenario**

Under the Base-case scenario, where the UK is able to negotiate a Swiss style bilateral trade agreement with the UK, it is assumed that direct access to the single market would be unavailable (FoS), but that sales on a branch (FoE) basis would be permissible. Given the higher costs associated with operating a branch, Irish authorised insurers currently conducting business on a FoS basis would therefore need to consider whether establishment and running a UK branch would be practical and financially viable.

Establishment of branches in the UK would be assessed by the UK regulator rather than Central Bank, who could also seek to impose additional regulatory requirements upon Irish insurers, restrict the type of products they are authorised to sell, or change the tax status of life insurance products sold by Irish insurers. Any of these factors would make cross-border sales to the UK a less attractive proposition. Some rationalisation of the cross-border life and non-life sectors could therefore be expected, with smaller participants exiting the market altogether (return of licences to the Central Bank, or placing companies in run-off), accelerating a trend towards market consolidation that is already underway.

UK insurers who currently conduct insurance business in Ireland on a FoS basis would be required to make a similar assessment, as they would be required to establish an Irish branch in order to continue operations.

**iii) Worst-case scenario**

Under the Worst-case scenario, in the absence of a trade agreement, sales of insurance from Ireland to the UK would be restricted significantly, with neither FoS or FoE possible. Irish insurers would be required to establish or purchase a UK based subsidiary company and apply for authorisation with UK regulatory authorities. This process would be costly and potentially lengthy.

In addition, life insurance products sold on this basis may no longer be considered "offshore" by UK authorities, with a consequent loss of tax advantages that would render the business model unviable for those insurers with the greatest exposure to the UK (see Annex 3, Table 3 for details), and end their raison d'etre for establishment in Ireland.

Under this scenario, the inability of insurers based in the UK to access EU markets would be likely to prompt a significant number of applications for authorisation within Ireland, both from UK insurers with European operations [redacted] and from 3rd country insurance groups who currently base their European operations in the UK [redacted] We consider that Ireland would likely be an attractive destination, based upon its common law system, low corporation tax rates, and educated, English speaking workforce.

**iv) Financial market impact**

Insurer's investment portfolios, which are heavily weighted towards fixed income investments such as sovereign and corporate bonds (see charts below), would experience significant mark-to-market losses in the event of spread widening of the magnitude outlined within both the "Base-case" and "Worst-case" scenarios, which would have a direct impact upon insurer's solvency position.

Previous quantitative analysis, whilst not directly comparable to a Brexit scenario, provides some indication of the impact of a severe market shocks upon Irish insurer's balance sheets. For example, the EIOPA 2014 Stress Tests included market stress scenarios where equity values fall, spreads increase on sovereign and corporate bonds, and property values fall. [redacted] The stress test results also indicated that these market scenarios, despite their severity, would not result in the outright failure of any participant (a reduction in solvency levels to below the Minimum Capital Requirement). A direct comparison of the EIOPA and Brexit stress scenario parameters can be found in Annex 3.

We consider that the impact of any market shock resulting from a Brexit will be mitigated somewhat by insurer's longer term investment outlook, particularly within the life insurance sector, and preference to hold investments to maturity.

17 [redacted]

**Chart 3.2.5 – Non-life insurers asset allocation**

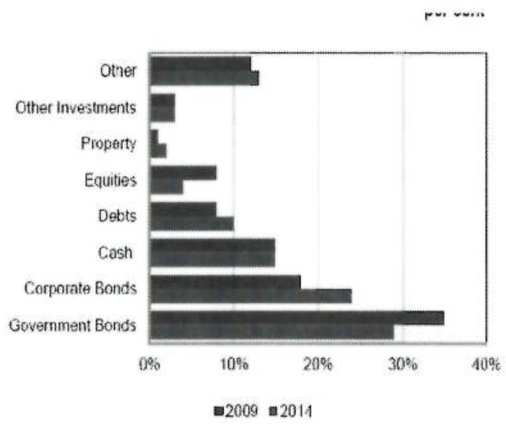
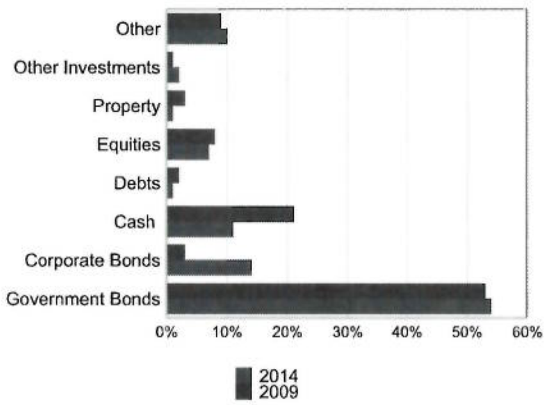



**Chart 3.2.6 – Life insurers asset allocation**




## v) Premium impact

Given the correlation between GDP and insurance premiums, a reduction in UK GDP, estimated at approximately 0.8% between 2017 and 2030 under the base-case scenario, 2.2% under the worst case scenario, has the potential to negatively impact upon insurer's premium income. Insurers whose business primarily consists of cross-border sales to UK based policyholders are likely to be particularly affected.

Any impact of a Brexit upon Irish economic performance could also impact domestic life and non-life insurers. Life insurer's solvency positions and premium income saw modest improvements improved over the course of 2014[18], whilst domestic non-life insurers also saw premium growth. However this recovery by the insurance sector, similar to that of the wider economy, is fragile, and would likely be impacted were Brexit second round effects to include a slowdown in Irish GDP growth. Domestic non-life insurers in particular may be vulnerable, as they are already experiencing a highly competitive domestic market which has reduced these firms' underwriting profitability and in some instances, their solvency position.

