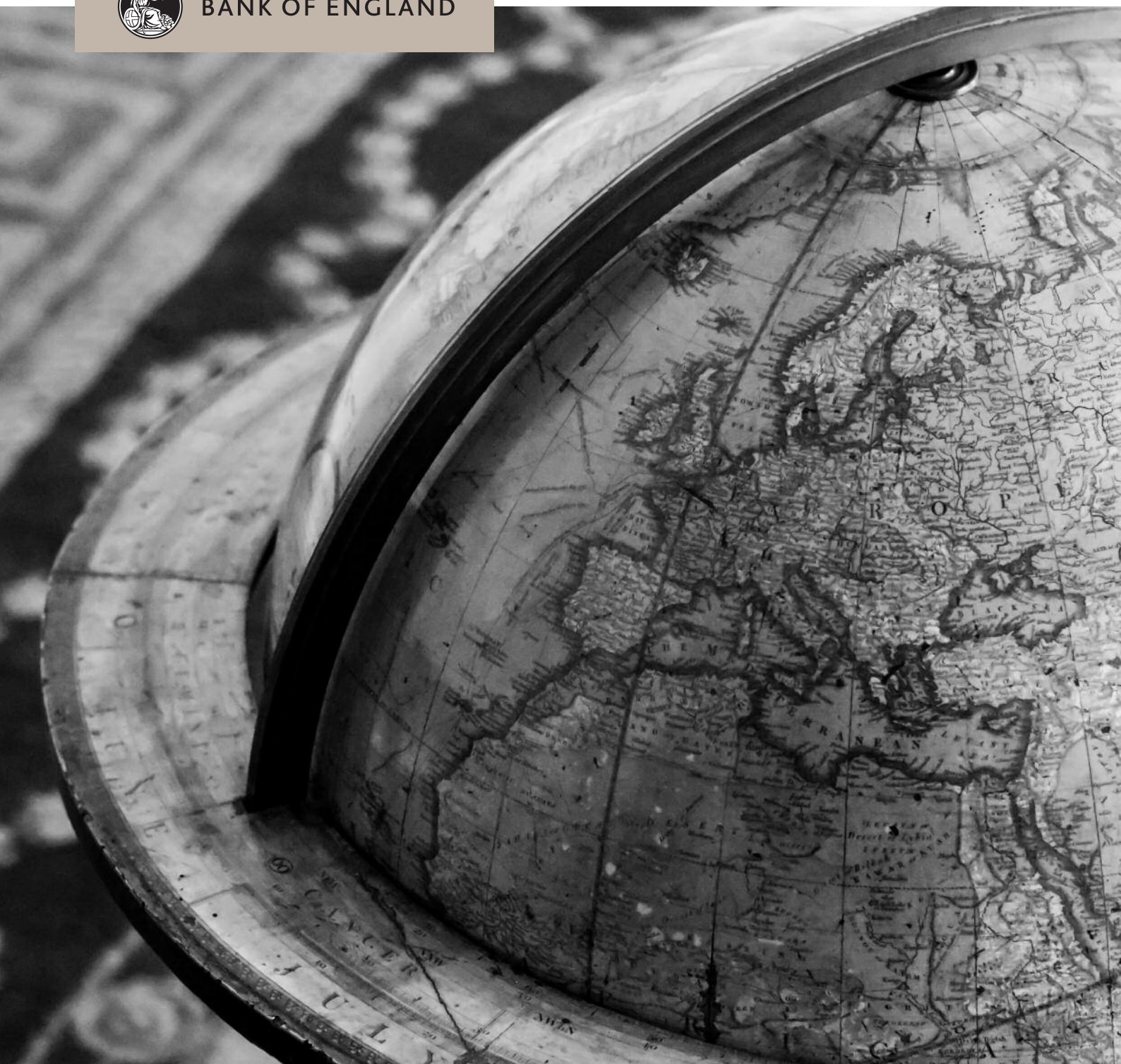
EU membership and the Bank of England

October 2015

BANK OF ENGLAND



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Executive Summary

This report analyses how membership of the European Union (EU) affects the Bank of England's ability to fulfil its mission to promote the good of the people of the United Kingdom by achieving its statutory objectives. Parliament has mandated the Bank to maintain price and financial stability, promote the safety and soundness of PRA-authorised firms and contribute to securing an appropriate degree of protection for insurance policy holders. Subject to achieving those primary objectives, the Bank's statutory policy committees have secondary objectives to support the economic policies of the government, including its objectives for strong, sustainable and balanced growth. In addition, the PRA must, so far as is reasonably possible, facilitate effective competition in the markets for services provided by PRA-authorised firms.

There are three ways in which EU membership affects the Bank of England's objectives:

- First, to the extent it increases economic and financial openness, EU membership reinforces the dynamism of the UK economy. A more dynamic economy is more resilient to shocks; can grow more rapidly without generating inflationary pressure or creating risks to financial stability and can also be associated with more effective competition.

- Second, increased economic and financial openness means the UK economy is more exposed to economic and financial shocks from overseas. In recent years, as a result of closer integration with the EU and, more recently, with the euro area, this may have increased the challenges to UK economic and financial stability; and,

- Third, EU regulations, directives and rules define many of the Bank of England's policy instruments particularly in relation to financial stability. These must be sufficiently flexible and effective to manage the consequences for the United Kingdom of shocks originating in both the domestic and global economy and financial system.

There have been a number of previous assessments of the impact of EU membership on the UK economy. These studies produce a wide range of estimates by using different analytical approaches to compare the status quo of EU membership with hypothetical cases in which the UK either was not a member of, or had a different relationship with, the EU. That is not the focus of this report, which concentrates on the overall impact of EU membership on the Bank's objectives.

The UK is amongst the most dynamic advanced economies in the world. UK labour productivity growth has exceeded that in the US over the period since the UK joined the EU, though it has not caught up with the US, which is generally seen as the technological frontier. The UK has very high levels of labour market engagement; the proportion of working age adults in employment is 4 percentage points higher than in the US. Since the start of the Global Financial Crisis, UK jobs have grown 3 percentage points more than the US. In 2012, the UK created more than three times as many new businesses as the US, allowing for the relative difference in size of the two economies. The dynamism of the UK economy is the product of a variety of drivers including economic openness, flexible labour and product markets, deep human capital, well-developed physical infrastructure, a competitive fiscal regime, as well as the clarity and integrity of the rule of law.

Over the past forty years, the UK has become a much more open economy. This has been consistent with a general trend towards openness among advanced economies and the globalisation of the world economy since the mid-1990s. The evidence very strongly suggests that the increase in trade openness of the UK associated with EU membership has been greater than the global economic trend. Trade costs have fallen faster in the EU than internationally and the flow of trade between the UK and its partners has grown faster than might be expected based on size and proximity. Since, 1993, when the single market came into force, the UK has consistently been one of the top recipients of foreign capital among advanced economies and has been the largest recipient of Foreign Direct Investment (FDI) flows in the EU. Free movement of labour has also contributed to openness.

There is substantial evidence that openness supports economic dynamism through a range of channels, thereby raising economic growth and boosting living standards. Openness promotes innovation and the adoption of new technologies through the free movement of capital and labour. It allows firms to specialise in a narrower range of products and to exploit economies of scale, raising efficiency. Increased competition from operating in a larger market reinforces these dynamics. Greater competitive pressure favours more productive domestic firms, enhancing economic dynamism in the long run as production shifts to them. Greater financial openness improves matching of savers with borrowers which lowers financing costs, boosts investment and ultimately growth. These channels from openness to dynamism operate in the EU as they do elsewhere, and it is very likely that the openness associated with membership of the world's largest economic area with free movement of goods, services, capital and labour has led to greater economic dynamism in the UK.

As the UK has become increasingly open, its interdependence with other economies, including the euro area, has increased. This has changed the forces that shape the structure of the UK economy and the nature of the economic and financial shocks to which it is subject. Other things equal, increased openness should lead to lower economic volatility through time as it enables households, businesses and financial institutions to diversify their risks across countries and so insure against domestic and overseas shocks. In addition, as a result of increased participation of foreign institutions, a diversified financial system should be more resilient and competitively intense.

However, since risk sharing is never perfect, greater openness can also create challenges. When risk sharing is incomplete or policy and institutional frameworks are weak, openness can increase the exposure to, and impact of, foreign shocks, thereby reducing the resilience of the economy and of the financial system and accentuating existing imbalances. To ensure that openness is net beneficial, domestic and overseas economic policies must be sound and financial systems well regulated. Policy makers must also have both the right tools and sufficient flexibility to use them. The global financial crisis demonstrated the damage that can be wrought to the UK's real economy from failings of policy and regulation at home and abroad.

The UK economy was materially affected by the euro-area crisis. The euro area accounts for over 85% of the GDP of the rest of the EU, it is the largest destination for the UK's exports, and its financial system is tightly linked with that of the UK.

A successful and sustainable Economic and Monetary Union (EMU) is important for the dynamism and stability of both the euro area and the UK. As highlighted in the European Commission's 'Five Presidents' Report', the euro area is "unfinished business."[1] Much has been accomplished since the crisis, including a range of measures – such as government guarantees, capital and liquidity injections, asset removals ('bad banks') and insurance schemes – taken by member states to address the systemic fragility of their banking systems; Outright Monetary Transactions conducted by the European Central Bank (ECB); and a comprehensive review of the euro-area banking sector by the European Banking Authority (EBA) and the ECB. Notwithstanding this considerable progress, further financial and fiscal integration within the euro area will be necessary over time to strengthen EMU. In particular, closer financial integration requires increased risk sharing in the public and private sector. Much of that risk sharing can be achieved by the development of more complete Banking Union in the euro area and, more broadly, a Capital Markets Union for the EU.

EU membership does not prevent the Monetary Policy Committee (MPC) from achieving monetary stability in the UK. Although closer integration with the EU has changed the nature and amplitude of shocks to which the UK economy is subject, and the complexity of the policy response, a floating exchange rate and the UK's institutional and monetary policy framework has enabled the UK to absorb these shocks with little impact on underlying price stability. In addition, where foreign shocks have directly affected UK inflation, the MPC has been able to either 'look through' them if they are temporary in order to avoid unnecessary output volatility, or offset them if they are more persistent, in order to achieve its inflation target.

The impact of EU membership on financial stability is more challenging. Greatly increased financial openness, in part associated with EU membership, has made the UK financial system larger, more complex and more exposed to shocks from abroad. These developments reinforced domestically generated vulnerabilities in the run up to the global financial crisis. The UK, along with many of its main international partners, lacked the institutions and tools for managing the build-up of risks from financial openness and for addressing them when they crystallised. As a result, when the crisis hit, global shocks were transmitted virulently across borders, doing great damage to the financial systems and real economies of many countries. The UK was particularly affected as its institutional framework and policy tools proved inadequate given its high degree of financial openness.

Financial stability is ultimately a national responsibility. The Bank of England is charged with ensuring UK financial stability and is accountable to the UK Parliament. The UK taxpayer is the ultimate backstop of the UK financial system.

The UK's institutional framework for financial stability has been comprehensively reformed since the crisis, with the creation of the Financial Policy Committee and the Prudential Regulation Authority of the Bank of England and the Financial Conduct Authority. These reforms provide the UK with a coherent architecture of national macroprudential and microprudential regulators and supervisors commensurate with the scale and nature of the risks that the UK's high degree of financial openness can pose. These provide the foundation for the UK to maintain and develop its role as the world's leading international financial centre, one which can safely be home to the largest global, systemically important banks and insurers.

[1] This quote is taken from 'Stability and Prosperity in Monetary Union' (2015) by Mario Draghi, one of the authors of the "Five Presidents Report".

Strong domestic frameworks are however only one element of the management and mitigation of the risks from financial openness. Domestic regulators must also have the tools and the flexibility to use them to do the job. UK authorities depend in no small part on the quality of regulation in the home jurisdictions of foreign financial firms active in the UK. The UK's membership of the EU is especially relevant in both respects.

Participation in the single market means that the majority of the legislation and regulation applying to the financial sector in the UK is determined at EU level. Such EU legislation and regulation must balance the achievement of the safety and soundness of firms and overall financial stability of the system with the need to ensure the fair competition and common rules necessary for the single market. To the extent EU regulation is of high quality and incorporates relevant international standards, it raises standards and reduces risks across the EU. Since it has the force of law, it also enables the UK authorities to have far greater assurance as to the safety and soundness of the large number of financial firms from other EU jurisdictions that operate in the UK. This is particularly important as under the rules of the single market, EU authorised firms are generally entitled to establish a branch without the need for prior authorisation or direct prudential supervision by the UK authorities.

As home to the world's leading international financial centre, it is vital that UK authorities are able to apply the highest standards and have the flexibility to take action to address particular financial stability risks. The scale, complexity and degree of global activity of the UK financial system are unmatched in the European Union. More foreign banks operate in the UK than any other EU country, and around half of the world's largest financial firms have their European headquarters in the UK. The UK has the largest global share of cross-border bank lending, foreign exchange trading and interest rate OTC derivatives. It has the third largest insurance industry and the second largest asset management industries in the world. The assets of the UK banking sector are four times UK GDP and non-bank financial institutions are a similar size. In 2012, the financial services sector accounted for 8% of UK output and around 3½% of employment.

Following the financial crisis, the EU has carried out a major legislative and regulatory programme which implemented and often exceeded the internationally-agreed G20 post-crisis reform agenda. The Bank of England has contributed actively to this process. The resulting legislation has substantially raised the quality of regulation in the EU overall. The need for national regulators and supervisors to have the flexibility in applying EU rules to address the particular risks they face has in the main been respected. However, the general movement away from setting minimum standards in favour of 'maximum harmonisation', which prevents national authorities from strengthening regulation to meet particular risks in their jurisdiction, has in some instances been problematic.

How financial regulation in the EU evolves will be important to the resilience of both the euro area and the UK. Ensuring the Bank of England has the instruments necessary to achieve its financial stability objective will depend on the EU continuing to have regulations of the highest standards, which strike the appropriate balance between harmonisation and flexibility, and accommodate necessary national responsibilities, including for supervision. In addition, closer union between euro-area member states is likely to necessitate further harmonisation of financial regulation across the euro area. It is also likely to lead to reduced flexibility and discretion of the national authorities of euro-area member states in favour of decisions and rules by the authorities of the Banking Union – the ECB, the Single Supervisory Mechanism and the Single Resolution Authority. It is important, particularly given the weight of the ECB and of the members of the single currency within the EU, that arrangements are put in place so that the future development of the EU regulatory framework aids the necessary deepening of integration in the euro area

without impairing the ability of the Bank of England to meet its financial stability objective or compromise the single market.

Overall, the openness of the UK economy has almost certainly increased as a result of EU membership. This is likely to have increased dynamism and the ability of the economy to grow without generating risks to the Bank of England's primary objectives of monetary or financial stability. Dynamism will also have contributed to the achievement of the Bank of England's secondary objectives of strong sustainable and balanced growth and facilitating effective competition. Greater openness to the EU, however, like openness more generally, has probably increased the external challenges to UK monetary and financial stability, as seen in the recent euro-area crisis.

The UK's institutional arrangements and policy framework for price stability have been able to manage these challenges and maintain price stability. A reformed domestic institutional framework for financial stability is in place to address the shortcomings exposed by the financial crisis and protect financial stability. This framework depends in part on the quality of financial regulation set at the EU level and the flexibility to apply that regulation to meet the specific financial stability challenges in the world's largest international financial centre. In the main this combination has been achieved thus far. It may, however, become more challenging as the euro area integrates further.

Looking forward, the future development of the EU regulatory framework must be able to facilitate the necessary further integration of the euro area. The single currency however, requires a higher degree of integration and risk sharing than the single market. It is therefore desirable, particularly given the weight of the ECB and of the members of the single currency within the EU, that there are clear principles to safeguard the interests of non euro-area member states. This will ensure the ability of the Bank of England to continue to meet its financial stability objectives is not impaired and the integrity of the single market is not weakened. The future direction of EU financial reform should recognise that the EU comprises multiple currencies with multiple risks. Such principles would enable the Bank of England to continue to ensure that EU membership contributes fully to the attainment of the Bank's statutory objectives.

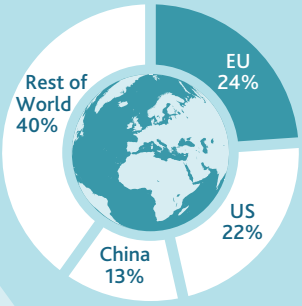
SIZE OF THE TRADE

One third of all global trade is with the EU

EU exports were worth £5 trillion and imports £4.7 trillion in 2014. Three fifths of this trade was within the EU. Even excluding this intra-EU trade, as a single entity the EU was still the largest exporter and importer in the world.

As a single entity the European Union is the largest economy in the world

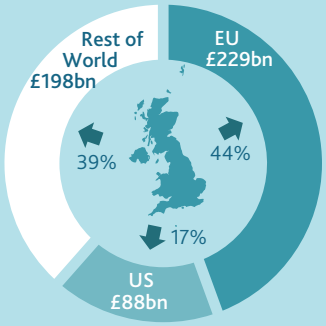
EU GDP was worth £11.3 trillion in 2014 just larger than the US (£10.5 trillion).



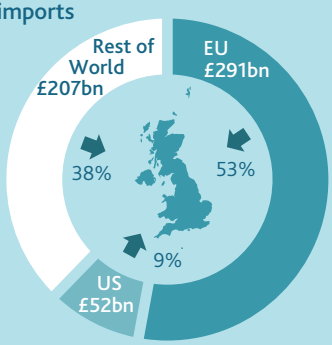
The EU is the UK's biggest trading partner

UK exports and imports are together worth 60% of UK GDP. Around half of that trade is with the rest of the EU.