Despite this, the potential impact that this may have upon insurer's balance sheet stability should be considered in light of the economic and financial market conditions experienced since 2008. The Irish insurance sector has weathered the impact of significant reductions in GDP, premiums for Irish risk business, and market volatility.

[18] Central Bank of Ireland Macro Financial Review, 2015:1

### 3.2.3 Supervisory implications

**i) UK equivalence**

The incoming Solvency II regulatory framework includes provisions for assessment of the supervisory regimes of jurisdictions outside the EU, in order to determine these regimes are "equivalent" to Solvency II. This equivalence assessment is particularly important in determining whether group supervision should be applied.

Upon a Brexit, the UK could expect to be subject to an equivalence assessment by EIOPA and the European Commission, Whilst the UK appears set to transpose the SII Directive into its domestic legislation during 2015, the UK may not be deemed fully equivalent if:

- A final decision on equivalence was delayed, due to protracted exit negotiations, or a "difficult" relationship between the UK and EU post exit;
- Over time, the UK regulatory regime diverged significantly from Solvency II provisions, through development of UK specific capital standards, or through a wider program of financial services deregulation in an attempt to make the UK a more attractive destination.

In the event that the UK was not equivalent under Solvency II, the Central Bank may, depending upon the legal structures of the insurance groups operating in Ireland at that time, have to assume significant additional group supervisory responsibilities.

**ii) Supervisory strategy and resourcing**

As outlined above, both the Base-case and Worst-case Brexit scenarios are likely to prompt a measure of restructuring activity as insurers adapt their business models in order to access the UK, Irish or wider EU markets as applicable. The impact upon insurers already authorised in Ireland would be assessed through the existing PRISM engagement model, which explicitly considers Strategy/Business Model risk. It is likely that a number of 3rd country branch applications (UK insurers seeking to establish a branch in Ireland) and applications for authorisation (UK or 3rd country insurers seeking to establish a subsidiary in Ireland) will have to be considered simultaneously, which would result in additional strain upon supervisory resources.

In particular, the volume of applications anticipated under the Worst-case scenario would have a material impact upon resourcing requirements within the Insurance Supervision Directorate (refer to Annex 3 for a high level estimate of the resource requirement for a typical application for authorisation), with the need for recruitment and/or secondment of resources into the authorisations team, and associated training. Despite this the Directorate has existing capability in this area, having successfully completed authorisation [redacted]

An increased number of authorised insurers could also entail additional on-going supervisory requirements, including:

- Increased supervisory focus on insurers for whom the financial market impact of Brexit has reduced solvency ratios below level that insurers are required to hold – ensuring that recovery actions are adequate and timely;
- Increases in the number of authorised High, Medium-High impact life and non-life insurers, requiring additional headcount within the Insurance Supervision Directorate;
- Increases in the complexity of insurer's business models and the types of risk underwritten, which may require development of capabilities recruitment of specialist resources (e.g. underwriting through Lloyd's);
- Increases in group supervisory responsibilities. In particular where 3rd country insurers from jurisdictions not deemed wholly equivalent under Solvency II (e.g. US, Bermuda), the Central Bank could be supervisor of an EU sub-group; and
- Increased travel to/hosting of supervisory colleges, and execution of on-site inspections within EU branches.

In order to better understand these potential challenges, the Insurance Supervision Directorate has engaged with key life and non-life insurers to understand the risks that a Brexit would present to their business model, and assess the level of preparedness for such an event. Our analysis suggested that whilst Brexit developments are being actively monitored, [redacted]

### 3.2.4 Conclusions and next steps

A Brexit, whether it takes place under conditions closer to the Base-case than Worst-case scenario, is likely to have a material impact on the Irish insurance sector, and the supervisory requirements placed upon the Central Bank. This is particularly true for Irish life and non-life insurers whose business model is based upon cross-border sales, where some market consolidation could result. In addition, under a more adverse Brexit scenario an influx of UK based insurers to Ireland could materially alter the size and composition of the Irish insurance sector, requiring increased supervisory resources and capabilities.

[redacted] the Insurance Supervision Directorate will continue to engage with insurers on this issue. In particular, we will assess the extent to which supplementary information and analysis on a Brexit has been considered within the Own Risk and Solvency Assessment ("ORSA") which insurers will be required to prepare under Solvency II. Where a Brexit appears more probable, we will consider design and execution of specific Brexit stress tests that would deliver a more detailed understanding of vulnerabilities both within individual firms and the wider insurance sector.

### 3.3 Markets Directorate firms

#### 3.3.1 Summary

Based on the information that was available to the Markets Directorate at the time of drafting this assessment, it is anticipated that the overall business impact of a Brexit on *existing* 'Markets Directorate firms' should be limited, notwithstanding the following:

- Depending on the format of a Brexit, the loss of access to a UK client base may result in closures of certain firms
- The removal of UK competitors may benefit other firms.
- Irish branches of 'UK firms' and UK branches of 'Irish firms' may be required to close.
- A 'migration' of firms from the UK to Ireland may occur as a result.

A Brexit could be disruptive in the short term for funds (as well as other entity types) as a large degree of legal / contract novation and repapering may be required.

The Markets Directorate would expect to have an increase in regulatory applications as a result of any form of Brexit, which would have staffing implications in relation to resourcing and expertise required.

Staff of the Markets Directorate work closely with their counterparts in the FCA / PRA in a number of areas (such as supervisory colleges, market abuse investigations and on policy work through European Supervisory Authority working groups). [redacted]

No items have been identified for immediate action by the Central Bank / Markets Directorate. This statement is subject to on-going review in accordance with developments that may arise.

### 3.3.2 Overview of the Markets Directorate and scope of this section

The scope of this section includes all of the areas under the remit of the Markets Directorate; namely the Investment Firms & Fund Services Division[19] and the Securities & Markets Supervision Division[20]. The Directorate has a wide range of responsibilities and mandates; including

- the supervision of almost 6,000 entities including funds, fund service providers, stockbrokers and firms authorised under the Markets in Financial Instruments Directive (MiFID) and Investment Intermediaries Act 1995.
- the authorisation of investment funds and prospectuses for promoters and issuers that seek to raise funds on capital markets.
- the monitoring of securities market activity to ensure that they operate in a fair and orderly manner.

See *Annex 4.1: Overview of the Markets Directorate* for a more detailed breakdown of the entities supervised by the Markets Directorate.

A working group comprising representatives of each of the functions of the Markets Directorate was established with a view to capturing the key implications, risks and issues for the Directorate. Information compiled by this working group is contained in this section, with each of the following functions specifically addressed:

- MiFID Investment Firms and Client Assets / Investor Money
- Fund Service Providers
- Funds

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[19] Investment Firms & Fund Services (IFFS) is responsible for the authorisation and prudential supervision of investment firms including stockbrokers and market infrastructure firms authorised under the Markets in Financial Instruments Directive (MiFID) and non-retail investment business firms authorised under the Investment Intermediaries Act 1995, (IIA). In addition, IFFS is also responsible for conduct related issues in respect of MiFID firms.

IFFS is also responsible for the authorisation and prudential supervision of fund service providers (FSPs) including AIFMs authorised in Ireland. IFFS is also responsible for the supervision of the Investor Compensation Company Limited (ICCL). IFFS cross-directorate operations consists of a number of teams which provide support within IFFS and across the Markets Directorate.

[20] Securities & Markets Supervision Division (SMSD) is responsible for the supervision of primary and secondary securities markets; market integrity; EMIR; the authorisation, post authorisation and supervision of Irish authorised funds and client assets. In addition the Regulatory Economics Unit in SMSD provides economic advice for the Markets Directorate and the Supervisory Analytics Team is responsible for developing data management and analysis in the Markets Directorate.

- Markets Integrity
- Regulated Disclosures and Short-selling

The Markets working group has agreed that the two presented scenarios (Base-case / Swiss-style scenario and Worst-case scenario) present broadly similar issues and therefore there appear to be few areas of divergence between the two scenarios.

### 3.3.2.1 MiFID Investment Firms

#### i) Passporting

MiFID firms passport services to the UK, both on a freedom of services and on a freedom of establishment basis. Similarly, UK firms provide services to Ireland on a freedom of services and on a freedom of establishment basis. As a direct consequence of passporting arrangements, clients of Irish investment firms may be domiciled in the UK. Likewise clients of UK firms are domiciled in Ireland.

Of the 34 branches operating in Ireland on a Freedom of Establishment basis, 31 (91%) are UK firms. Of the (approximately[21]) 2,425 EEA firms holding passports to operate in Ireland on a Freedom of Services; 1,953 (81%) passport from the UK.

Of the 18 branches operated in other EEA countries on a Freedom of Establishment basis by Irish firms[22], 12 (67%) are UK based. Of the (approximately) 80 Irish firms holding passports to operate in other EEA countries on a Freedom of Services basis; 71 (89%) passport to the UK.

#### ii) Transaction reporting

Irish authorised investment firms and credit institutions executing transactions on UK trading venues currently must report those transactions to the Central Bank. If MiFID does not apply to UK trading venues then such transactions may not be reportable (this would be dependent on whether the particular instrument was also traded on another EU venue)

[21] Note that the holding of a passport does not necessarily mean that an EEA firm is actively operating in Ireland. Due to historic manual processing & storage of passport notifications, it is not feasible to verify the accuracy of the figures or the level of activity undertaken. Figures are provided for indicative purposes only.

[22] Note that the holding of a passport does not necessarily mean that a firm is actively operating in the UK. It is not feasible to determine whether firms are in fact operating there, and how much of their revenue or client base is 'UK-derived'

UK investment firms and credit institutions executing transactions in instruments for which the Central Bank is the relevant competent authority (i.e. typically 'Irish' equities) transmit transaction details to their home Competent Authority ('CA') for onward transmission to the Central Bank. Such firms may not have a reporting and / or sharing obligations if they are not subject to MiFID.

Firms seeking to relocate to an EU / EEA jurisdiction may opt for Ireland which would have implications for the volumes of transaction reporting (i.e. a potential increase).

In 2014 approximately 19.92 million transaction reports were received from the UK –representing approximately 87% of transaction reports received from other CAs; and

Approximately 38.73 million transaction reports were sent to the UK – representing approximately 28% of transaction reports sent to other CAs.

**iii) Authorisations / revocations**

UK subsidiaries of non-EU based investment firms would need to apply for an authorisation in an EU jurisdiction.

A number of MiFID firms have group / parent / subsidiary entities in the UK. Similarly a number of UK firms have group / parent / subsidiary entities in Ireland. Such firms may in certain cases wish to revoke their authorisation in favour of seeking authorisation in the same jurisdiction as their affiliates.

**iv) Consolidated supervision and supervisory colleges**

A number of MiFID firms may be subject to consolidated supervision in the UK. Similarly a number of UK firms have may be subject to consolidated supervision in Ireland. Where firms are subject to consolidated supervision, the Central Bank may attend, participate in or convene supervisory colleges.