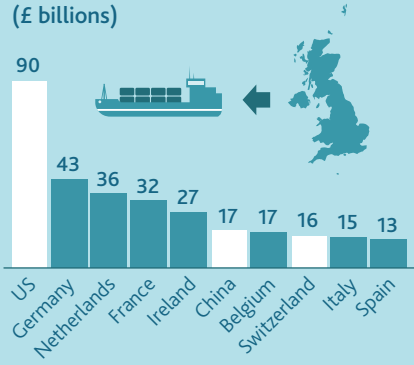
UK exports



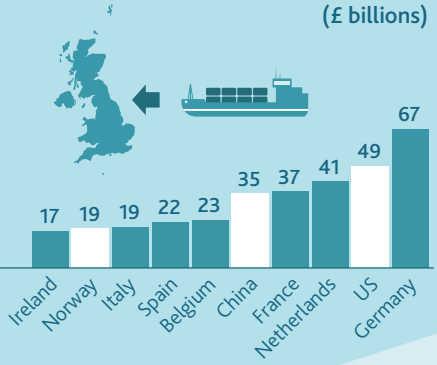
UK imports



Top ten UK export destinations* (£ billions)



Top ten sources of UK imports* (£ billions)



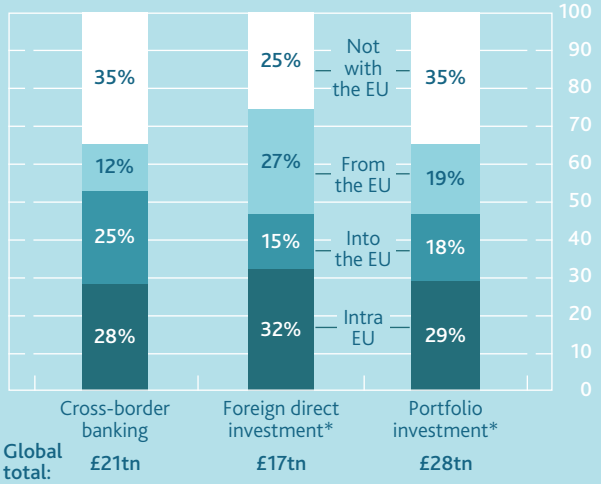
Seven of the UK's ten largest import and export markets are other EU countries.

CROSS-BORDER INVESTMENT

Two thirds of all global cross-border investment involves the EU

Investment between EU member states accounts for just under a third of the value of all cross-border investment. A further third is between the EU and the rest of the world.

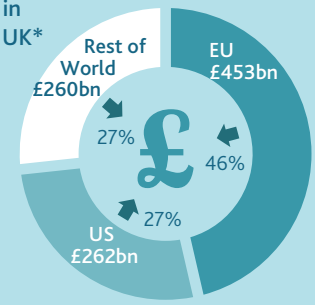
Share of global cross-border investment



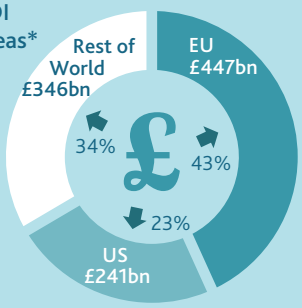
The EU is the UK's biggest investment partner

Foreign investors own £10.6 trillion of UK assets — more than five times UK GDP. UK investors own £10.2 trillion of foreign assets. The EU is either the destination or source for over two fifths of the UK's cross-border investments. Around a tenth of the UK's assets and liabilities are Foreign Direct Investment (FDI), which are most closely linked to economic growth. The UK is one of the top destinations for FDI within the EU and globally.

FDI in the UK*



UK FDI overseas*



Sources: BIS, EBA, FSB, IMF, OECD, ONS, UN and Bank of England.
Notes: All figures refer to 2014 except those flagged with a *, which refer to 2013.
Figures have been converted to pounds sterling from other currencies using market exchange rates prevailing at the time.

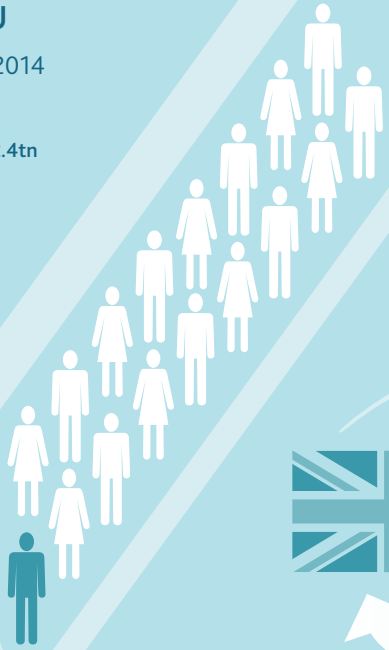
The United Kingdom is the second largest economy in the EU

UK GDP was worth £1.8 trillion in 2014 just under a sixth of EU output.

1	Germany	£2.4tn
2	United Kingdom	£1.8tn
3	France	£1.7tn
4	Italy	£1.3tn
5	Spain	£0.9tn
6	Netherlands	£0.5tn
7	Sweden	£0.3tn
8	Poland	£0.3tn
9	Belgium	£0.3tn
10	Austria	£0.3tn

505 million people live in the European Union — one in fourteen of the world's population

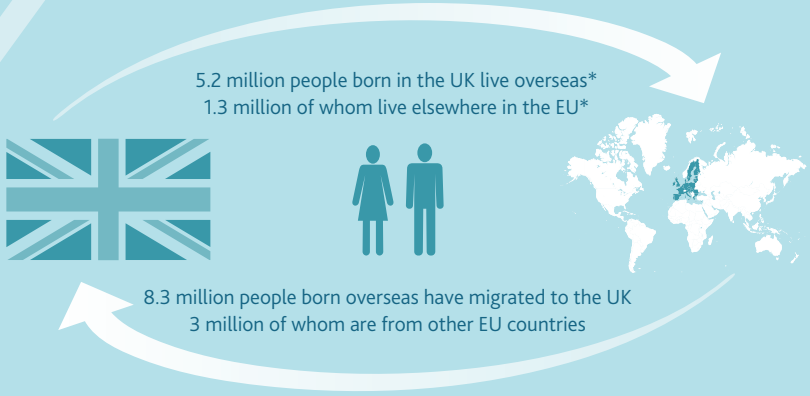
The EU's population (505mn) is 60% larger than the US (319mn) but just over a third the size of China (1.37bn) and India (1.26bn).



ECONOMY

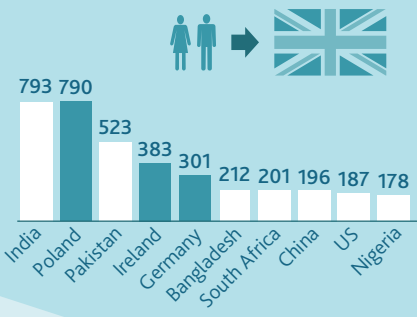
64.6 million people live in the UK

The UK accounts for one eighth of the EU's population — the second most populous EU country after Germany.

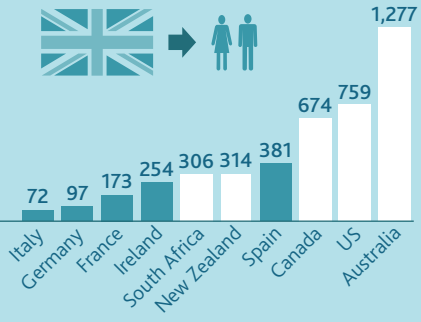


PEOPLE

Number of migrants living in the UK: Top ten source countries (000s of people)



Number of UK migrants living overseas:* Top ten destinations (000s of people)



EU countries account for five of the top ten most favoured countries for those emigrating from the UK, and three of the top ten sources of migrants living in the UK.

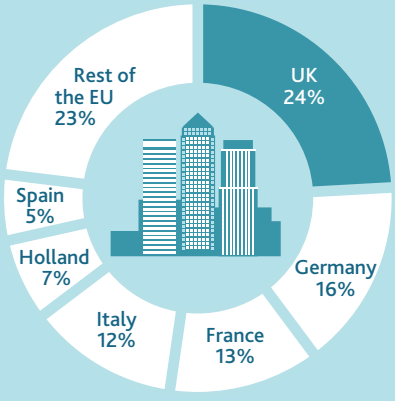
FINANCIAL SERVICES

The EU has one of the largest financial service sectors in the world

The EU is home to fourteen of the world's 30 globally systemically important banks (GSIBs) and accounts for half of all global exports of financial services. In 2014, the EU financial services sector added over £0.5 trillion in value to the global economy — second only to the US.

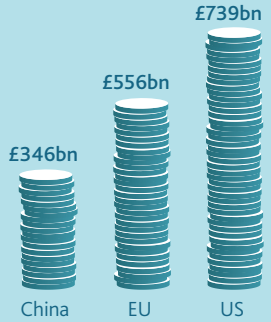
The UK is the largest financial centre in the EU

Share of EU financial services activity — gross value added

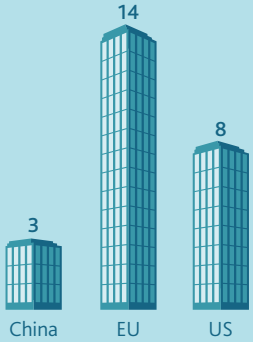


The UK financial sector accounts for almost a quarter of all EU financial services income and 40% of EU financial services exports. The UK financial sector is heavily interconnected with the rest of the EU — 80 of the 358 banks operating in the UK are headquartered elsewhere in Europe.* The UK is also the leading global financial centre in a number of areas including cross-border bank lending and several forms of derivative trading activity and insurance services. Financial services account for 8% of UK national income.

Financial Services — gross value added*



Number of GSIBs (global systemically important banks)



Introduction

The 2015 Queen's Speech announced that the government would renegotiate the United Kingdom's relationship with the European Union (EU) and introduce legislation to provide for an in-out referendum on membership of the EU before the end of 2017. Ahead of that referendum, this report assesses how EU membership affects the Bank of England's ability to achieve its objectives.

The Bank of England's[2] mission is to promote the good of the people of the United Kingdom by maintaining monetary and financial stability. The Monetary Policy Committee (MPC) sets the short-term interest rate (known as Bank Rate) to achieve monetary stability as defined by the government's 2% inflation target.[3] Since 2013, the Financial Policy Committee (FPC) has statutory responsibility for setting macroprudential tools in order to protect and enhance the stability of the UK financial system. Subject to achieving these objectives, both the MPC and FPC have a secondary objective to support the government's objectives for growth and employment.[4] Finally, the Prudential Regulation Authority (PRA) has statutory responsibility for enhancing the safety and soundness of the 1,700 financial firms it supervises and securing an appropriate degree of protection for insurance policy holders. The PRA also has a secondary objective to facilitate effective competition in the markets for services provided by PRA-authorised firms.[5]

Taken as a single entity, the European Union (EU) is the largest economy in the world.[6] Since the Treaty of Rome was signed by the first six members of the 'European Economic Community' (EEC) in 1957, the EU has sought to achieve increased economic integration between member states. The UK joined the EU in 1973. There are now 28 member states in the EU, nineteen of which share the euro as a common currency (accounting for around three quarters of EU GDP). **Box A** at the end of this Chapter sets out the reasons why the UK joined the EU and how the EU has evolved over the post-war period in more detail.

There have been a number of previous assessments of the impact of EU membership on the UK economy. These studies, which are briefly summarised in **Annex 1**, produce a range of estimates by using different analytical approaches to compare the status quo of EU membership with hypothetical cases in which the UK either was not a member of, or had a different relationship with, the EU.

It is difficult to quantify the precise impact of EU membership on the UK economy. First, it is impossible to say with certainty what the UK economy would have looked like had the UK not joined the EU in 1973. Second, EU membership affects the UK economy in many different ways, through many different channels, at least some of which are difficult to quantify, or to separate from other changes to the UK economy taking place over the same period. Third, any quantitative assessment will necessarily depend on a wide range of uncertain economic assumptions. Fourth, the impact of EU membership is likely to have changed, and will change further, over time as the shape and structure of the framework circumscribing the UK's membership of the EU evolves.

[2] References in this Report to the Bank of England include reference to the Monetary Policy Committee, Financial Policy Committee and Prudential Regulation Authority, were the context so admits.

[3] In March 2009, the MPC announced that in addition to setting Bank Rate, it would start to inject money directly into the economy by purchasing financial assets —often known as quantitative easing. For more detail, see: www.bankofengland.co.uk/monetarypolicy/Pages/qe/default.aspx.

[4] In addition, the Chancellor's 2015 remit letter to the FPC asked the committee to consider how, subject to its primary objective to protect and enhance the stability of the UK's financial system, its actions might affect competition and innovation, and their impact on the international competitiveness of the UK financial system.

[5] The Bank of England's statutory objectives are set out in section 2A (the financial stability objective), section 9C (the FPC objectives) and section 11(the objectives relating to monetary policy) of the Bank of England Act 1998. The Prudential Regulation Authority's statutory objectives are set out in the section 2B (the PRA's general objective), section 2C (the insurance objective) and section 2H (the secondary competition objective) of the Financial Services and Markets Act 2000.

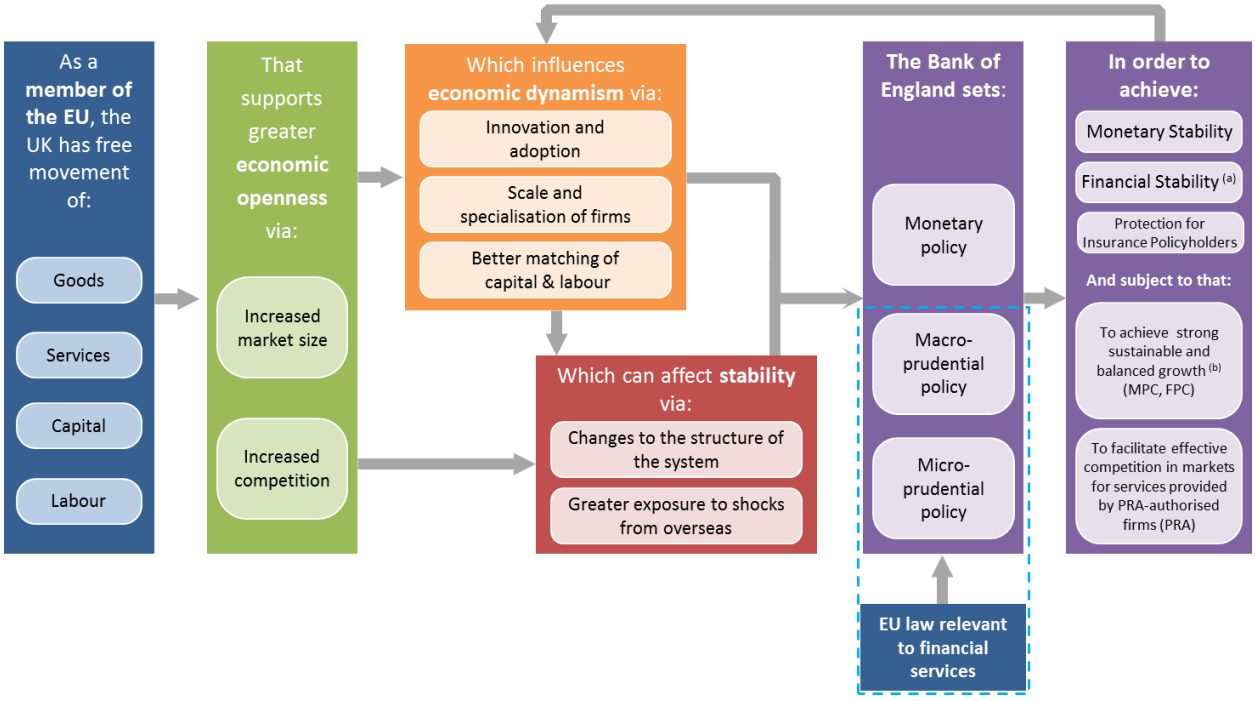
[6] As of 2014, measured at market exchange rate, Source: IMF WEO database.

This report takes a different approach. Rather than quantifying the precise impact of EU membership on UK GDP at a given point in time, this report concentrates on the overall impact of EU membership on the Bank of England's objectives. As well as the direct impact of EU membership on microprudential and macroprudential policy making at the Bank of England, the report considers the channels of influence through the openness, dynamism and stability of the UK economy. While the identification of those channels is consistent with the EU playing a role in affecting UK economic outcomes and, therefore Bank of England policy-making, it can be difficult to separate the impact of EU membership from domestic legislation and the trend towards increased globalisation over the same period.

In some areas, it is possible to establish a more specific role for the EU by comparing metrics of openness for the UK with other EU members and non-member states. If the UK and other EU member states share a common experience across the metrics considered, which is demonstrably different than the experience of non-EU economies, then that is taken as supportive evidence that the EU has played a role. In some areas, it is possible to discern such a trend in the data, in others, performance across the EU varies and sometimes, there is an insufficient amount of data to know for certain. It is also likely that the impact of EU membership on the UK economy has changed over time.

In this framework – which is summarised in Figure A – EU membership affects the economic and financial openness of the UK economy through the free movement of goods, services, capital and labour throughout the EU (shown in the blue box on the left-hand side of the diagram). The 'openness' of an economy can be thought of as the ease with which goods, services, capital and labour move across borders, which in turn increases market size and competition for UK firms (the green box). **Chapter 1** considers the evidence in this area for goods, services, capital and labour markets in more detail, although in practice, openness is hard to measure, which means that proxy measures must be used instead.

Figure A: The channels through which EU membership affects the achievement of the Bank of England's objectives



[a] Financial stability includes: protecting and enhancing the stability of the financial system (FPC) and promoting the safety and soundness of PRA-authorised firms (PRA)

[b] In addition, the Chancellor's 2015 remit letter to the FPC asked the committee to consider how, subject to its primary objective to protect and enhance the stability of the UK's financial system, its actions might affect competition and innovation, and their impact on the international competitiveness of the UK financial system.

Greater economic and financial openness will support dynamism, raising economic growth and boosting living standards. Dynamism encompasses the potential growth in income or economic output given the total amount of hours that people wish to work – or the growth of labour productivity per hour. In this assessment, a broader definition is used; a dynamic economy is also likely to be one where entrepreneurs will innovate and set up new firms and new jobs will be created, enhancing the welfare of its citizens by allowing resources to move flexibly to new productive opportunities. Dynamism is driven by growth in both the capital inputs to production and the efficiency with which labour and capital are combined. This is distinct from the overall long-run growth rate of the economy, which is driven both by dynamism and by increases in labour supply, through either growth in the workforce or the number of hours worked. It can also be distinguished from short-term growth, which will be influenced by a range of cyclical factors and economic shocks. **Chapter 2** sets out the three channels through which increased market size and competition for firms can increase dynamism (the light orange box in **Figure A**). First, they provide greater access to new ideas and increase the rewards from **innovation and adoption**. Second, they create conditions in which more productive firms can expand while less productive firms contract, increasing **scale and specialisation** of production. Finally, they lead **to better matching of capital and labour**, improving the allocation of resources.