Of the (approximately) 107 Investment Firms supervised by IFFS, 33 (31%) submit consolidated returns; indicating that the Central Bank is the lead supervisor. No figures are available for investment firms subject to consolidated supervision in other jurisdictions.

**v) Market risk**

***Market Risk - Currency***

Very few Irish MiFID firms use GBP as their operating / reporting currency, and a Brexit is unlikely to have any impact on this. Restrictions on freedom of movement of capital between Ireland and the UK may increase firms' exposure to currency risk and / or increase costs of managing this risk (i.e. increased transaction costs, possibly fewer providers of GBP hedging products etc.). By extension there may be implications for market risk capital allocations.

***Market Risk - Profitability***

It is likely that there will be increased market volatility given the uncertainty surrounding a Brexit. This would indirectly impact MiFID firms through IM investment fee income (which is generated as a percentage of the performance of segregated and unitised portfolios). This could adversely affect both the profitability of Irish firms and their clients (note that an impact on pension fund performance may have direct implications for Irish consumers.)

**vi) Client Assets / Investor Money Supervision**

The supervision of investment firms or fund service providers holding client assets or investor money, respectively, should not be materially impacted. However, Brexit may cause an increase in the number of applications to hold client assets, thus a corresponding increase in firms to supervise, if MiFID firms migrate from the UK. Such an outcome will be more likely if no treaty between the UK and the EU is agreed (i.e., Scenario 2).

If no treaty is agreed (i.e., Scenario 2), certain Irish authorised MiFID firms, which currently passport services into the UK, may need to establish separate operations in the UK in order to continue servicing UK clients.

**vii) CREST and CCPs**

CREST is the settlement system for UK and Irish securities. It is the understanding of the Markets Directorate that CREST settles multi denomination currencies at [redacted]

**3.3.2.2 Fund Service Providers**

**i) Location of Investment Managers**

[23] This point is repeated later in this chapter in the context of authorisations – see section entitled '*Conclusions and key points of concern*'. See also Section *3.4 Financial market infrastructure and collateral framework*, at *ii) Securities settlement systems, etc.*

A large number of Investment Managers of supervised FSPs are located in the UK [redacted] A Brexit could have a detrimental effect on the UK's ability to influence the development of regulation and tax law in Europe (amongst other issues) which may result in a substantial flow of business into other jurisdictions; including Ireland.

**ii) Domicile of funds**

There is a risk that international firms may reconsider whether to continue to domicile funds in London, particularly if they have large subsidiaries elsewhere.

**iii) Distribution of UK funds**

A Brexit would result in the UCITS and AIFM Directives not applying to the UK. [redacted]

**iv) Branches of UK firms**

Some trustees have a UK exposure insofar as they are branches of UK firms. (see *Annex 4.3 Fund service providers* for further details)

**v) Fund Services provided to UK counterparties**

A number of Fund Service Providers provide trustee and / or administration services to a UK counterparty (see *Annex 4.3 Fund service providers* for further details).

**vi) Lack of excess capacity**

Any potential influx of business into Dublin would face challenges in the form of (i) shortage of supply with regards to office space in Dublin (451,111 square metres of vacant office space in Dublin, compared to 1.46 million sqm in Frankfurt, 941,000 sqm in Paris), (ii) increasing costs of office space in Dublin (CBRE - 34.9% rise year-on-year in 2014), (iii) workforce supply vs. influx of business.

**3.3.2.3 Funds**

**i) Domicile of Funds**

Funds may re-domicile to Ireland or newly launch in Ireland. This could result in an increase in fund re-domiciliations to Ireland and also an increase in the number of newly authorised funds in Ireland. A typical re-domiciliation application may take 4-6 weeks depending on complexity. The FCA have advised that they currently have 2,936 UCITS authorised in the UK (this figure covers Umbrellas / Standalone Funds and Sub Funds). With newly authorised Funds operating in Ireland, this would both increase the workload on the authorisations team but also increase the figure for levies being collected by the Central Bank.

**ii) UCITS Passporting**

Should a Brexit occur, the UK would no longer be permitted to operate under the UCITS Regime which allows UK UCITS Funds to be marketed throughout the EU / EEA.

Under the passporting regime, there are approximately 194 UK funds currently inward marketing to Ireland. There is a high volume (precise figures unknown) of Irish Funds outward marketing to the UK.

**iii) AIFM Passporting**

UK authorised AIFs may be able to utilise the Non-EU AIFM regime.

**iv) Additional Requirements for Funds Industry**

There would likely be increased demand for employees with relevant Funds Industry knowledge and experience should there be increased workload on the Fund Service Providers.

Fund Service Providers may also relocate to Ireland, although this would not be a requirement.

**v)Breaches and Errors**

The Fund Supervision Team reviews Breaches and Errors on a daily basis with a more in depth on-site review carried out quarterly at selected Depositaries. Should there be an increase in the number of Funds being supervised by the team this in turn could possibly lead to an increase in the number of Breaches and Errors being reported to the team. If Funds previously authorised in the UK were to move to Ireland, there would need to be information sharing between FCA and Central Bank in terms of any previous serious issues with Funds which resulted in enforcement action by the FCA. On taking over the supervision of previously UK authorised Funds, the Fund Supervision Team would need to be fully aware of the regulatory background of the Funds.

**vi) Online Reporting System**

Should the number of funds authorised in or re-domiciled to Ireland increase, this would increase the workload for the fund supervision team. A review of ONR capacity may need to be conducted if there was such an increase. As at 30 Jun 2015, 6,007 Funds (including sub funds) use the Funds ONR System. [redacted]

### 3.3.2.4 Markets Integrity

**i) Co-operation on investigations**

Extensive co-operation and assistance takes place between the Central Bank and the UK's FCA on market abuse investigations under MAD and the ESMA MMoU for example the forwarding of STRs received from firms [redacted]

If the UK were to be outside of the EU legislative framework MIU would be reliant on the IOSCO MMoU to process such requests. While this may be straightforward in most cases, a changed legal context could give rise to obstacles or delays in the information-sharing process.

**ii) Dual Listings Dublin / London**

There are a number of links between the Dublin and London markets through dual listings and the historic level of transaction activity across the two countries. The UK's FCA is the Competent Authority with which, by some margin, we have the most numerous co-operation on investigations.

As currency is not a factor, it is not apparent that Brexit, in the short term, would alter the disposition of issuers with dual listings on the Irish and UK exchanges. There is a need to consider whether investors' preferred venue for transacting might be influenced by different regulatory regimes operating in the two markets – with potential implications for liquidity, trading volumes and oversight.

**iii) Transaction Reporting**

The issues raised in respect of Transaction Reporting could have potential knock-on implications for MIU's investigative work. If there was no treaty these would probably would not be received from the UK and thus would not be available for market monitoring purposes.

Transaction reporting data is an important source of evidence in market abuse investigations. There are potential issues relating to the reporting of transactions in Irish stocks traded in London (as noted above under MiFID firms).

If a Bilateral Trade treaty with the EU was entered into, the legal framework for collecting and exchanging data would have to be clearly set out. In addition, a European wide system ('TREM') is relied upon to exchange relevant data between CAs – how the UK could / would participate in this would also have to be clarified.

**iv) Increased listings on ISE**

Issuers, previously attracted to a London listing as an EU Regulated Market, might regard Ireland as a good alternative venue, increasing the size of the market and associated market abuse surveillance requirements.

### 3.3.2.5 Regulated disclosures and short selling

**i) Home Member State**

More issuers may choose Ireland as its home member state within the EU for the purposes of the Prospectus Directive ('PD') and the Transparency Directive ('TD'). The volume of regulated disclosure to be processed under the PD and the TD could increase as Ireland would be a logical conduit for UK issuers looking to access the EU market or for issuers that historically used the UK as a conduit to access the EU market.

**ii) Equivalent Exchanges**

If the London Stock Exchange loses its current designation as a "regulated market" under MiFID, and the LSE was not deemed to be an equivalent market post-Brexit, the disclosure requirements for UK obligors admitted to trading the LSE, or for UK securities admitted to trading on the LSE used as a market measure or as part of a portfolio, would be increased and, therefore, more time consuming to review.

**iii) Passporting out of the UK**

If the UK lost the ability to passport prospectuses into EU member states, the approval of the prospectus will need to occur in an EU member state and the passporting will need to be done from such member state to access other EU member states. As Ireland could be the logical choice for the approvals, the passporting of prospectuses of UK issuers or for issuers that historically used the UK as a conduit to access the EU market could increase significantly.

**iv) Passporting into the UK**

If Irish issuers lose the ability to passport prospectuses into the UK, this will have little impact on the Central Bank. However, a separate approval of the prospectus will need to occur in the UK as well as in Ireland, thus increasing the cost for Irish issuers to be admitted to trading on the LSE and/or to offer securities to the public in the UK.

**v) Short selling - Irish shares trading in London**

Brexit should have minimal impact on existing processes. However, since the LSE may remain the principle trading venue for some Irish equities, the designation of the UK as a third country would remove these Irish equities from the scope of the Short Selling Regulations.

**vi) Market Maker Exemptions**

The impact on the volume of market maker exemption notifications received would depend on whether UK entities engaged in such activity seek authorisation in the Union following Brexit. If these entities seek authorisation in Ireland, the number of exemption notifications received by the Central Bank may increase. However, if UK entities do not seek authorisation in the Union, their exemption notifications would be submitted to the competent authority of the main trading venue in the Union where they trade. This is unlikely to be Ireland.

### 3.3.3 Conclusions and key points of concern

Based on the information that was available to the Markets Directorate at the time of drafting this assessment, it is anticipated that the overall business impact of a Brexit on *existing* 'Markets Directorate firms should be limited:

- [redacted]
- Conversely, it is considered that if a Brexit occurs, Markets Directorate firms and the local Investment Firm / Funds industries may in fact experience positive growth due to the removal of UK competitors both from the local market specifically and from the EEA market more generally.
- A number of 'UK firms' currently operate Irish branches and would be expected to close these branches. During a transitional phase, this could potentially benefit existing 'Irish firms' due to a reduction in the number of directly competing entities. In the medium term however, it is reasonably expected that this would be offset by these branches of UK firms seeking to 're-authorise as Irish' (i.e. through the establishment of new or related entities in Ireland) and also by 'new' firms setting up in Ireland (i.e. the migration of firms from the UK to Ireland that have not previously had a presence in Ireland).
- The potential impacts for the Irish consumer are therefore unclear during both the transitional and post-transitional phases.
- Administrators and trustees currently service funds from around the world and a Brexit in itself should not result in a direct loss of business for Fund Service Providers. Irish Fund Service Providers may potentially benefit from an increase in business where non-EU managers require a European base.

A Brexit could be disruptive in the short term for funds (as well as other entity types) as a large number of contracts will need to be repapered and / or novated. This would place considerable legal costs on affected entities and a large backlog may also develop.