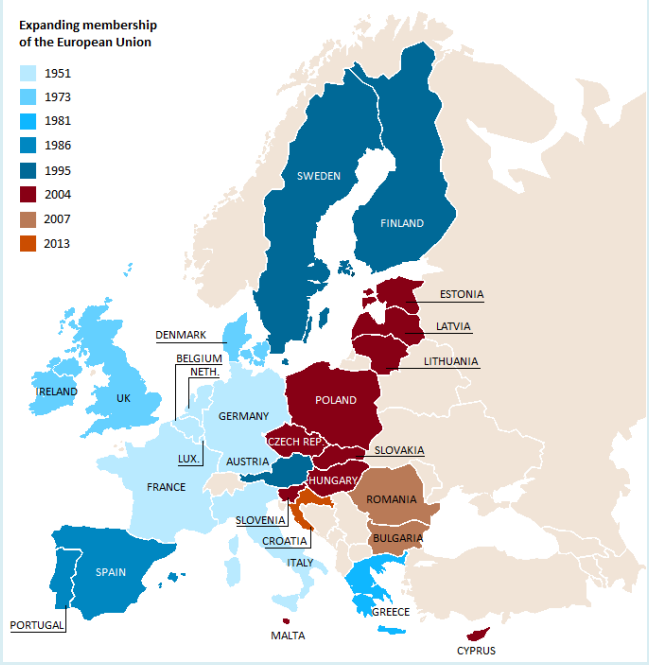
Increased openness will influence the monetary and financial stability of the UK economy. Both monetary and financial stability are necessary to ensure sustainable dynamism – a stable rise in incomes over time for households and businesses. As the UK has become increasingly open, its interdependence with other economies, including with the rest of the EU and more recently the euro area, has increased. Other things equal, increased openness should lead to lower economic volatility through time as it enables households, businesses and financial institutions to diversify their risks across countries and so insure against domestic and overseas shocks. However, since risk sharing is never perfect, greater openness can also create challenges. Openness facilitated strong and steady growth for the UK economy in the 15 years before the financial crisis – the so-called Great Moderation period. However, during the financial crisis of 2007-9 and the euro-area crisis of 2010-12, growth became more volatile and the economy contracted as the UK was hit by large and adverse shocks from overseas. The UK's deep links with the EU meant the UK has been particularly affected by the euro-area crisis. Monetary policy has been able to respond to these shocks, but the financial stability framework – both at the domestic and global level – was found to be wanting during the global financial crisis. **Chapter 3** discusses how EU membership is likely to have played a role in affecting UK stability by influencing the **structure of the UK economy and financial system** and by **increasing the UK's exposure to shocks from overseas** (the red box in **Figure A).**

Economic and financial openness generates strong incentives for policymakers to co-operate with their foreign counterparts. Following the financial crisis, the EU has carried out a major legislative and regulatory programme which implemented and often exceeded the internationally-agreed G20 post-crisis reform agenda. In doing so, the EU has had a significant direct influence on microprudential and macroprudential policy making at the Bank of England (the dashed line linking the blue box at the bottom of **Figure A** with the purple box). Such EU legislation and regulation must balance the achievement of safety and soundness of firms and overall financial stability of the system – including through providing national regulators and supervisors with the flexibility they need to address the particular risks they face – with the need to ensure the fair competition and rules necessary to establish a single market in financial services in the EU. That balance will also shift going forwards as the euro area takes further steps towards greater economic and financial integration. In light of that evolving picture, **Chapter 4** discusses how the Bank of England's policy framework – and so its ability to achieve its objectives – is affected by EU rules. It focuses in particular on the framework for prudential regulation and financial stability policy.

Box A: The history of the EU and its relationship with the UK

The European Union (EU) is a union of twenty-eight member states designed to enhance political, economic and social co-operation. Founded through a string of treaties beginning in the 1950s, the EU has evolved considerably in size over time (**Figure A**). This Box discusses some of the key treaties and events that shaped the EU and how its success in raising the living standards of its founding members in the 1950s and 60s led to various attempts by the UK to join, culminating in a successful application in 1973.

Figure A: The evolution of the EU over time



The origins of the EU

The moves towards closer European integration began in 1951 with the formation of the European Coal and Steel Community (ECSC) where France, Germany, Belgium, Italy, Luxembourg and the Netherlands agreed to co-operate on the integration of their coal and steel industries. UK politicians were initially ambivalent about the moves towards European integration, in large part due to the strong historical links with the Commonwealth. As a result, Britain opted to stay out of the ECSC. The UK also withdrew from the Spaak Committee of 1955 which was a prelude to the signing of the Treaty of Rome in 1957. This Treaty, which came into force in 1958, established the European Economic Community or EEC – a formal customs union of the six members of the ECSC.

There was also a more general movement across the world towards lower tariffs and trade barriers that emerged from the various rounds of GATT (General Agreement on Tariffs and Trade) talks that came into force in 1948. Significant progress was made in reducing tariffs in the 1950s and 1960s. The UK played its part by hosting the third round of GATT talks in 1950. The question for the UK over this period was whether joining a European customs union would be beneficial for the country if the global economy overall was becoming more open to free trade, particularly given the higher external tariff that would apply to trade with the rest of the world if it joined the EEC. In particular, food and raw material imports from the Commonwealth would become more expensive.

The UK was therefore in favour of the development of a broader European free trade area that would encapsulate the existing Community and seek to contribute to the global expansion of trade. When agreement at the Spaak committee could not be reached with the ECSC members in 1955, the UK turned to other European states and established EFTA (the European Free Trade Area) in 1960 with Austria, Denmark, Norway, Portugal, Sweden and Switzerland.

Changing attitudes – the road to the UK joining in 1973

By the late 1950s and early 1960s attitudes had begun to shift and the economic benefits of joining the European community became more appealing. The UK's international commitments were diminishing, the trade benefits from EFTA membership were limited and the UK was trading less with the Commonwealth and more with the EU6. There was also growing disillusionment with domestic demand management policy, which frequently ran into a balance of payments problem and the so-called 'stop-go'

or 'boom bust' cycle. This disillusion with the variability of output growth was also matched by increasing awareness of the underlying growth performance of the Community members. So in the early 1960s, attempts were made to join the EEC by both the Conservative government under Harold Macmillan and the Labour government under Harold Wilson who saw EEC membership as part of the solution to break out of the stop-go cycle and achieve the faster, more sustainable growth experienced by the EEC members. However, both of the UK's applications to join the EEC in 1963 and 1967 were unsuccessful due to the opposition of the French Government.

The election of a new French government in 1969 paved the way for a third and successful attempt to join the EEC in 1973. The Heath government was committed to modernising the UK economy and the White Paper of 1971 laid out what the government saw as the key benefits of EEC entry for dynamism (see **Box 2.C**). These effects on economic dynamism were argued to dominate the short-term costs of joining the EEC from higher import and food prices and the fiscal contributions to the Common Agricultural Policy.

The post-1973 development of the EU

One of the key objectives of the Treaty of Rome in 1957 was the development of a common internal market among member states. By July 1968 all tariffs among the EEC member states had been removed and a common external tariff had been established for all products coming from third countries. However, it was not until the 1980s that significant progress was made in removing various trade barriers. The 1986 Single European Act set out a six-year programme aimed at fixing the problems that continued to hold up the free flow of goods across Europe. The Single European Act, which came into force in 1987, committed the EEC to creating a functioning single market allowing for the free movement of goods, persons, services and capital. This process ended with the establishment of the Single Market on 1 January 1993 following the creation of the EU in the 1992 Maastricht treaty.

Despite the establishment of a single market, the conditions for the free movement of capital and financial services were not quite yet in place. The Second Banking Directive, which established 'passporting' arrangements, allowed banks in the EU to set up branches freely in in other member states, without requiring them to establish a UK-incorporated subsidiary. Also, in 1999 the EU Financial Services Action plan was introduced committing members to improve the single market in financial services.

Following the expansion of the EU to include fifteen member states in 1995, eleven of those countries joined together in a currency union in 1999 when the euro was created. Greece adopted the currency two years later, though Sweden, Denmark and the UK opted out. The EU expanded again in 2004, with the accession of ten East and South Eastern European economies.

The Treaty of Lisbon, which, amongst other things, clarified which powers belonged to the EU and which belong to or are shared with national governments, was signed by EU member states on 13 December 2007, and entered into force on 1 December 2009. It amended the previous EU treaties which are now called the Treaty on European Union and the Treaty on the Functioning of the European Union.

Relevant non-EU developments

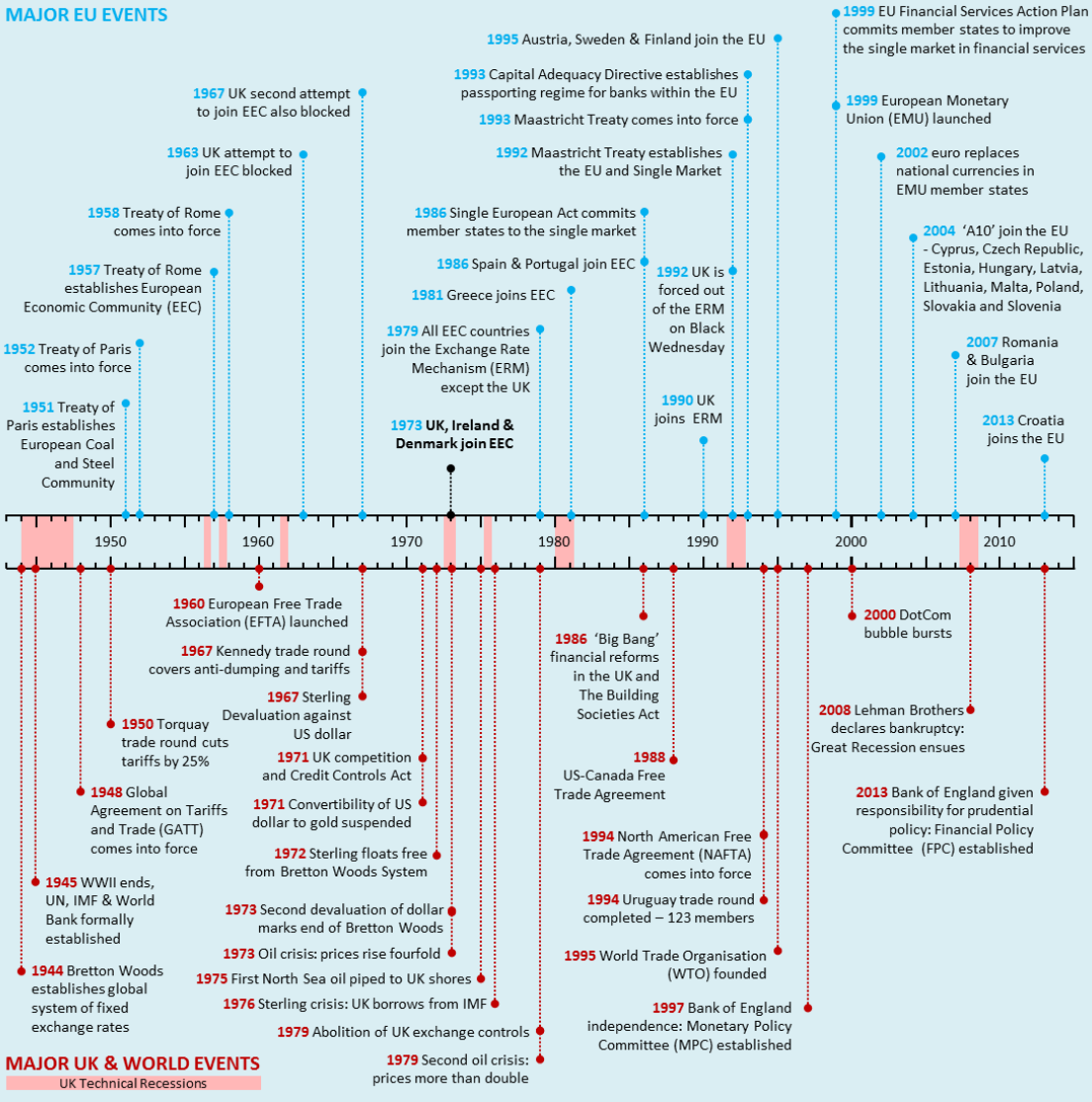
Alongside developments in the EU there have been a number of reforms implemented by UK governments since the late 1970s. These are shown in the bottom half of **Figure B.** On the supply side, various policies were introduced to improve competition in goods and labour markets such as privatising state-owned industries and trade union legislation. Starting with Competition and Credit Control in 1971, the UK also began the process of liberalising its financial markets. Capital and foreign exchange controls were abolished in 1979 and competition was introduced into the bank and building society sectors and

the stock exchange culminating in the Building Societies Act and the 'Big Bang' reforms in 1986. Many of these reforms pre-dated subsequent developments in the EU itself such as the free movement of capital enshrined in the 1992 Maastricht Treaty.

Over the same period, the international monetary and financial system was also evolving rapidly. The UK's entry to the EU coincided with the end of the Bretton-Woods system of fixed exchange rates followed by the first of two sharp increases in the price of oil in the 1970s. During the 1970s and 1980s the GATT discussions started to make progress on reducing non-tariff barriers. Further developments occurred in the mid-1990s, with the formation of the North American Free Trade Area (NAFTA) in 1994. In addition, the World Trade Organisation (WTO) officially commenced on 1 January 1995 under the Marrakech Agreement, signed by 123 nations on 15 April 1994, which replaced the GATT.

This report identifies many channels through which EU membership is likely to have affected the openness, dynamism and stability of the UK economy. While the EU has played a role in affecting the dynamism, openness and stability of the UK economy, it is often difficult to separate the impact of the EU from that of both domestic legislation and the trend towards increased globalisation.
Chapters 1, 2 and 3 discuss in more detail the channels through which these developments have affected the openness, dynamism and stability of the UK economy in the period since 1973.

Figure B: A timeline of key UK, EU and global events



*'Technical Recessions' are defined as two consecutive quarters of negative growth.

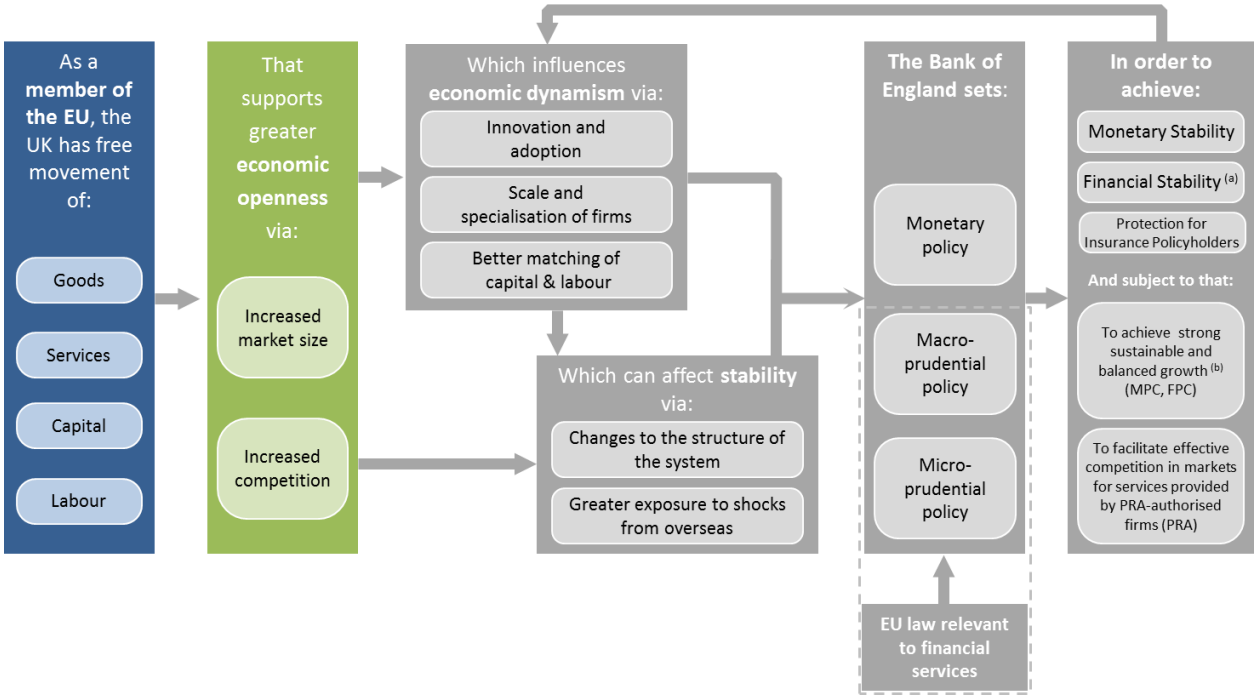
1 EU membership and openness

Over the past forty years, the UK has become a much more open economy. This has been consistent with a general trend towards openness among advanced economies and the globalisation of the world economy since the mid-1990s. The evidence strongly suggests that the increase in trade openness of the UK associated with EU membership has been greater than the global economic trend. EU membership increases the economic and financial openness of the UK economy by facilitating the free movement of goods, services, capital and labour across member states, which leads to increased market size and increased competition. Alongside domestic reforms and increased globalisation, EU membership has played a role in: increasing UK trade; attracting inward Foreign Direct Investment; increasing the share of global financial activity undertaken in the UK; and allowing UK firms to access a larger labour market.

Introduction

The 'openness' of an economy can be thought of as the ease with which goods, services, capital and labour move across borders. A fundamental objective of the EU is the creation of an "internal market where competition is free and undistorted".[7] In practice, this has been accomplished through the 'Four Freedoms' - the free movement of goods, services, capital and labour within the EU (the blue boxes in **Figure A** below). This Chapter assesses how the Four Freedoms have supported greater 'openness' of the UK economy through increased market size and increased competition (the link between the blue and green boxes in **Figure A**). In practice, openness is hard to measure, so this assessment will use a range of proxy measures to establish how the openness of the UK economy has changed since 1973 (see **Annex 2**).

Figure A: How the EU affects openness



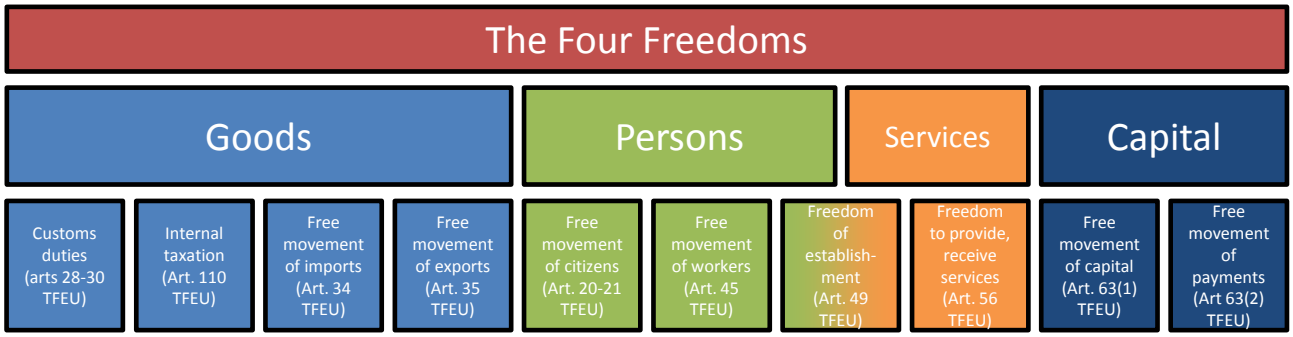
(a) Financial stability includes: protecting and enhancing the stability of the financial system (FPC) and promoting the safety and soundness of PRA-authorised firms (PRA)
(b) In addition, the Chancellor's 2015 remit letter to the FPC asked the committee to consider how, subject to its primary objective to protect and enhance the stability of the UK's financial system, its actions might affect competition and innovation, and their impact on the international competitiveness of the UK financial system.

[7] For more detail, see the European Commission's website (link).

The Four Freedoms have evolved over time and been elaborated upon in particular through specific EU legislation designed to reduce impediments to the movement of goods, services, capital and labour across the EU. These freedoms can be traced back to the original Treaty of Rome, which came into force in 1958 (see **Box A**). That Treaty was aimed at creating a 'common market' between the then six members of the European Economic Community (EEC), and included provisions on the free movement of goods, services, capital and labour. A key feature of the common market was the establishment of a 'customs union', which involved the abolition of all tariffs between member states and a common external tariff applied to goods entering from outside the EU. Although the customs union was completed by 1968, there was limited formal evolution of the common market until the mid-1980s. The 1986 Single European Act set out a six-year programme aimed at addressing those impediments that continued to prevent the free flow of goods in particular across Europe.[8] The programme committed the EU to creating a functioning 'single market', based more clearly on the mutual recognition of each member state's standards and on legislative harmonisation where possible. As part of this initiative, a range of specific legislative measures were brought into force over the six years from 1986 to 1992, which essentially provided the foundation for the single market as it is known today.[9]

The period since 1992 has seen further progress with regards to the Four Freedoms and the single market in general. While there has been new legislation, the principles around the Four Freedoms, as first conceived in 1957, have remained largely intact. The detailed provisions covering these Four Freedoms are laid out in the Treaty on the EU and the Treaty on the Functioning of the EU (henceforth called "The Treaty" or the TFEU).[10] They are summarised in **Figure B**.

Figure B: Overview of the key Treaty provisions covering the Four Freedoms



Source: Review of the Balance of Competences, 2013

Quantifying the specific impact of EU membership on the openness of the UK economy is not straightforward. This Chapter identifies various channels through which EU membership has very likely supported greater openness of the UK economy, though notes it can be difficult to separate out this EU effect from that of both domestic legislation and the general trend of advanced economies towards increased openness and globalisation. In cases where the UK and other EU member states share a common experience that is demonstrably different from the experience of non-EU economies, that is taken as supporting evidence that the EU has played a role in supporting greater openness of the UK. In some areas, it is possible to establish the likely impact of the EU more precisely by comparing metrics of openness for

[8] This was largely based on the White Paper "Completing the Internal Market" submitted by the European Commission to the European Council. See European Commission (1985).

[9] From 1986 to 1992 the focus was on agreeing and implementing the legislation identified in a 1985 White Paper. An important element of this was that member states agreed that EU legislation would be agreed not by unanimity but rather by qualified majority voting, with larger member states having more votes than smaller ones.

[10] Articles 3 of the Treaty on European Union and Articles 28 – 66 of the Treaty on the Functioning of the European Union.

the UK with other EU members and non-member states. In others, performance across the EU varies or there are insufficient data to make such comparisons.

The Chapter is structured as follows. The first section looks at metrics of openness for goods and services. The second section looks at "financial openness" – which is central to the Bank's financial stability objective – the combination of the free movement of capital and a single market in financial services. The third section looks at the labour market. The final section concludes.

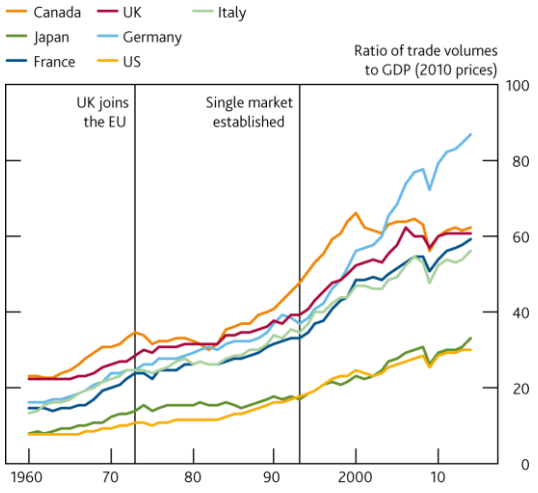
1.1 Freedom of movement of goods and services

Since 1968, EU member states have been part of a customs union, which guarantees no tariffs on goods moving between member states and a common external tariff applied to goods entering from outside the EU. Following the launch of the single market in the 1980s, the EU has further driven the free movement of goods by reducing 'behind the border' trade costs, in particular, by harmonising product standards across member states and by introducing other measures aimed at creating a level playing field for firms in different member states. In addition, the principle of free trade in services between EU member states guarantees that EU companies can either provide services on a cross-border basis across the EU or establish themselves in another EU member state, supported by the free movement of labour.

Two commonly used measures of trade openness are trade intensity and trade costs. Both of these measures suggest that the UK has become more open over the past forty years. **Annex 2** discusses these measures in more detail.

Trade intensity captures the total amount of trade in goods and services relative to the overall size of the economy. This has increased significantly since the UK joined the EU. In 1973, the value of UK imports and exports were together worth around 40% of UK GDP, but by 2014 they were worth close to 60% of GDP. Trade volumes have increased even more over this period, given the fall in the prices of imports and exports relative to non-tradable goods. Since 1973, trade volumes have grown at twice the rate of GDP **(Chart 1.1)**. The rest of the EU is an important contributor to UK trade in goods and services. By 2014, the rest of the EU accounted for around 53% of UK imports and around 45% of UK exports - a significantly higher share of UK imports and exports than any other trading partner. In fact, the EU more than accounts for the UK's overall trade deficit. Underlying the aggregate deficit though, the UK runs a large deficit in goods with the EU, but a relatively small surplus in services.

Chart 1.1: Total trade relative to GDP

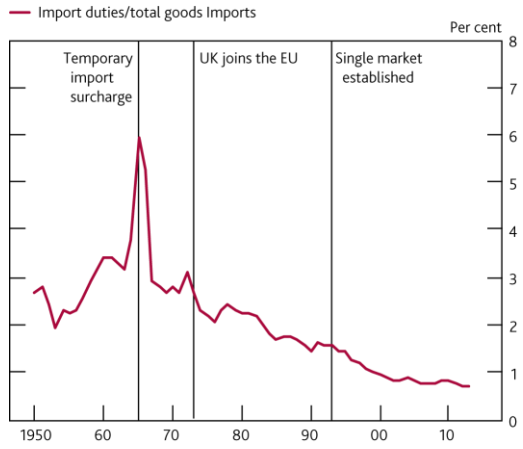


Source: OECD

Notes: Ratio calculated as the volume of exports plus imports divided by the volume of GDP, 2010 prices

Trade costs can be proxied by import tariffs, which have fallen over the period since the UK joined the EU **(Chart 1.2)**. However, this simple measure does not capture the full cost of trading with other countries. **Chart 1.3** shows an un-weighted average of a broader measure of trade costs, which includes transport, regulatory and legal costs. On this measure, members of the EU face lower costs of trading with each other than non-EU economies face when trading with the EU. In addition, the cost of trading with the rest of the world for a member of the EU is, if anything, slightly lower than for some non-EU economies.

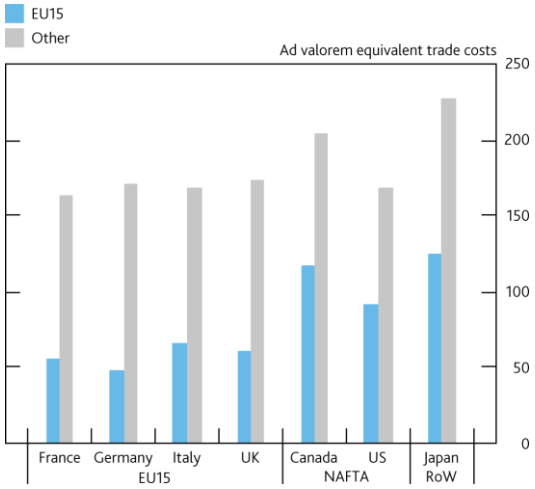
Chart 1.2: Effective import tariff rates for the UK



Source: ONS

Notes: The spike in the series reflects a temporary import surcharge of 15% on manufactured and semi-manufactured goods between1964-1966.

Chart 1.3: Ad valorem equivalent trade costs for G7 countries (with EU and rest of the world)



Source: World Bank-UNESCAP Trade Costs Database

Notes: Trade costs are expressed as the equivalent of a tariff paid on the value of the import ("ad valorem equivalent"). All data are for 2008. Averages are weighted using bilateral GDPs.

Jacks, Meissner and Novy (2011) develop a longer time series of this broader measure of trade costs, which suggests that the cost of trading within the EU has fallen over time and made a significant contribution to the increase in intra-EU trade flows. In particular, they find that around half of the increase in intra-EU trade flows since World War 2 has been driven by the fall in trade costs within the EU. In contrast, for most of the world, growth in trade flows since WW2 has been driven primarily by income growth.

As discussed in **Annex 3**, EU countries have seen the largest increases in their trade intensity amongst OECD peers over the past fifteen years: this is especially true for the newer EU member states for goods, and for older member states for services**.** In contrast, the level of trade intensity of NAFTA members has been largely unchanged over the past fifteen years. The increase in trade intensity for EU member states has also coincided with a decline in both goods and services trade costs in the past twenty years. Services trade costs have tended to fall in EU countries but have increased for the US (Miroudot, Sauvage & Shepherd, 2013). In part, this reflects the EU's initiatives to deepen the integration in services over the past fifteen years.

'Gravity' models of trade provide further evidence on the impact of EU membership on trade flows between member states. These models predict bilateral trade flows between two countries given the size of two trading partners and the distance between them. Head and Mayer (2014) summarise the conclusions from over 150 papers using these models. Of the 2500 estimates used in their paper, around 300 estimates are EU-specific. On average, membership of the EU is found to have contributed positively to trade flows between member states after controlling for the size of these countries and the distance between them.

In principle, this boost to intra-EU trade ('trade creation') could have come at the expense of trade diverted ('trade diversion') from other non-EU countries. However, studies including Eicher et al (2008) and Allen et al (1998) find that the trade creation effects associated with EU membership and the single market more than offset the trade diversion effects. Looking specifically at the UK, some papers suggest that the UK's trade with EU members is higher than might be expected, given the size of these countries and the distance between them (HMT (2005), CER (2014)).

Despite the presence of a single market across the EU, trade between member states is still lower than between regions of the same country – the so-called 'border effect'. This is consistent with the experience of all trade agreements. Border effects stem from non-tariff barriers between countries such as differences in regulation, cultural and language barriers and from consumer preferences for domestically-made products.[11] While there remains some debate as to the scale of border effects, these effects have tended to decline over time as transport costs and other non-tariff barriers have fallen (Bergstrand et al, 2013; De Sousa et al 2012). De Sousa et al 2012 further find that border effects are smaller for the EU than other trade areas like NAFTA and ASEAN.

The UK has become more open to trade over the past forty years, with the flow of trade relative to the size of the UK economy, or 'trade intensity', doubling over that period on some measures. The UK's membership of the EU has reduced both tariffs on UK imports and exports and 'behind the border' trade costs within the EU. Over the past 15-20 years, trade openness has increased faster, and the cost of services trade has fallen by more, in EU member states than in many other advanced economies. Moreover, there is evidence that this increase in openness has been higher for trade between EU countries than for non-EU countries. Academic studies using 'gravity' models suggest that bilateral trade flows have grown faster within the EU, and between the UK and the rest of the EU, than might be expected based on size and proximity. Studies also suggest that the trade creation effect associated with EU membership is larger than the effect of diverting trade away from non-EU countries.

1.2 Financial openness: Freedom of movement of capital and financial services

The EU enables the free movement of capital as well as the free movement of financial services between EU member states, which is one element of the free movement of services. The free movement of capital provides EU households and firms, including financial firms, with the freedom to make cross-border payments, borrow from abroad and make cross-border investments. This, in turn, supports the development of capital markets for debt, equity, foreign exchange and other financial instruments. Together, these freedoms of movement of capital and financial services support what can be termed as the 'financial openness' of an economy. This section considers each of these freedoms in turn.

Freedom of movement of capital

The free movement of capital generally prohibits all restrictions on the movement of capital between EU member states for purposes of investment or of payment. This freedom is also conferred to movements of capital between EU member states and third countries, though the Treaty also allows for derogations from this obligation.[12] The free movement of capital was strengthened when the Maastricht Treaty came into force in 1993 to align more closely with the other freedoms and to extend the right to third-country nationals. Prior to that, member states were required to abolish restrictions on the free movement of capital, but only to the extent necessary to ensure the functioning of the common market. In practice, individual EU member states had liberalised their capital accounts to different degrees: the UK and

[11] The 'border effect' was first established by McCallum in 1995 who showed that trade between Canadian provinces is 22 times larger than between US states and Canadian provinces, after controlling for size and distance. Anderson and Van-Wincoop (2003) re-estimated the original equation to find that the border effect was smaller- a factor of around 11. However, unlike the EU, cultural and institutional differences between Canada and the US states seem too small to serve as explanations for a large border effect. According to Wolf (1997, 2000), border effects might be overstated if proximate nations alter their domestic production mixes to further exploit trade opportunities with each other. For instance, countries might choose to specialise in different industries or concentrate in vertically-related industries.

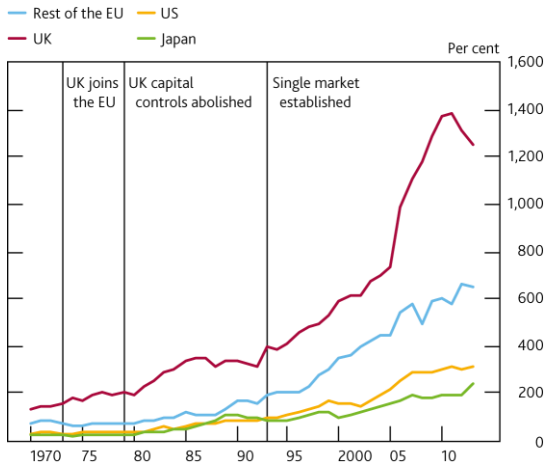
[12] The Treaty says that in exceptional circumstances, when movements of capital to or from third countries cause, or threaten to cause, serious difficulties for the operation of economic and monetary union, the EU (as opposed to individual states) may under certain limitations take safeguard measures with regard to those third countries. More generally, the EU (but not individual member states) may regulate capital flows to and from third countries with respect to direct investment (including acquisition of real estate), establishment, financial services or the admission of securities to capital markets. For instance, in March 2013, Cyprus became the first Member State to implement strict controls on the transfer of capital outside of the country. Recently capital controls were also imposed on Greece.

Germany , for instance, had liberalised their capital accounts in the 1970s, whereas other EU15 member states like France, Italy, Greece, Spain, Portugal and Ireland had made much less progress.

Two methods are used to assess the capital element of financial openness in the literature: *de facto* indicators, which assess the extent of cross-border capital flows; and *de jure* indicators, which assess the extent of regulatory controls on capital movement. **Annex 2** discusses these measures in more detail.

The sum of external assets and liabilities relative to GDP, a commonly used *de facto* indicator, has increased dramatically for the UK over the past forty years or so, particularly over the past 20 years when it has trebled **(Chart 1.4)**. On this measure, the UK is more financially open than most other EU countries[13] and is one of the most open advanced economies in the world. In addition, EU economies tend to be more open than the US and Japan. *De jure* indicators further suggest that the UK and other EU countries, on average, have significantly deregulated their capital accounts over the past 40 years. However, these changes have lagged the US and Japan for most EU countries, with Germany a notable exception **(Chart 1.5)**. As mentioned previously, the UK liberalised its capital account before the free movement of capital became a Treaty right. In allowing free movement of capital across EU member states, however, the EU is likely to have had an impact on the UK's financial openness by making other member states more open to flows, including to and from the UK.

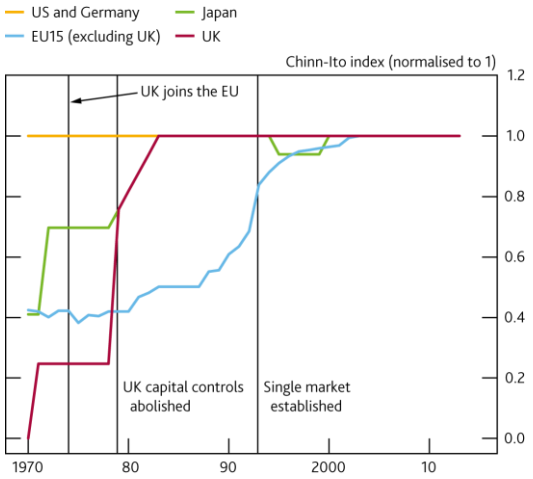
Chart 1.4: External Assets and Liabilities as a share of GDP



Sources: Updated version of Lane and Milessi-Feretti (2011) and Bank calculations

Notes: 'Rest of the EU' is EU15 (excluding the UK) until 1995 and EU28 (excluding the UK) from 1996-2013

Chart 1.5: IMF *De jure* indicators of capital account openness



Sources: Chinn and Ito (2007), based on IMF AREAER

Notes: The Chinn-Ito index is based on the binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER).