The Markets Directorate would expect to have a significant increase in regulatory applications from firms seeking access to the EEA market. This is relevant to a number of key areas:

- It is anticipated that there would be a significant initial spike of applications for authorisations from firms authorised in the UK who would lose access to EEA markets. Principally due to linguistic, geographical and taxation factors Ireland can expect to be a destination of choice for many firms and funds looking to restore access to EEA markets. Such entities may seek authorisation of a subsidiary or related entity here which would increase the workload of the authorisations functions of the Markets Directorate[24].

- In addition to authorisations of Investment Firms, Funds and Fund Service Providers, there may potential be authorisations of a number of 'new' business types such as Central Securities Depositaries ('CSDs'), Central Counterparty Clearing Houses ('CCPs'), Systematic Internalisers ('SIs'), Organised Trading Facilities ('OTFs'), Approved Reporting Mechanisms ('ARMs') and Consolidated Tape Providers ('CTPs').

- Certain authorisations may take place on a '3rd-country' basis, for which there are few existing precedents. In addition to the input of Markets Directorate authorisation functions; input may be required from the Markets Policy and / or Legal Divisions.

An increase in applications is likely to have implications both in staff numbers but also in attracting suitably experienced staff to authorise and supervise the new entities and new entity types. Additionally, the Central Bank's current IT infrastructure may need capital investment to increase capacity. There is an expectation that market volatility will increase as a result of uncertainty related to the Brexit; irrespective of whether Brexit is deemed likely or not. Markets would quite feasibly experience declines which would have a negative impact

[24] In-scope investment firms will have to comply with the Bank Resolution & Recovery Directive (including payment of applicable levies). This may have resource implications for the Markets Directorate (as well as the the Special Resolution Unit), due to resolution / recovery planning for these entities.

on the majority of firms whose revenue is determinant on market values. Note that increased market volatility / declining market capitalisations benefits certain firms. It should also be noted that market risk is a persistent concern for almost all Markets Directorate firms and is therefore already factored into and actively managed under many business models.

Similarly, currency risk is (or should) already be managed by Markets Directorate firms and movements of GBP vs. EUR should not have major adverse consequences. A small number of firms use GBP as a reporting currency and thus have their capital requirements determined in part by the value of GBP.

[redacted].

The UK is a key ally at European policy level through its vocal, knowledgeable and active participation in various ESMA (and to a lesser extent EBA) workstreams. The Central Bank has developed a strong and productive relationship with its relevant colleagues in the PRA / FCA and has benefitted greatly from their assistance and expertise in a number of areas. [redacted]

### 3.4 Financial market infrastructure and collateral framework

Chapter 3.4 of the report examines the possible impact of a Brexit from a financial market infrastructure (FMI), deposit guarantee scheme (DGS) and collateral framework perspective. The analysis points to the impact of a Brexit on the DGS and the collateral framework appearing to be manageable [redacted] Further work will be undertaken by the Financial Operations Directive, in collaboration with IFFS and other stakeholders, to put in place authorisation and supervisory processes and procedures should a CCP or CSD decide to re-locate to Ireland from the UK.

#### 3.4.1 Payment and securities settlement systems

Brexit has the potential to have a significant impact from a payments perspective, given the Central Bank's responsibility for payment and securities settlement systems policy and oversight matters. This potential impact arises from the possibility that some payment and securities settlement infrastructures currently authorised in and operating from the UK could decide to re-locate from the UK to Ireland should the referendum outcome lead to the UK ceasing to be an EU member state. It is noteworthy that these infrastructures could seek to establish in Ireland irrespective of the UK's standing vis-à-vis the EU [redacted] However, the likelihood of applications being received would be higher were the UK to leave the EU.

Collectively referred to as financial market infrastructures (FMIs), these entities comprise central counterparties (CCPs), securities settlement systems (SSSs) / central securities depositories (CSDs) and payment systems. The UK FMIs currently overseen by the Bank of England (extracted from its most recent annual report) are listed in Annex 6.

### i) Payment systems

As the UK's payment systems (both high-value/RTGS[25] and retail) handle transactions denominated in GBP rather than in euro, it seems safe to assume that they would have no reason to consider re-location to Ireland. It is, however, worth considering if a UK exit from the EU might impact on TARGET2. Participation in TARGET2 is open only to 'supervised credit institutions established in the EEA', and a number of banks in the UK are listed on the ECB website as participants.

If a Brexit were to occur, then the potential impact from a TARGET2 perspective would seem to depend on whether or not the UK retains European Economic Area (EEA) membership. If it did, then the Central Bank could expect no impact, but if not, then the banks concerned would need to make alternative arrangements for TARGET2 access and TARGET2-Ireland would be one possible avenue for this. The Central Bank could potentially see UK banks/international banks based in London looking to access TARGET2 via Ireland, or large international banks re-locating formerly UK-based operations to Ireland and becoming members of TARGET2-Ireland. However, this can only be speculated on at this stage – many of the banks concerned already have a presence in Ireland, or could decide to re-locate to another EU member state in which they already have some presence.