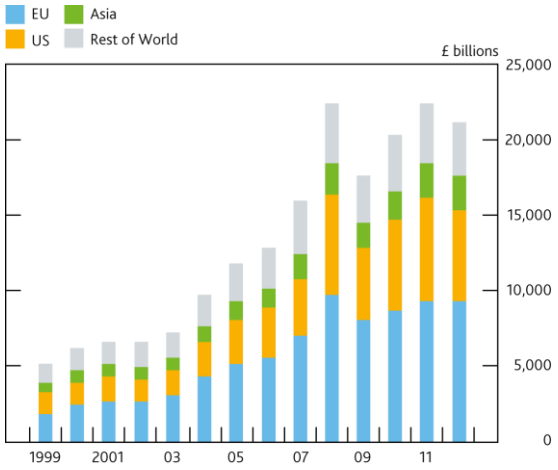
There are three main categories of capital flows: Foreign Direct Investment (FDI); portfolio investment; and other investment. FDI is defined as cross-border holdings of equity with greater than 10 percent ownership of a firm. Portfolio investment covers both holdings of bonds and equity equal to less than ten percent of ownership of a firm. The "other investment" category encompasses a number of international financial transactions but is predominantly driven by interbank lending flows. The EU has been an important contributor to the increase in the UK's capital flows across all three dimensions **(Chart 1.6)**: around 45% of the UK's external assets and liabilities are now held against the EU, compared with 30% against the US and 10% against Asia.

[13] Luxembourg, Malta, Ireland, Netherlands and Cyprus within the EU are the exception.

The stock of external assets and liabilities in the UK are dominated by debt transactions, such as bond holdings and interbank loans, but FDI also accounts for a significant share of capital flows for the UK. FDI assists economic integration by creating stable and long-lasting links between economies. As discussed in Chapter 2, this can facilitate technological spillovers, which can boost dynamism. The rest of this section therefore considers whether EU membership has played a role in facilitating FDI flows to and from the UK, both via: facilitating flows between the UK and other EU member states and by facilitating flows into the UK from non-EU firms wishing to access the single market.

For most of the period since 1980, the EU has accounted for the largest proportion of the stock of global FDI **(Chart 1.7)**. In 2013, the EU accounted for 34% of the global FDI stock, compared to 21% for Asia and 20% for the US. Moreover, cross-border FDI investment involving the EU is much larger than cross-border FDI investment outside the EU (**see Annex 4)**.

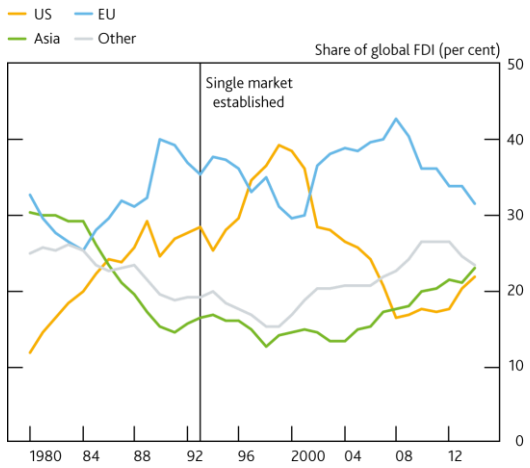
Chart 1.6: UK's external assets and liabilities by geographical counterpart



Source: ONS

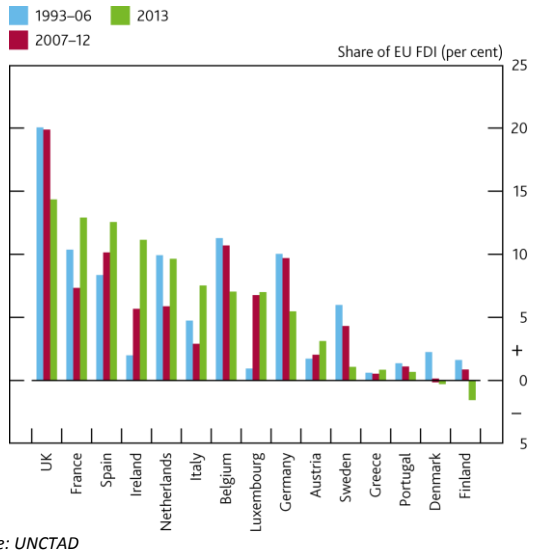
Notes: A geographical split of overseas assets and liabilities are not available on a consistent basis prior to 1999.

Chart 1.7: Stock of global inward FDI



Source: UNCTAD

Chart 1.8: EU15 countries' share of average annual FDI inflows into the EU: 1993 to latest



Source: UNCTAD

Since the establishment of the single market on 1 January 1993, inward FDI stocks have increased faster in both the UK and EU (as a percentage of GDP) than the US and the rest of the world. Over that same period, the UK has, on average, remained the top recipient of FDI inflows into the EU **(Chart 1.8).** Ernst & Young's Global Investment Monitor further suggests that the UK remained the EU's top destination for FDI projects from 2003-2014. By 2013, the EU accounted for around 50% of the stock of UK inward FDI, compared with 27% from the US and 7% from Asia. The EU is also a significant beneficiary of outward FDI from the UK, with a share of 43%. However, care needs to be taken over the interpretation of both the source and destination of FDI given the measurement issues explored in **Annex 4**.

While it is likely that the EU has played a role in facilitating the attractiveness of the UK as a destination for FDI, this effect may have varied over time. Early studies of European integration found that the establishment of a common market in the EU had attracted US FDI to the UK that might otherwise have been located in other European countries.[14] Later studies, however, found more difficulty in estimating the magnitude of this 'EU effect' on UK inward FDI. In practice, EU membership is likely to be one of a number of factors that affect foreign investors' decisions to invest in the UK, alongside others such as the integrity of the UK legal system, the availability of particular skills and services, and the status of the English language. Ernst & Young's 2015 'UK attractiveness survey' suggests that around 72% of investors consider access to the European single market as important to the UK's attractiveness as a destination for foreign direct investment.

Freedom of movement of financial services

The free movement of financial services requires member states to remove obstacles to the purchase and sale of financial services. This comprises the freedom to provide financial services and freedom of establishment, both of which were provided for under the 1957 Treaty of Rome. The freedom to provide (and receive) services prevents member states from imposing restrictions on the purchase and sale of financial services across borders.

A key development in establishing a single EU market in financial services came in the 1990s when the EU developed the 'passporting' regime (see **Box 1A**). This enabled EU financial institutions to notify or apply to the home regulator for a passport to provide cross-border services or establish a branch in other member states. EU financial services regulation was further developed via the 1999 Financial Services Action Plan, which focused on boosting competition within the EU by harmonising legal and institutional standards across markets. Although this legislation removed legal barriers to cross-border activity, several non-legal barriers remained. As a result, there have been a variety of initiatives over the past fifteen years to establish minimum conduct standards and consumer protection requirements across member states. The EU regulatory framework for financial services has undergone substantial further development over the past few years to correct some of the fault lines that emerged during the Global Financial Crisis. The EU regulatory framework is likely to evolve further in response to closer financial integration in the euro area, as discussed in more detail in Chapter 4.

The UK's openness to financial services is also facilitated by the UK's well-developed financial infrastructure, a competitive fiscal regime, the large pool of skilled labour located in London, a convenient time zone as well as the clarity and integrity of the rule of law. All of these factors, in combination with EU single market legislation – such as the passporting regime – are likely to have facilitated the increased openness of the UK financial sector.

Financial services perform a number of key functions such as: allowing firms and individuals to make payments; providing financial intermediation between savers and borrowers; creating markets for debt, equity, foreign exchange and other instruments to be bought and sold; and providing insurance against future risks. There are a wide range of metrics used to measure the financial services element of financial openness: the size of cross-border trade in financial services; the number of foreign financial institutions in a country, and the number of domestically-owned financial institutions with foreign branches; the scale of foreign financial activity in a country; and the scale of global activity of domestically-owned financial institutions. **Annex 2** discusses these measures in more detail.

[14] See Blomstrom and Kokko (1997) for a discussion.

Box 1.A: Establishing the free movement of financial services within the EU

The freedom to provide (and receive) services prevents member states from imposing restrictions on the purchase and sale of financial services across borders. The freedom of establishment enables firms to establish subsidiaries and branches in other member states. These freedoms are not absolute; they are both subject to certain exceptions.

The move to qualified majority voting in the 1986 Single European Act, led to considerable changes including the establishment of a single EU market in financial services. A key development in establishing that single market came in the 1990s when the **'passporting'** regime was introduced. This regime relied on mutual recognition of each other's prudential standards coupled with minimum EU standards. Perhaps the most important piece of EU legislation in this area was the 1989 **Second Banking Directive**, which from 1993 allowed banks in the EU to set up branches or provide cross-border services freely in other member states, without requiring the need for prior authorisation in the host state. The main principle behind this passporting regime was to minimise the regulatory, operational and legal burdens on firms offering cross-border financial services within the European Economic Area (EEA), thus increasing openness and facilitating trade in these markets. [15]

Passporting has been implemented through different legislation for different financial sectors – including for banks, insurers and investment firms – but works in a similar way across each. At its simplest, it means that a firm that is authorised by a regulator to carry out its permitted activities in one member state may also do so in any other member state through a branch in that country or by directly providing cross-border services. The distinction between a branch and a subsidiary is non-trivial from a regulatory perspective. A subsidiary is a separate legal entity from its parent, and as such requires its own governance and risk management, as well as meeting local regulatory requirements – for example for capital and liquidity. A branch forms part of the same legal entity as its head office and is likely to be regulated primarily by the home supervisor.

As well as reducing the barriers to trade in financial services within Europe, it is also likely that the passporting provisions make the EU as a whole more open to other international firms. In the absence of passporting, a non-EU firm that wanted to offer services in multiple countries within the EU would have been required to satisfy the authorisation requirements for establishing a branch or subsidiary in each of those countries, subject to the approach taken by each corresponding regulator. The passporting regime reduces this burden, however, and substantially simplifies the process: after a firm has established a subsidiary in one EU country, it can notify the home regulator of its intention to open branches in, or offer cross-border services into, other member states under the passporting provisions. Consequently, internationally-owned financial firms often chose to establish a European headquarters in an EU member state as a base for offering services more broadly in Europe.

Passporting provisions have potentially important implications for the ability of national prudential regulators to maintain domestic financial stability. The Prudential Regulation Authority and the Bank of England have the same legal powers for supervising subsidiaries as for any other UK-incorporated firms, whereas the prudential supervision of branches is led by the home supervisory authority as part of the supervision of the firm as a whole. It is therefore important for domestic financial stability that the home supervisors of firms operating in the UK carry out those responsibilities sufficiently robustly.

[15] The European Economic Area comprises the 28 member states of the European Union plus Iceland, Liechtenstein and Norway.

The impetus to further the single market in financial services was boosted in 1999 with the **European Commission's 1999 Financial Services Action Plan.** The measures set out in the plan in order to achieve this single market objective had three main strands: "establishing a single market in wholesale financial services, making retail markets open and secure and strengthening the rules on prudential supervision". The specific initiatives that have followed from this action plan have focused on removing non-legal barriers to cross-border activity through harmonising legal, institutional and consumer protection standards across markets, thereby increasing competition between firms operating across the EU. Although this legislation removed legal barriers to cross-border activity, several non-legal barriers remained. As a result, there have been a variety of initiatives to establish minimum conduct standards and consumer protection requirements across member states.

The EU regulatory framework for financial services has undergone substantial further development over the past few years to correct some of the fault lines that emerged during the Global Financial Crisis. That has included the move towards increased harmonisation of prudential standards with the creation of a 'Single European Rulebook' and the adoption of legislation on a Banking Union for the euro area and other member states who wish to participate. The framework is likely to evolve further in response to closer financial integration in the euro area. The evolution of the post-crisis EU regulatory framework for financial services is described in more detail in Chapter 4.

The size of the UK financial system has grown significantly over the past 50 years or so, increasing from around 100% of GDP in 1958 to around 830% of GDP in 2014 **(Chart 1.10)**.[16] It is also large compared to other advanced economies, such as the United States, France, and Japan. In fact, the rise of the UK as a pre-eminent financial centre can be traced back to the 18th and 19th centuries when the UK became the main settling house of exchange transactions in Europe. For more detail, see Bush et al (2014). The largest part of the financial system is the banking sector, accounting for around 410% of GDP. Insurance firms, pension funds and other financial institutions together account for the remainder.[17]

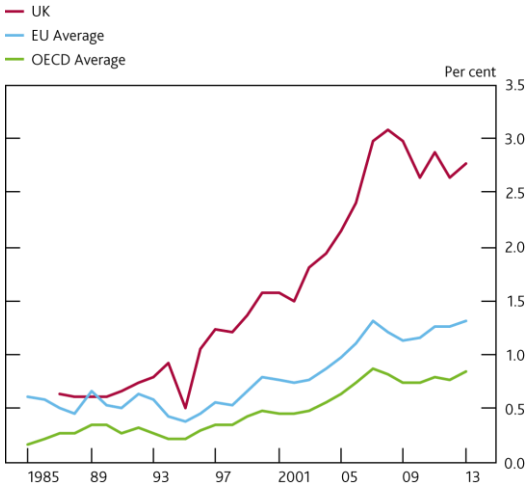
The rate of expansion of the UK financial system has coincided with a period of financial services liberalisation seen in the UK and globally since the mid-1980s. This is evident across a range of metrics. Cross-border trade in financial services, for example, captures the extent to which a country exports and imports financial services. As **Chart 1.9** shows, the UK's exports and imports of financial services increased substantially relative to GDP between the early 1990s and the start of the financial crisis. In 2014, the UK's services sector recorded a trade surplus of £89bn - equivalent to around 5% of GDP. Within that, the financial sector accounted for around 65% of the UK's overall trade in services surplus, with over a third of the financial services trade surplus from the EU.[18] This more than accounts for the EU's contribution to the overall UK services trade surplus.

[16] The size of the financial system is defined as total assets of the financial sector, measured on an unconsolidated basis, excluding derivatives. If gross derivative positions are included at market value, the size of the financial system increases to around 1170% of GDP, with banks accounting for around 620% of GDP and the non-bank financial system accounting for 550% of GDP.

[17] See Burrows et al (2015) for more on the different types of institutions that make up the financial sector and how big those are.

[18] Based on latest available data for 2013.

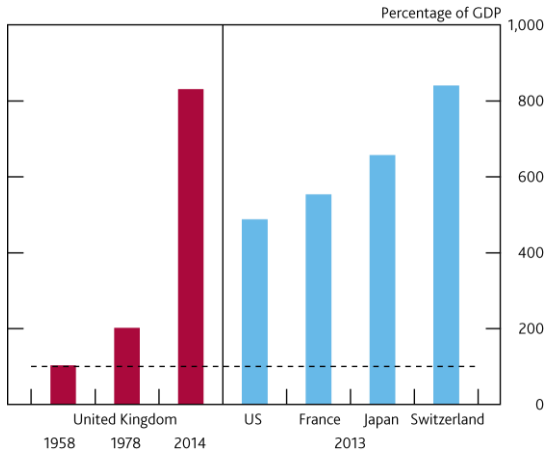
Chart 1.9: Overall trade in financial services relative to GDP



Sources: UNCTAD, IMF World Economic Outlook and Bank Calculations

Note: Due to data availability, OECD and EU exclude smaller countries prior to 1996. For example, Korea and Mexico are excluded from the OECD and Latvia and Romania are excluded from the EU before this date. Data are on a BMP5 basis.

Chart 1.10: The size of the financial system excluding derivatives

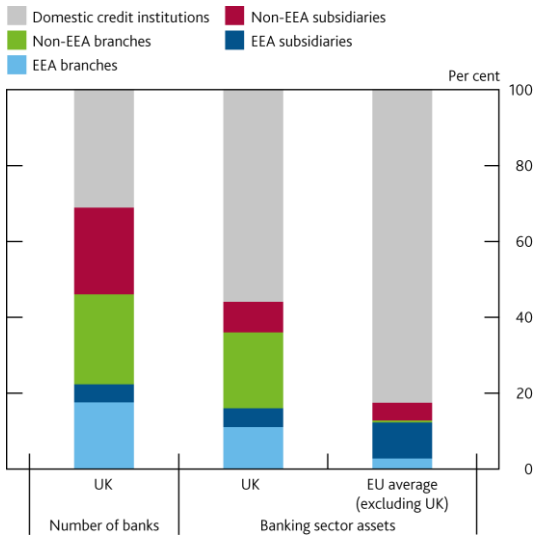


Source: Radcliffe Report (1959), Wilson Report (1980), ECB, OECD, Swiss National Bank and Bank calculations.

Notes: The 'Financial system' is defined as total assets of the financial corporations sector (excluding derivatives), measured on an unconsolidated basis. For 1958 and 1978, the total assets of the individual subsectors covered in the Radcliffe and Wilson Reports are summed to give an illustrative total for the financial system. Due to availability, data for Switzerland are from 2012.

The UK's financial system is large and globally connected. Around half of the world's largest financial firms – ranging from commercial and investment banks to insurers, asset managers and hedge funds – have their European headquarters in the UK**.** The UK's status as the world's leading international banking sector is reflected as much, if not more, by the presence of banks incorporated outside of the European Economic Area (EEA) as by EEA-owned banks. In 2014, nearly 250 foreign banks were operating in the UK, the majority of which were incorporated outside of the EEA (around 170 out of 250) and accounted for around 30% of banking assets in the UK. Non-UK EEA-owned banks accounted for a sizeable, but smaller, proportion of banking activity in the UK, at around 16% **(Chart 1.11)**.

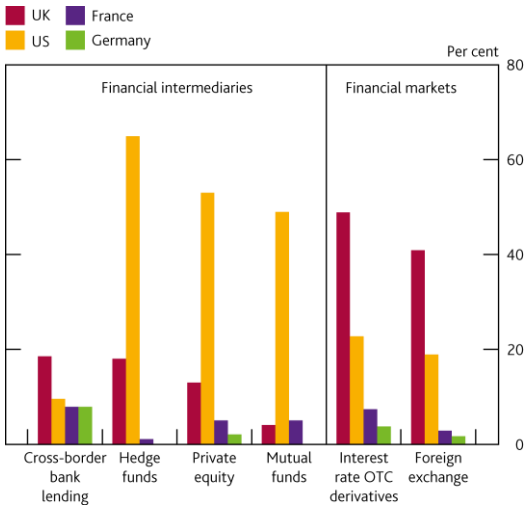
Chart 1.11: Percentage of banks and banking sector assets



Source: Bank of England and EBA

Notes: Germany and Denmark are excluded from the EU average due to data being unavailable. Chart uses 2013 data for all countries except for the Netherlands, for which 2012 data are used. For the UK, domestic credit institutions refer to UK-owned monetary financial institutions.

Chart 1.12: Shares of global financial activity



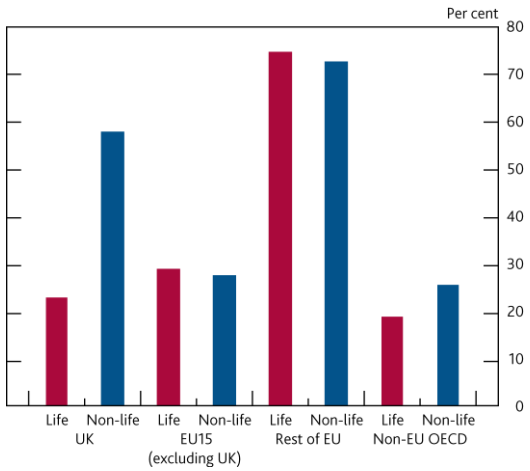
Source: BIS, City UK, IMF's GFSR, Bank calculations

Notes: Bars show share of global activity for cross-border lending, interest rate OTC derivatives and foreign exchange and share of global assets for all other categories. Cross-border bank lending and mutual fund asset data are from 2014; all other data is from 2013.

The UK has a substantially larger share of global financial activity in markets supporting international banking activity than both the US and comparable EU economies (**Chart 1.12)**. The UK is the leading foreign exchange and derivatives centre in the world, accounting for around 50% of global turnover in interest rate OTC derivatives and around 40% of turnover in global foreign exchange trading. It is also the largest centre for cross-border bank lending, accounting for 19% of the outstanding value of global lending. In other markets, the UK's share of global activity sits between that of the US and other EU member states. For example, although the US is the leading global centre for private equity, hedge funds and fund management, the UK remains the largest centre for these asset management activities in the EU.

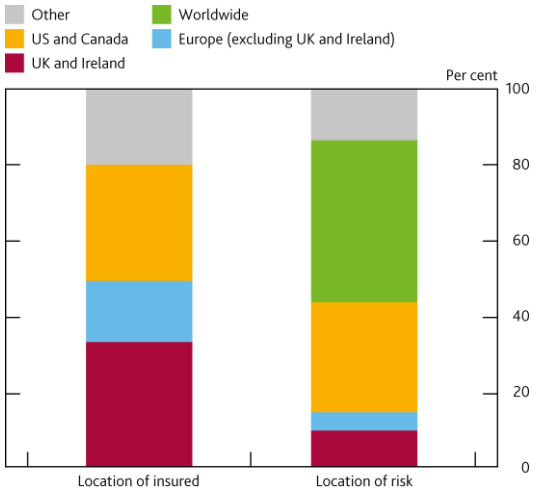
The UK has the third largest insurance industry in the world, after the US and Japan. Foreign-owned insurers control around 20% of market share in the UK life insurance market and around 60% in general insurance **(Chart 1.13)**. The London Market is a separate, distinct part of the UK insurance industry consisting mostly of internationally-traded general insurance and reinsurance. Foreign firms account for around two-thirds of the premiums bought in the London Market, with around 90% of premiums insuring risks located outside the UK **(Chart 1.14)**.

Chart 1.13: Market share of foreign-controlled insurers in OECD countries (2013)



Source: OECD

Chart 1.14: Origins of gross insurance premiums written on the London Market by geography (2013)



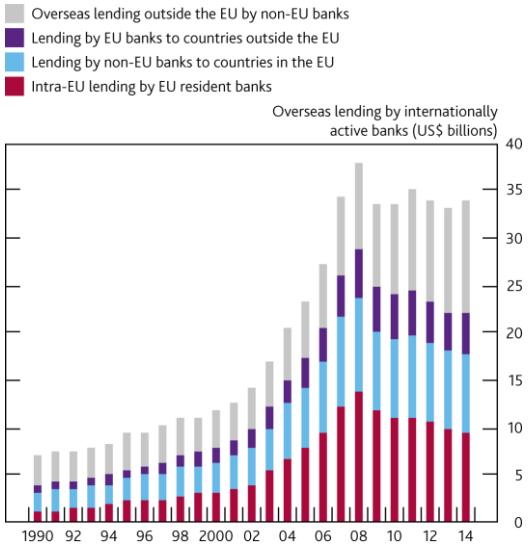
Source: London Market Group

The UK also hosts key financial market infrastructures that are important for the global economy. Of the four central counterparties **(CCPs)** located in the UK, only one (LCH) is owned by a UK group. These CCPs are heavily used by market participants globally, commensurate with the size and nature of the UK's financial system. Around 60% of the initial margin posted by financial institutions at the four CCPs is accounted for by foreign members, of which only 20% relates to EEA entities.

In the EU, the extent of financial openness varies by sector. In part, this reflects the fact that savings in the EU are concentrated in the banking sector, evidenced by the fact that banking system assets are over 300% of GDP in the EU, compared to around 70% in the US. Consequently, financial openness in the EU is most prevalent in the banking sector.

Compared to the UK, the banking sector in the rest of the EU is domestically-focussed, with only 20% of assets in aggregate held by foreign-owned banks. Nevertheless, nearly two-thirds of global cross-border banking flows involve EU institutions, including UK banks. Indeed, there is evidence that the banking system in the EU (and the UK within it) has become more financially integrated than other parts of the world, at least in the run-up to the financial crisis. As **Chart 1.15** shows, intra-EU claims grew faster than other forms of cross-border lending – rising from 17% of all reported cross-border bank claims in 1990 to 36% by 2008 – although since then, intra-EU claims have fallen back somewhat.

Chart 1.15: Global cross-border bank lending



Sources: Bank for International Settlements and Bank calculations

Notes: Figures show lending by all internationally active banks that report to the BIS. Data gaps mean the total figure shown in the chart will not correspond to all cross-border banking flows globally and means sample coverage will vary over time. Figures are reported on a residency basis. This means UK figures include all cross-border lending by the UK entities of UK headquartered banks (e.g. HSBC, Standard Chartered, Barclays) as well as cross-border lending by the UK-based entities of foreign banks (e.g. Goldman Sachs and Deutsche Bank's London offices).

Other parts of the EU financial system are less financially open. For example, with the exception of insurance, savings held in other investment vehicles, such as mutual funds and pension funds, are relatively small – at around 50% and 35% of US equivalents. Assets under management held by key non-financial institutions such as hedge funds, private-equity funds and fund managers are also low in the EU compared to the US. From a borrower's perspective, there is a lack of depth in capital markets, with the value of equity, corporate bond and securitisation markets representing around 60%, 35% and 20% of US counterparts, respectively. The EU's Capital Markets Union (CMU) project – which aims to stimulate investment to strengthen Europe's economy by diversifying and integrating European capital markets (discussed in the European Commission's public consultation on 'Building a Capital Markets Union' and Bank of England, 2015) has the potential to increase the depth of the non-bank financial systems in the EU.

To that end, the Commission has released an Action Plan for CMU (30 September) outlining a wide range of measures grouped under the following broad objectives: eliminating barriers to cross-border capital raising; providing greater funding choices for Europe's businesses and SMEs; facilitating access to public markets; fostering retail and institutional investment; improving the regulatory environment for long term infrastructure investment; and enhancing banks' capacity to lend.

The UK has become significantly more financially open over the past thirty to forty years. This largely reflects factors such as the liberalisation of UK capital flows enacted in the 1970s and the liberalisation of financial services in the mid-1980s, alongside the increasing globalisation of financial services worldwide. Notwithstanding that, EU membership has clearly played a role.

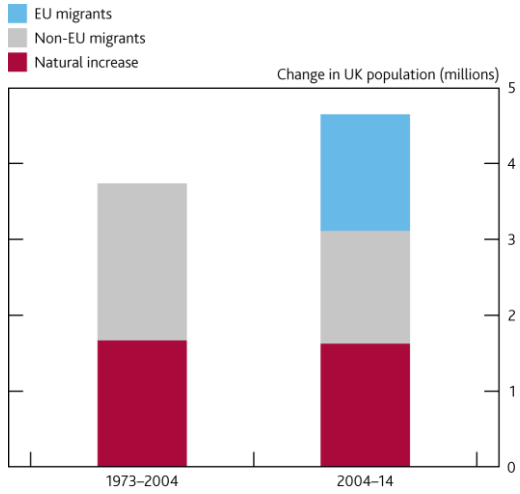
Since the single market came into force in 1993, the UK has consistently been one of the top recipients of foreign capital among advanced economies and, cumulatively, the largest recipient of FDI flows in the EU. Studies suggest that it is likely that membership of the EU has played some role in boosting the attractiveness of the UK as a destination for FDI, though this effect may have varied over time, with other factors such as the integrity of the UK legal system also playing a role.

The rate of expansion of the UK financial services sector also picked up materially following the liberalisation of financial services in the mid-1980s, and has been faster than for other EU economies, with the UK cementing its position as home to one of the largest and most open financial systems in the world. EU legislation – such as the passporting regime – is likely to have facilitated this expansion, but it is also likely to reflect other factors such as the UK's well-developed financial infrastructure, a competitive fiscal regime, a large pool of skilled labour located in London, a convenient time zone and the clarity and integrity of the rule of law.

1.3 Freedom of movement of labour

Openness in the labour market is defined with respect to the ease with which people can move into and out of a country. This section focuses on two metrics of labour market openness – migration flows and labour market mobility. EU membership affects the UK labour market because citizens of EU member states are able to move freely within the EU and to work in another EU country without needing a work permit. Further, they can stay in another EU country without employment and enjoy equal treatment with nationals in access to employment opportunities, working conditions and all other social and tax advantages.[19]

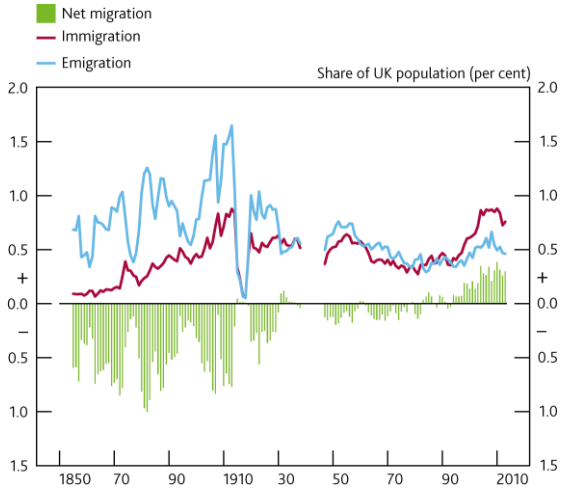
Chart 1.16: Cumulative change in population since 1973



Source: ONS, Rendall, M. and Salt, J. (2005) Focus on People and Migration, "The foreign-born population".

Notes: Due to data availability, the level of migrants in 1973 is assumed to be the same as 1971.

Chart 1.17: UK migration flows –share of population



Source: ONS International Passenger Survey, B. R. Mitchell British Historical Statistics, and Hills, S, Thomas, R and Dimsdale, N (2015) "Three Centuries of Data - Version 2.2", Bank of England

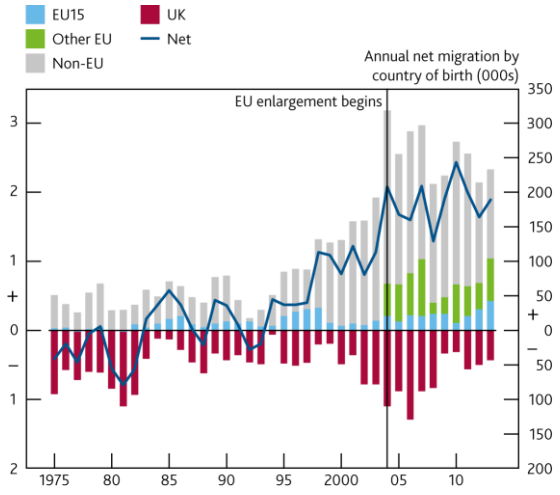
Notes: Prior to 1964, emigration and immigration estimates are based on the numbers of passengers travelling from and to UK ports from non-European countries.

The UK's population has grown by around 8 million people since 1973. Around 40% of that change is accounted for by natural increase, a further 40% accounted for by immigration from non-EU countries and less than 20% by net migration from the rest of the EU **(Chart 1.16)**. From a historical perspective, net migration to the UK turned positive only in the last quarter of the 20th century (**Chart 1.17)**.

[19] In addition to free movement of people, membership of the EU means that the UK labour market is subject to EU social legislation such as the Working Time Directive (WTD). The Working Time Directive was implemented in the UK in 1998. Its aim was to ensure workplace health and safety for workers by guaranteeing minimum holidays, rest breaks, and restricting working hours to a maximum 48 hours per week unless employees decide to opt out. The UK already had high standards of workplace health and safety prior to the WTD and obtained an opt-out from the 48-hour week restriction. A recent UK government study (BIS, 2014) finds tentative evidence that the introduction of the 48-hour maximum working week contributed to the generalised decline in working hours (despite UK workers having an opt-out), but notes that the decrease in hours worked was at least partly offset by increased employment of workers working shorter weeks

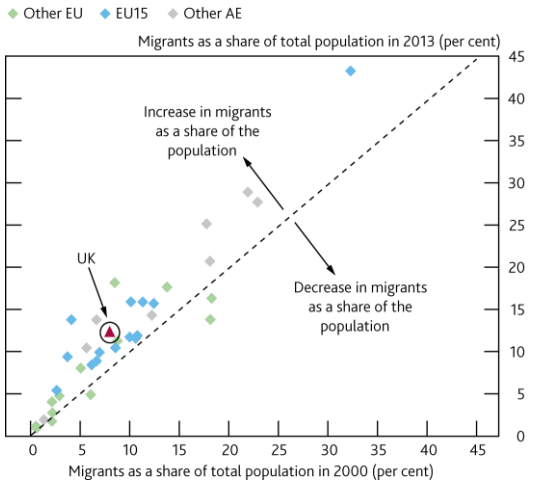
Over the past forty years the increase in net migration has largely been driven by immigrants from outside the EU **(Chart 1.18)**. More recently though, migration from the EU has picked up, following the accession of Central and South Eastern European countries to the EU in 2004. One of the primary economic reasons for the rise in migration from these countries is the difference in earnings. **Chart 1.19** shows how the share of migrants has changed in the UK compared with other advanced economies since 2000.

Chart 1.18: UK net migration flows



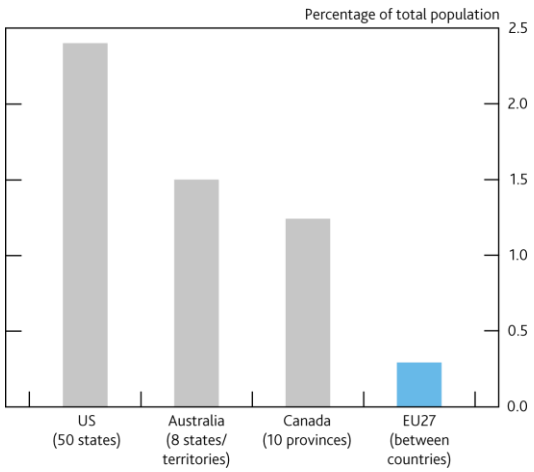
Source: ONS International Passenger Survey

Chart 1.19: Change in migrant share 2000-2013



Source: United Nations

Chart 1.20: Annual average labour mobility – proportion of population relocating per year



Source: OECD

Nevertheless, rates of movement between member states of the EU are low compared with movement within federal countries like the US **(Chart 1.20)**. Around 2.5% of the US population relocates to a different state every year while in the EU the equivalent figure is 0.3%. This likely reflects the fact that the EU is not a federal country and comprises member states with different languages and cultures.

Free movement of labour has also contributed to the openness of the UK economy. More recently, migration from the EU has picked up, following the accession of Central and South Eastern European countries to the EU in 2004.

Summary

Over the past forty years, the UK has become a much more open economy. This has been consistent with a general trend towards openness among advanced economies and the globalisation of the world economy that has occurred since the mid-1990s.

The evidence strongly suggests that the increase in trade openness of the UK associated with EU membership has been greater than the global economic trend over the past forty years. The flow of trade relative to the size of the UK economy, or 'trade intensity', has doubled over that period on some measures. The UK's membership of the EU has reduced both tariffs on UK imports and exports and 'behind the border' trade costs within the EU. Over the past 15-20 years trade openness has increased faster and the cost of services trade has fallen by more in EU member states than in many other advanced economies.

Academic studies using 'gravity' models suggest that bilateral trade flows have grown faster within the EU, and between the UK and the rest of the EU, than might be expected based on size and proximity. Moreover, there is evidence that this increase in openness has been higher for trade between EU countries than for non-EU countries. Studies also suggest that the trade creation effect associated with EU membership is larger than the effect of diverting trade away from non-EU countries.

The UK has also become significantly more financially open over the past 30-40 years. This largely reflects factors such as the liberalisation of UK capital flows enacted in the 1970s and the liberalisation of financial services in the mid-1980s in the UK, alongside the increasing globalisation of financial services worldwide. EU membership has also clearly played a role, particularly through changes in legislation.

Since the single market came into force in 1993, the UK has consistently been one of the top recipients of foreign capital among advanced economies and, cumulatively, the largest recipient of FDI flows in the EU. Studies suggest that it is likely that membership of the EU has played some role in boosting the attractiveness of the UK as a destination for FDI, though this effect may have varied over time, with other factors such as the integrity of the UK legal system also playing a role.

The rate of expansion of the UK financial services sector has been faster than for other EU economies, with the UK cementing its position as home to one of the largest and most open financial systems in the world. The UK has the largest global share of cross-border bank lending, foreign exchange trading and interest rate OTC derivatives. It has the third largest insurance industry and the second largest asset management industries in the world. The UK banking sector is around four times UK GDP, the non-bank financial sector is a similar size, and financial services accounted for more than 8% of GDP and 3.5% of employment in 2012. More foreign banks operate in the UK than any other country and around half of the world's largest financial firms have their European headquarters in the UK. EU legislation – such as the passporting regime – is likely to have facilitated this expansion, but it is also likely to reflect other factors such as the large pool of skilled labour located in London, the English language and a convenient time zone.

Free movement of labour has also contributed to the openness of the UK economy. More recently, migration from the EU has picked up, following the accession of Central and South Eastern European countries to the EU in 2004.