In the event that UK/international banks were to seek to join TARGET2-Ireland, the payments area would have to deal with a (possibly significant) number of new participants – this could generate a high workload (at least in the initial stages, e.g., in connection with the completion of a significant number of legal agreements) in a short timeframe. In the event that any such scenario were to materialise, the Payments and Securities Settlements Division (PSSD) would need to ensure that adequate staff resources would be available and that IT systems could cater for the higher level of activity [redacted]

### ii) Securities settlement systems, etc.

[redacted]

[25] Real-Time Gross Settlement Systems

[redacted] In March 2015, the EU's general court ruled in favour of the UK against ECB rules forcing CCPs to be located in the Eurozone. [redacted]

It is also possible that a central securities depository (CSD) could apply for a licence to establish in Ireland in the event that the UK was to vote in favour of leaving the EU. The working assumption is that, from the perspective of FMIs, the type of exit scenario ('Swiss Style' or 'Customs Union') would make little difference and that firms would be as likely to migrate under either scenario. In the event that a CCP or CSD were to decide to re-locate from the UK to Ireland, the Central Bank would have two key roles to perform – namely, it would be responsible for:

- authorisation of the entity concerned under the applicable legislation – EMIR (CCPs) and CSDR (CSDs); and
- on-going prudential supervision and oversight of its operations, including – for example – its assessment against the prevailing Eurosystem standards (currently the Principles for Financial Market Infrastructures, or PFMIs).

The Investment Firms and Funds Services Division (IFFS) would be responsible for the authorisation and supervision, while PSSD would be responsible for the on-going oversight activities related to the FMIs. Arising from these responsibilities, PSSD would have a requirement for additional staff resources in the context of the on-going oversight of a CSD or CCP, as well as the need to involve other Divisions (e.g., Legal) and potentially cooperation with overseas authorities including other relevant authorities and/or the establishment of regulatory colleges required under EMIR for CCPs. To put this in context, PSSD has been given to understand [redacted] that approximately [redacted] full-time employees are needed to carry out the tasks associated with oversight of a CSD. Oversight of a CCP would seem likely to require similar resources.

[26] As of December 2014, clearing members established outside the EEA accounted for 39% of the initial margin posted, while members from EEA member states excluding UK accounted for 21%; by comparison, UK clearing members contributed only 40%.

[redacted]

[redacted]

[redacted]

### 3.4.2 Deposit Guarantee Scheme (DGS)

The EU Directive on Deposit Guarantee Schemes28, shortly to be transposed into Irish law, introduced a range of changes to current DGS regulations. Changes arising from the Directive and the Central Bank's on-going operations that are of possible relevance in the event of a Brexit include compensation limits, home/host arrangements and data protection issues.

**i) Impact on the sector – compensation limits**

[redacted]

[28] 2014/49/EU

The DGS Directive takes the view that different coverage levels in the EU may lead to depositors choosing the highest deposit protection resulting in competitive distortions. It therefore introduced a harmonised level of deposit protection by all DGSs of €100,000 or equivalent. In the event of a Brexit, the UK may take the approach of raising their compensation limits, given that they would no longer be subject to the Directive. The impact of such an arrangement on the sector could be that depositors of Irish banks may move their deposits to branches of UK banks to secure higher deposit protection.29

**ii) Impact on the Central Bank**

***Home/Host***

In the event of a Brexit, the Home/Host process would not be mandatory. So, in the absence of a bilateral agreement with the UK, the Irish DGS would have to directly pay depositors of Irish banks in the UK rather than the FSCS doing so on our behalf. Equally, the UK DGS would compensate depositors of UK branches located in Ireland rather than the Irish DGS on their behalf. Therefore, a potential need to establish bilateral agreements with the UK to re-establish home/host arrangement would arise.

***Data protection considerations***

The DGS maintains an outsourced operation in the UK for many of its DGS functions, including the compensation payment process. This process includes the sharing of sensitive depositor data with the UK company. In the event of a Brexit, this personal data of EU citizens would be shared outside the EU (i.e., in the UK). Section 11 of the Data Protection Act deals with the conditions that have to be met before personal data may be transferred to third countries. The DGS would be mandated to ensure that the UK provided an "adequate level of data protection". However, the EU Commission maintains an approved list of third countries and it is likely that the UK would be seen to satisfy the conditions given that it already does so as part of the EU.

### 3.4.3 Eurosystem collateral framework

[29] Less than 5% of Irish depositors hold deposits of more than €100k in any one bank.

[redacted]

**(i) Collateral eligibility**

[redacted] Currently under the permanent collateral framework, all marketable and non-marketable assets must be denominated in euro. [redacted] UK issuers of marketable debt can issue in euro. [redacted] However, it may be noted that the universe of eligible marketable assets on the EADB far exceeds the volume of collateral actually mobilised.

**(ii)** [redacted]

The achievement of a minimum credit rating(s) from an approved External Credit Assessment Institution (ECAI)[31] is a fundamental eligibility criterion that must be satisfied in order for a marketable debt instrument to be assessed as eligible for use as collateral in Eurosystem credit operations.[32] [redacted]

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[30] The EADB has circa 33,000 ISINS with a nominal value outstanding of circa €13.8 trillion: about €1.7 trillion of total eligible marketable assets are mobilised as collateral by Eurosytem counterparties.

[31] Moody's, Fitch, S&P and DBRS are approved ECAIs under the Eurosystem collateral framework

[32] With the exception of ABS, all marketable assets shall have a credit assessment provided by at least one accepted ECAI, expressed in the form of a public credit rating, in compliance with, as a minimum, credit quality step 3 in the Eurosystem's harmonised rating scale. ABS shall have credit assessments that are provided by at

[redacted]

[redacted]

### 3.4.4 Conclusions and next steps

The effects of a Brexit differ to a greater or lesser extent depending on the scenarios analysed, but it is clear that it may have significant impacts on FMIs especially in relation to Ireland. [redacted]

For the DGS, while there are identified risks, the majority of depositors in Ireland will not be impacted to any large extent by a Brexit and the potential risk relates to a limited flow of deposits from Irish banks to UK bank branches.