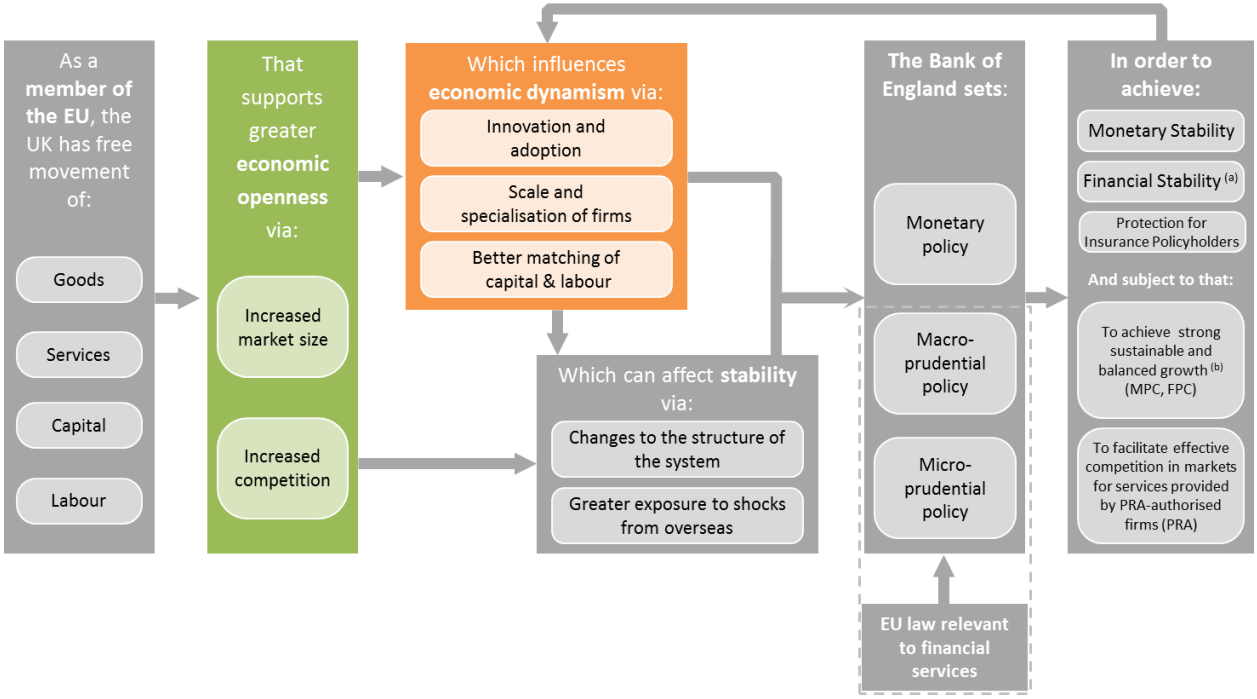
2 UK Dynamism and Openness

There is substantial evidence that openness supports economic dynamism through a range of channels, thereby raising economic growth and boosting living standards. Openness promotes innovation and the adoption of new technologies through the free movement of capital and labour. It allows firms to specialise in a narrower range of products and to exploit economies of scale, raising efficiency. Increased competition from operating in a larger market reinforces these dynamics. Greater competitive pressure favours more productive domestic firms, enhancing economic dynamism in the long run as production shifts to them. Greater financial openness improves matching of savers with borrowers which lowers financing costs, boosts investment and ultimately growth. These channels from openness to dynamism operate in the EU as they do elsewhere, and it is very likely that the openness associated with membership of the world's largest economic area with free movement of goods, services, capital and labour has led to greater economic dynamism in the UK.

Introduction

Chapter 1 set out some evidence that the UK, alongside other EU member states, has become a more open economy, coinciding with its membership of the EU, as measured by flows of goods, services, capital and labour to and from EU and non-EU markets. This Chapter sets out the channels through which greater openness influences the 'economic dynamism' of the UK economy (moving from the green to the orange box in **Figure A** below).

Figure A: The channels through which openness affects dynamism



(a) Financial stability includes: protecting and enhancing the stability of the financial system (FPC) and promoting the safety and soundness of PRA-authorised firms (PRA)

(b) In addition, the Chancellor's 2015 remit letter to the FPC asked the committee to consider how, subject to its primary objective to protect and enhance the stability of the UK's financial system, its actions might affect competition and innovation, and their impact on the international competitiveness of the UK financial system.

Dynamism encompasses the potential growth in income or economic output given the total amount of hours that people wish to work – or the growth of labour productivity per hour. In this assessment, a broader definition is used; a dynamic economy is also likely to be one where entrepreneurs will innovate and set up new firms and new jobs will be created, enhancing the welfare of its citizens by allowing resources to move flexibly to new productive opportunities. Dynamism is driven by growth in both the capital inputs to production and the efficiency with which labour and capital are combined. This is distinct from the overall long-run growth rate of the economy, which is driven both by dynamism and by increases in the supply of labour, through either growth in the workforce or the number of hours worked. It can also be distinguished from short-term growth, which will be influenced by a range of cyclical factors and economic shocks. **Box 2.C** at the end of this Chapter discusses the link between dynamism and overall living standards in the economy.

As set out in Chapter 1, access to the EU's single market supports a greater degree of openness than a simple free-trade agreement. In order to encourage the free movement of goods, services, capital and labour, the EU makes legislation. Some EU legislation, such as the harmonisation of standards or mutual recognition of rules, should boost potential growth by creating a level playing field for firms selling products[20] across multiple jurisdictions within the EU. Other EU legislation might create 'red tape' for some firms, which can detract from dynamism.

Box 2.A looks at a range of indicators of product[21] and labour market regulation across the G7 economies. One way to test whether EU legislation acts as a constraint on dynamism is to assess whether EU economies fare worse than their non-EU peers. The charts in the Box – which are ordered such that economies with the most flexible policy positions are on the left-hand side – show that the UK tends to be one of the most flexible economies in the G7, particularly with respect to product market regulation. This supports the view that the UK is one of the most dynamic economies in the G7, with some of the most flexible labour and product markets. While there are areas where EU member states appear to be constrained by common EU rules, notably in product markets, there is no consistent pattern to suggest that EU member states are more or less heavily regulated overall than other G7 economies.

Openness increases the size of markets in which firms can operate and increases the degree of competition between firms (green box in **Figure A**). This can raise productivity growth through three channels, outlined in the orange box. First, it provides greater access to new ideas and increases the rewards from **innovation and adoption**. Second, it creates conditions in which more productive firms can expand while less productive firms contract, in a way that increases the **scale and specialisation** of production. Finally, it leads **to better matching of capital and labour**, improving the allocation of resources.

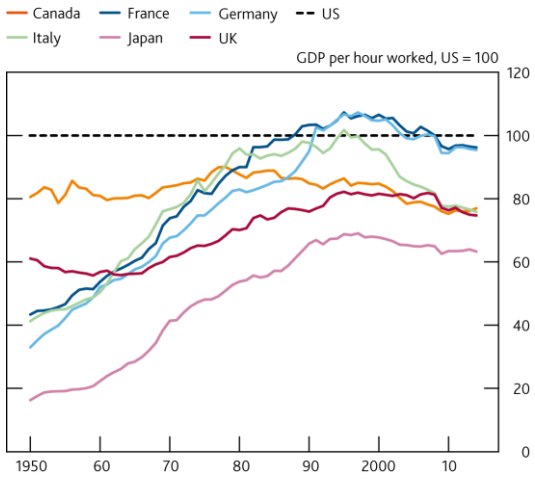
Importantly, openness can help countries to adopt the latest technologies, moving them closer to the global productivity frontier. Once convergence to the frontier has happened, openness can help countries to grow in line with the frontier economy (typically thought to be the US), by maintaining a continuous flow of ideas and resources. Openness can also help countries participate in pushing out the frontier in particular markets by encouraging them to make new inventions.

[20] Throughout this chapter "products" is defined to include both goods and services.

[21] The Product Market Regulation indicators are compiled from 1,400 questions on regulatory structures and policies, completed by the relevant governments. See Koske et al (2015) for further detail.

Richer EU countries converged rapidly towards the productivity frontier in the immediate post-war period and have largely stayed there since (**Charts 2.1**).[22] At the same time, dispersion in productivity across countries in the EU fell to a level lower than other regions (**Chart 2.2)**, reflecting a greater degree of openness in those countries. While France and Germany have seen greater levels of convergence with the US over the broad sweep of their membership of the EU, the UK's productivity growth performance has been more comparable to that of the US in the past twenty years.

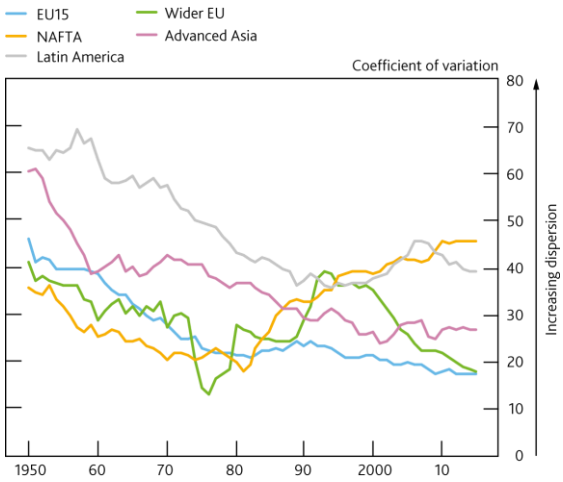
Chart 2.1: Output per hour, G7 countries



Source: The Conference Board Total Economy Database

Notes: Output per hour measured in 2014 US$, with price levels converted using 2011 PPPs.

Chart 2.2: Dispersion of output per worker by region



Source: The Conference Board Total Economy Database

Notes: Output per worker measured in 2014 US$, with price levels converted using 2011 PPPs. Coefficient of variation calculated as the ratio of the standard deviation to the mean.

The remainder of the chapter considers the evidence for the operation of the three channels outlined above, which link openness to dynamism. In each case, theoretical and empirical support for the channel is first presented, drawing on evidence from a wide range of advanced economies. To the extent that EU membership increases openness, as shown in Chapter 1, it might then reasonably be assumed that such channels have operated amongst EU member states, boosting dynamism. Finally, the inferences drawn from the wider evidence will be discussed in the light of explicit UK and EU evidence where that is available.

2.1 Innovation and adoption

The ultimate driver of economic growth is the creation of new ideas, products and processes, allowing people to make more efficient use of inputs. Countries can both create new ideas themselves (innovation) and adopt ideas generated elsewhere (adoption). The US is typically thought of as the 'frontier country',[23] growing through innovation. As shown in **Chart 2.1,** EU countries were previously some way behind the frontier, but have caught up over time.

Openness is important for innovation and adoption for two reasons. First, openness creates channels through which new technologies and processes are able to enter a country; second, openness generates conditions, such as increased market size and increased competition, which change firms' incentives to adopt and innovate.

[22] There has been less convergence in GDP per capita as EU member states have tended to have lower levels of employment and average hours than the US, see **Box 2.C.**

[23] This is convenient at the country level, though it should be stressed that, at the sector or firm level, the true frontier could be elsewhere.

Box 2.A: Productivity and product and labour market regulation

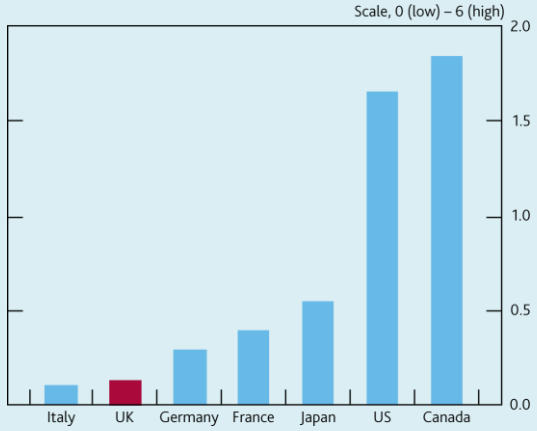
This Box looks at indicators of regulation in EU and non-EU countries. The charts are ordered such that economies with the most flexible policies are on the left-hand side. While this is not an exhaustive survey, it does show that there is a significant diversity of policy settings across EU member states, arising because overall regulation depends on a combination of legislation made at the national and EU level. The EU has played a greater role in some areas, such as product market regulation (where harmonisation in some areas has led to consistency in rules across member states), and a smaller role in others, such as labour markets. In some instances, EU countries have some of the most flexible legislation across G7 economies. In other instances, the range of policy settings in the EU is similar in diversity to the rest of the G7, suggesting that EU membership does not in itself lead to a stricter degree of product and labour market regulation than in other similar advanced economies.

Charts A-D cover product market regulation, in which the EU has played a significant role. **Charts E and F** relate to labour market regulation, which is primarily set at the national level. Looking across this range of metrics, the UK has low levels of regulation across most measures. This suggests that the UK has adopted more flexible regulation than many of its EU and non-EU peers and is thus well placed to benefit from greater openness both within the EU and globally.

Chart A measures the extent to which foreign firms are treated differently from domestic ones, through policies such as taxation, subsidies and public procurement rules. A high score on this measure would indicate a barrier to foreign entry, which could weaken innovation and reduce the incentives for domestic firms to specialise. **Charts B** and **C** measure the extent to which countries have policies that make it harder to set up new firms, or which protect existing firms, both of which could act as barriers to the entry and exit of firms and impede specialisation. **Chart D** is a summary measure of product market regulation, which aims to capture the degree of protection in product markets. A high score would be associated with policies being in place that could stifle competition and innovation.

Chart E measures the degree to which employees are protected, with higher entries suggesting there are extensive procedures and costs involved in dismissing individuals or groups of workers. **Chart F** presents responses by firm executives to the question "how would you characterise labour-employer relations?"; a higher score indicates greater cooperation.

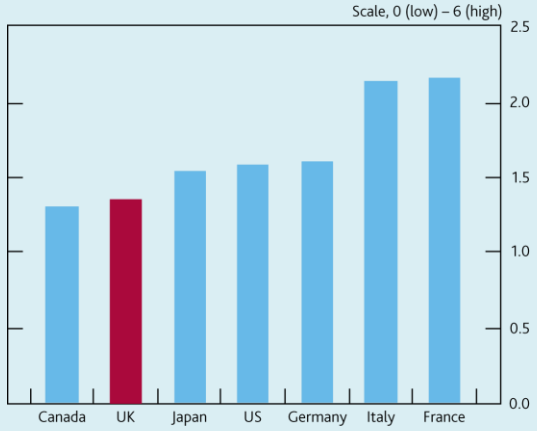
Chart A: Differential treatment of foreign suppliers



Source: OECD (2013), Product Market Regulation Database.

Notes: US data relate to 2008, all others 2013. The index is a composite indicator of differential treatment for foreign firms with respect to taxes, subsidies, public procurement, entry regulation and appeal and procedures.

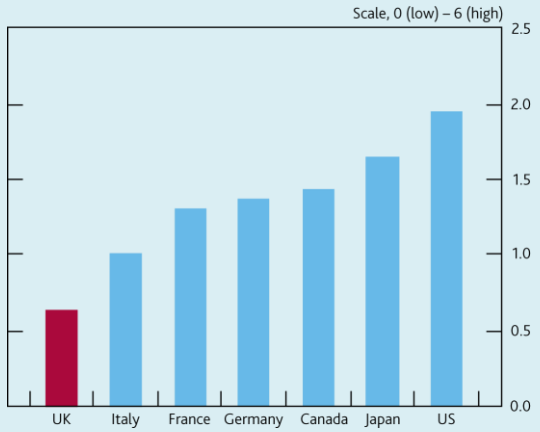
Chart B: Administrative burden on start-ups



Source: OECD (2013), Product Market Regulation Database.

Notes: US data relate to 2008, all others 2013. The measure is a composite indicator of the regulatory burden for establishing new firms or entering the service sector.

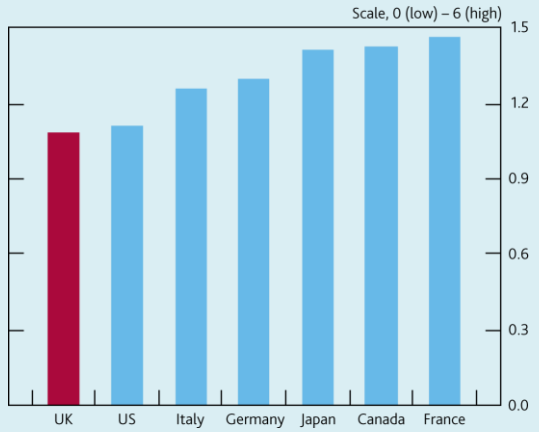
Chart C: Regulatory protection of incumbents



Source: OECD (2013), Product Market Regulation Database.

Notes: US data relate to 2008, all others 2013. The measure is an indicator of exemptions from competition policy and barriers to entry.

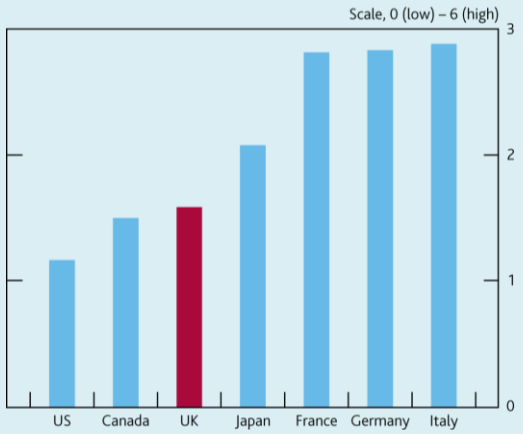
Chart D: Product market regulation



Source: OECD (2013), Product Market Regulation Database.

Notes: US data relate to 2008, all others 2013. The measure is an indicator based on scores across 18 lower-level categories.

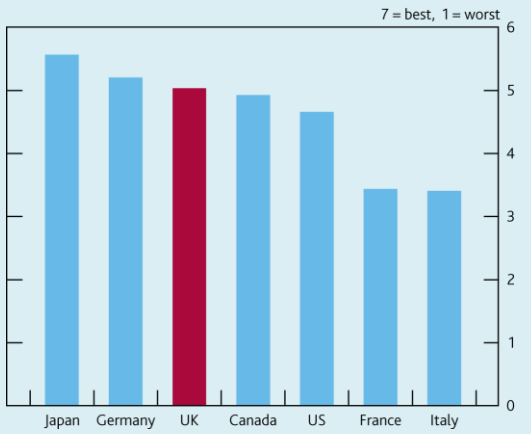
Chart E: Employment protection legislation



Source: OECD Employment Protection Legislation.

Notes: UK data relate to 2014, all others 2013. Measure based on indicators of the stringency of regulation, case law and collective bargaining concerning individual and collective dismissal.

Chart F: Labour-employer relations



Source: WEF Global Competitiveness Report 2014

Notes: Indicator based on responses to the following question in the WEF Executive Opinion Survey: "In your country, how would you characterize labour-employer relations? (1 = generally confrontational; 7 = generally cooperative)".