[redacted]

least two different accepted ECAIs expressed in the form of two public ratings, one provided by each ECAI, in compliance with, as a minimum, credit quality step 2 in the Eurosystem's harmonised rating scale.

[redacted]

Therefore, while the Financial Operations Directive will continue to conduct analysis on the possible effects of a Brexit and monitor developments accordingly, its impact on DGS and the collateral framework appear to be manageable. Further work will be undertaken however, in collaboration with IFFS and other stakeholders, to put in place authorisation and supervisory processes and procedures should a CCP or CSD decide to re-locate to Ireland from the UK.

**4. Conclusions**

Recent political events in the UK, including the results of the general election and the Labour Party leadership election, point to the difficulty in anticipating with any confidence how the UK referendum on EU membership will turn out. A withdrawal of the UK from the EU could have significant political, social and economic implications for Ireland. In this regard the nature of the withdrawal and the terms of the new relationship would matter and a number of scenarios have been considered in this report. [redacted] agreement of a bilateral trade treaty or treaties whereby some access to EU financial services markets would be retained, depending inter alia on the equivalence of regulations. [redacted] including scenarios whereby no trade agreement can be reached and the nature of the relationship between the UK and EU countries would be affected more fundamentally. In this case Ireland, given its very strong linkages with the UK and the large size of the international financial services industry, would be among the countries most affected.

This report has focussed on potential financial sector effects of a Brexit. These include the impact on business activity and business models of Irish-based financial institutions, the potential for new international financial services firms or activities to locate in Ireland, and implications for the Central Bank relevant for its supervisory and financial stability mandates. It represents a preliminary report on potential implications and some areas where further work may be needed are identified, either for the near term or for when more is known about whether a Brexit will occur.

A UK withdrawal from the EU would be expected to impact on the macroeconomic environment and financial markets in both the UK and Ireland. Irish financial institutions would be affected by the more adverse economic environment, although some institutions would be more affected than others due to different sectoral implications. [redacted] More specifically, the UK is a particularly important export destination for indigenous sectors such as agri-food, clothing and footwear, wood and paper products and building materials and such sectors would be affected by any downturn in the UK economy and/or depreciation of sterling against the euro. The tourism and hospitality sectors would also be affected by any exchange rate appreciation. [redacted] For the insurance sector, firms whose business primarily consists of cross-border sales to UK based policy holders are likely to be particularly affected while a domestic slowdown would impact in particular on firms in the non-life sector which are already experiencing a highly competitive market which has reduced underwriting profitability and in some instances their solvency position.

Some firms would be additionally affected by any downturn in the UK property market. [redacted] The impact on business activity and profitability for firms supervised by the Markets Directorate from these macroeconomic and sectoral effects are likely to be less significant. Depending on the format of a Brexit, the impact could come through loss of access to a UK client base and some firm closures, either Irish branches of UK firms or UK branches of Irish firms, might be expected. It is considered that, if a Brexit occurs, Markets Directorate firms and the local Investment Firm/Funds industries may in fact experience positive growth due to the removal of UK competitors both from the Irish and EEA markets.

The macroeconomic effects reflect also financial market effects including market volatility, likely depreciation of sterling vis-à-vis the euro and possible effects on sovereign bond yields. These would also directly affect firms' business activity and profitability through the impact on funding costs and investment portfolios, including through mark-to-market losses. Increased market volatility could also affect MiFiD firms through an impact on investment fee income.

[redacted] The Central Bank has been engaging with them in this regard and the findings of this report as well as any follow-up work across Directorates provide a basis for further and more specific engagement. Based on potential exposures of particular firms to Brexit risks and the potential impact on the overall financial system, additional analytical work within the Central Bank could be considered. Further examination of potential effects can be undertaken as part of the FSAP preparations,

[redacted]

The potential direct impact on the Central Bank balance sheet from financial market effects was assessed, notably the effect of an increase in credit spreads on Irish sovereign debt. Some impact would be expected on the scale of realised gains from disposals of the remaining floating rate notes as well as its carrying value. The potential impact is not thought to be too significant or out of line with normal market risks.

A second channel through which Brexit would impact on the Irish financial system is foreign direct investment. Restrictions on UK access to the single market would provide incentives for some international financial firms to locate operations in Ireland with a view to providing financial services through the EU. As noted in the report, the scale of potential additional business seeking to locate here would depend critically on the nature of the UK withdrawal but also the reaction of the UK in terms of its own financial sector/industrial/taxation policies in the event of a Brexit. Nevertheless, there could potentially be a large number of new applications for authorisations and these could vary in terms of size, type of business, complexity and risk profile.

New applications for financial services firms to locate here would pose challenges to the Central Bank from a supervisory perspective. Additionally, applications from financial market infrastructures including central counterparties (CCPs), securities settlement systems (SSSs), central securities depositories (CSDs) and payments systems are a possibility, although these could materialise even with no Brexit. Important issues for consideration in this regard include whether increased resources would be required to accommodate additional authorisation requests, whether the appropriate skills base exists for supervision of any new types of activity and whether any strategic consideration is necessary regarding the type of firms or activities that might seek to locate here.

**The Commission is requested to note:**

**The potential economic and financial sector impacts of a UK exit from the EU as laid out in this report, including:**

- **possible Brexit scenarios;**
- **potential impact on the Irish macroeconomy;**

- **potential impact across the Irish financial sector (banks, insurance, funds and financial market infrastructures);**
- **supervisory and financial stability implications for the Central Bank.**