Better access to technology

Trade openness allows firms to access the most advanced inputs to production, raising their product quality and productivity. This process is well evidenced in many developing economies.[24] That said, Lileeva and Trefler (2010) find that Canadian manufacturers' productivity rose by only 0.5% as a result of access to US inputs following the 1989 Canada-US free-trade agreement (although the gains from other channels were found to be more substantial – see **Box 2.B** below).

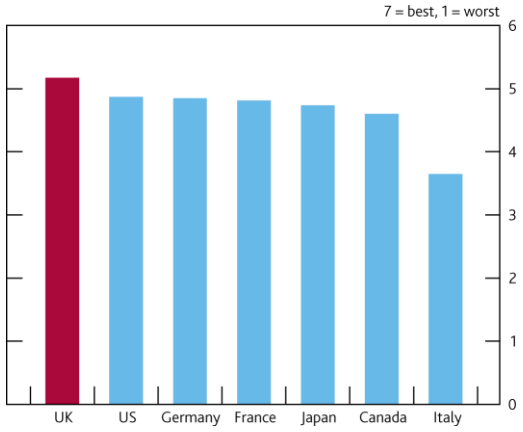
Foreign direct investment (FDI)[25] can similarly provide access to the most advanced inputs to production, including new technologies and working practices. This might be because domestic firms copy technologies and practices they observe in new entrants or because workers move between foreign and domestic firms, taking knowledge with them as they do so ("horizontal spillovers"), or because technologies and practices

[24] See, for example, Amiti & Konings (2007), Goldberg, Khandelwal, Pavcnik & Topalova (2010) and Estevadeordal & Taylor (2013).

[25] While the technical definition of FDI is the holding of an equity stake of more than 10% in a foreign firm, a more intuitive way to think about it is simply the overseas operations of a multinational, which could arise either through the establishment of foreign branches and subsidiaries or through the acquisition of foreign firms.

are passed from foreign firms to domestic firms along the supply chain ("vertical spillovers"). The spread of information and communications technology (ICT) provides an instructive example. In the 1990s this had led to an acceleration in productivity growth in the US but not in Europe (van Ark, O'Mahony and Timmer, 2008). This was not explained by greater availability or cheaper cost of IT in the US, but rather because the management practices of US firms seemed able to generate higher productivity from their IT investments. US multinationals operating in Europe subsequently experienced a strong IT-based increase in productivity, similar to their counterparts operating in the US, as did European firms taken over by US multinationals (Bloom, Sadun and Van Reenen, 2012) – In other words, openness of EU economies to the entry of US firms facilitated the transfer of these practices to EU firms. Technology transfer has been detected in further studies, including for the UK (Haskel, Pereira & Slaughter, 2007), the US and during the accession of newer EU member states.[26]

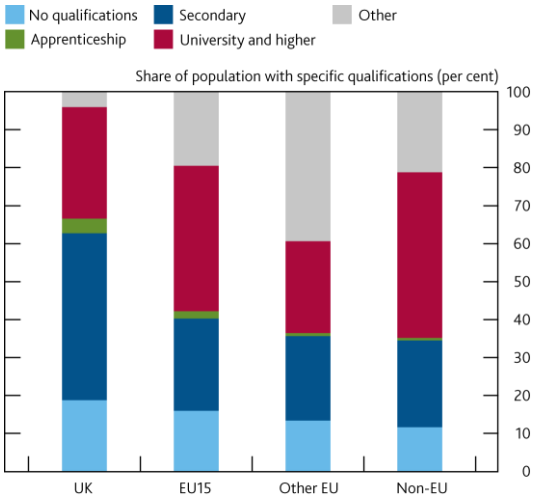
Chart 2.3: To what extent does foreign direct investment bring new technology into your country?



Source: WEF Global Competitiveness Report 2014

Notes: Indicator based on responses to the following question in the World Economic Forum Executive Opinion Survey: "To what extent does FDI bring new technology into your country? (1 = not at all; 7 = to a great extent—FDI is a key source of new technology)".

Chart 2.4: Qualification levels amongst UK residents



Source: ONS Census for England and Wales, 2011.

Notes: Chart shows shares of population grouped by highest level of qualification. "Other" category includes vocational qualifications and foreign qualifications whose equivalence with UK qualifications in not known.

Chart 2.3 reports survey responses by company executives to the question "to what extent does foreign direct investment bring new technology into your country?" The reported levels are generally high across advanced economies, and highest for the UK, providing some support for the operation of this channel, both inside and outside the EU. Although none of these studies or data directly measure the impact of FDI on the transfer of new technologies between EU member states, they do provide evidence that openness to FDI can play some role. Since EU membership confers the free movement of capital and the right of establishment within the EU, it therefore ought to facilitate access to new technologies.

Finally, openness to labour flows – via migration – can allow an inflow of skills not otherwise available in the domestic economy. Ortega and Peri (2014) find that migration boosts long-run GDP per capita, acting both through increased diversity of skills and a greater degree of patenting. At the firm level, several studies further find that migration has a positive impact on productivity by diversifying the high-skilled labour employed by firms.[27] And Miguélez & Moreno (2013) find that the mobility of researchers in Europe boosts patenting rates.[28] A further range of studies find strong links between migration and trade[29], which

[26] See Keller (2010) for a useful survey.

[27] See Nathan (2013) for a useful survey and Rolfe et al (2013) for qualitative support for this effect from UK employers.

[28] Kim, Lee & Marschke (2009) demonstrate that this effect also operates in the US.

may be explained by the fact that migrants can provide information that makes it easier for firms to start exporting to the their home countries.

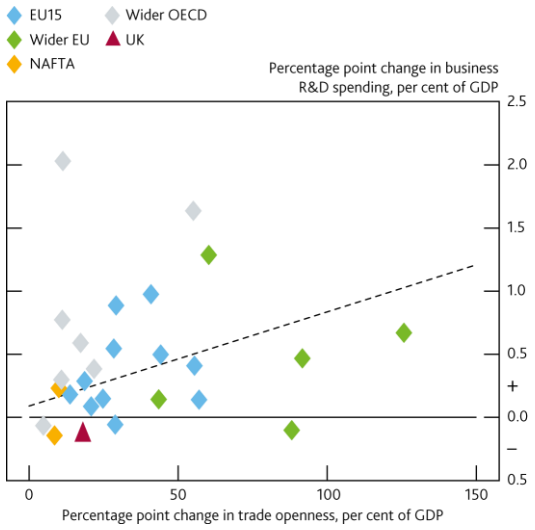
As **Chart 2.4** shows, migrants into the UK from other EU15 countries and from outside the EU tend to have higher levels of qualifications than the domestic workforce (larger red bars). For newer member states, qualifications are more difficult to compare (larger grey bars). However, to the extent that this 'other' category reflects advanced qualifications whose precise equivalence with UK qualifications is unclear, the skillsets of migrants from these newer member states may not be very different from those of domestic workers.

Enhanced incentives to innovate

Openness changes firms' incentives to adopt and invest in new technology. Firms might innovate in response to the increased availability of rival products from abroad, or through the impact of FDI in sharpening competition domestically.[30] Access to a larger market through exporting also increases the potential rewards to firms of innovation (Melitz & Trefler 2012).

Bloom, Draca and van Reenen (2011) find evidence of a competition effect from imports for firms in the UK and other EU member states, specifically by looking at the impact of China's entry into the World Trade Organization (WTO). They find evidence that, in the face of stiffer competition, European firms increased investment, research and development and innovation. Schmitz (2005) finds a similar effect for the US iron ore mining industry, in response to growing imports from Brazil. Aghion et al (2009), meanwhile, study the impact of the EU's Single Market Programme, initiated between 1986 and 1992, which led to a significant increase in the entry of foreign firms into the UK via FDI. In that study, the increased entry of firms is found to have a significantly positive impact on productivity and patenting in domestic firms, notably those close to the technological frontier for their industry. Similar effects are found for the increased import penetration associated with EU membership.

Chart 2.5: Change in trade openness and change in business R&D spending (1995-2013), % GDP



Source: OECD National Accounts and Main Science & Technology Indicators.

Notes: Dashed line shows correlation amongst EU15 countries. Due to data limitations Australia, Bulgaria, Chile, Croatia, Cyprus, Estonia, Ireland, Latvia, Lithuania, Luxembourg, Malta, Mexico, Romania and Switzerland are excluded from their relevant groups.

A further set of studies have looked at the effect of increased market size on innovation. The removal of trade barriers lowers the costs of exporting, which should induce new firms to export. As these firms now have access to a much larger market, the potential benefits from cost-reducing investment or innovation are higher, leading firms to engage more in both activities (Melitz & Trefler 2012). Amongst advanced economies, these effects have been identified for Canadian firms, as Canada has progressively opened up to the US (see **Box 2.B**), and in Slovenia, as Slovenian firms prepared for entry into the EU (De Loecker, 2007).

[29] Head & Ries (1998) were amongst the first to establish a link. Amongst others, Peri & Requena-Silvente (2010) demonstrate such a link for Spain, Briant, Combes & Lafourcade (2014) find a link for France and Girma & Yu (2002) find such a relationship for the UK, particularly for non-Commonwealth migrants.

[30] Aghion et al (2014) argue that the relationship is hump-shaped: rising competition increases incentives for firms to innovate until competition reaches a very high level, at which point firms are unable to reap the benefits and innovation activity falls. Policies like effective intellectual property regimes can help mitigate these effects.

Box 2.B: Goods market integration in North America

North American economies progressively integrated their goods markets through the second half of the 20th century. In 1965, Canada and the US signed the North American Auto Pact, removing barriers to cross-border trade in vehicles. This was followed by the much broader 1989 Canada-US Free Trade Agreement, and ultimately by the creation of the North America Free Trade Agreement between Canada, Mexico and the US in 1994. This Box, therefore, provides a useful case study of the potential gains from the removal of barriers to trade.

The 1965 North American Auto Pact

The 1965 North American Auto Pact, liberalising vehicle trade between the US and Canada, provides a good illustration of the productivity gains from scale and specialisation of firms. Prior to the pact, Canadian consumers bought cars made in Canada by car plants that, in turn, served only Canadian consumers. As a result, car plants in Canada were producing a range of vehicles with limited economies of scale: on average, they were 30% less productive than their US counterparts. Liberalisation of automobile trade led to a reduction in the range of models produced in Canadian plants, but those same plants increased production of the remaining models, which were then sold across both the US and Canadian markets. The associated gains from scale and specialisation had eliminated the 30% productivity shortfall of Canadian plants relative to the US by the early 1970s (Melitz & Trefler 2012).

The 1989 Canada-US Free Trade Agreement

The 1989 Canada-US Free Trade Agreement (FTA) was studied in detail by Lileeva & Trefler (2010). They found that the agreement could account for a 14% increase in the aggregate productivity of Canadian manufacturers, operating through a combination of the channels summarised in **Table A**.

Table A: Aggregate increase in Canadian manufacturing productivity linked to the 1989 Canada-US FTA

Channel	Impact on productivity
Increased innovation and adoption	*5.4%*
Exit of less productive plants	*4.3%*
Expansion of more productive plants	*4.1%*
Total effect	13.8%

Source: Lileeva & Trefler (2010)

Innovation and adoption: Lileeva & Trefler (2010) found that falling export costs arising from the 1989 Canada-US FTA increased the number of Canadian exporters. Both existing and new exporters substantially increased their investment in machinery as well as new processes. This effect was sufficient to raise aggregate manufacturing productivity in Canada by 4.9%, with a further small increase in productivity of 0.5% arising from access to higher quality inputs.

Scale and specialisation of firms: The 1989 Canada-US FTA also provides useful evidence on the productivity gains from a redistribution of activity between firms, which arose due to the reduction in tariffs on both imports and exports. The fall in tariffs on Canadian exports to the US allowed Canadian exporters to serve a larger market and so expand relative to non-exporters. And because exporters are on average more productive than non-exporters, this raised aggregate productivity. In addition, the fall in tariffs on imports led to greater competition, leading less productive firms to shrink or exit the market. Combined, these effects are estimated to have raised Canadian manufacturers' labour productivity by more than 8% between 1988 and 1996, split roughly evenly between the two types of redistribution.

For the EU as whole, positive correlations between measures of openness, competition and innovation would be the ideal way to illustrate these effects more generally. However, measures of the economy-wide degree of competition are hard to come by. **Chart 2.5** shows a weak positive correlation between changes in the degree of trade openness and changes in business spending on innovation for EU15 member states, as proxied by research and development (R&D) spending, though many factors could explain this correlation.

Openness promotes innovation and the adoption of new technologies through the free movement of capital and labour. Capital and labour mobility increase access to foreign skills and technology, an effect demonstrated in some UK- and EU-specific studies. Increased competition from operating in a larger market reinforces these dynamics, enhancing incentives for firms to innovate.

2.2 Scale and specialisation of firms

Another important component of a dynamic economy is the ability of more successful firms to expand while less productive firms contract. Greater openness can facilitate this process through enhancing the scale and specialisation of firms.

As noted previously, greater openness increases the size of the potential market available to firms and increases the degree of competition in that market. That creates incentives for firms to focus on the activities they are best at, leading them to specialise, while expanding to serve a larger market, achieving economies of scale. The higher degree of competition can also lead to the exit of less productive firms (Melitz & Trefler, 2012). One obvious consequence of this process of specialisation is the growth of global supply chains, as firms increasingly focus on one stage of the production process. That highlights the importance of trade, both because these firms require imported goods to substitute for the portion of the supply chain they are no longer producing, and because their customers overseas may well be producers of goods further down the supply chain (Johnson, 2014).

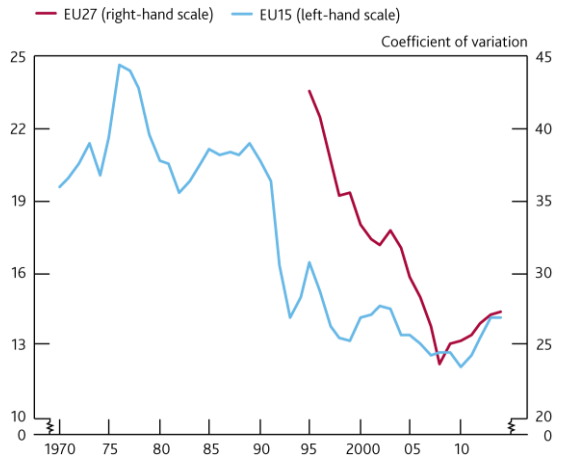
At the whole economy level, these firm-level effects may lead to specialisation, with some sectors expanding relative to others, particularly if there are advantages to firms of being in a specific location. When trade costs fall, local firms can more fully exploit those advantages and foreign firms are incentivised to relocate to benefit from them. There are many such advantages, from the development of pools of skilled labour, to concentrations of demand or suppliers (Bernard, Redding & Schott, 2007; Puga, 2010).

The empirical evidence to support the impact of increased market size and competition on the scale and specialisation of firms, and hence productivity, is generally drawn from micro-data. Pavcnik (2002) finds these effects at work in Chile and Bloom, Draca and van Reenen (2011) find similar evidence that less productive European firms were more likely to exit, and more productive firms more likely to expand, following the additional competition created by China's entry to the WTO, leading to rising average productivity. The best evidence in this area comes from the progressive integration of the Canadian and US goods markets, which led to an increase in the scale and specialisation of Canadian production (see **Box 2.B**). Taken together, and despite the lack of direct evidence for the EU, the studies of other countries are consistent with membership of the EU facilitating increased scale and specialisation of production.

Some of the ideal quantitative measures or data that might illustrate these effects, such as changes in the size and composition of firms and their product mix, are difficult to come by or do not exist. Nevertheless, there are some useful proxy measures that offer a partial view.

For example, if competition has increased because of trade openness, prices ought to converge between countries that are open to each other. **Chart 2.6** suggests this happened across EU countries, though convergence in incomes across countries and the introduction of the euro for some member states are also likely to have played a role. Meanwhile, rates of new firm creation in the UK appear to be high relative to peers, consistent with low barriers to entry for new firms. In 2012, the UK created more than three times as many new businesses as the US, allowing for the relative difference in size of the two economies.

Chart 2.6: Price convergence

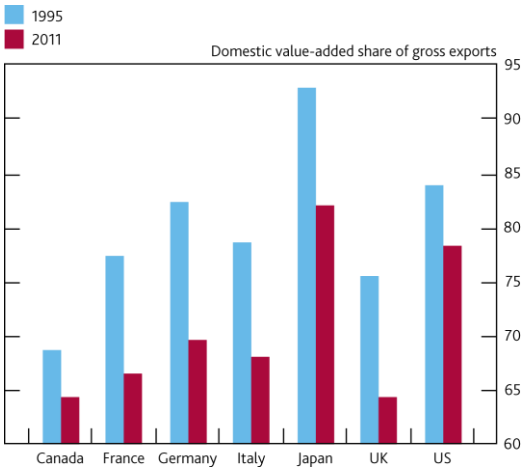


Sources: Eurostat, OECD and Bank calculations

Notes: Price convergence is calculated using comparative price levels, calculated as the ratio of the PPP-adjusted household final consumption expenditure price index to the market exchange rate for each country.

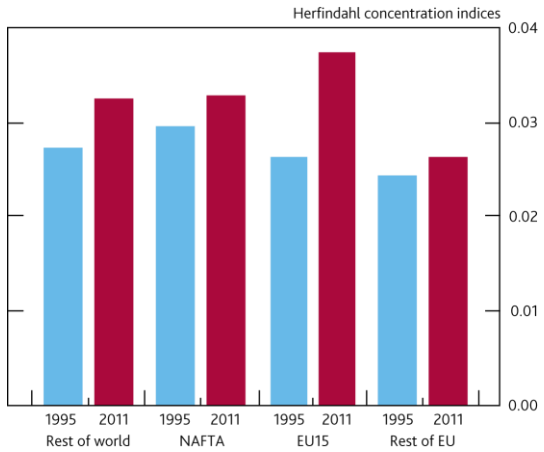
While firm-level specialisation and redistribution is hard to detect in aggregate statistics, both the rise of global supply chains and specialisation by firms are easier to detect in the data. If firms are specialising in narrower tasks and are increasingly dependent on imports for the stages of production they are no longer carrying out, the share of the value of exports added to products by domestic firms ("domestic value added") should fall, and the foreign share rise. **Chart 2.7** shows exactly this effect for the manufacturing sector. Between 1995 and 2011, domestic value added fell as a share of total exports across all the G7 economies, and notably so in EU countries, a strong indicator of increasingly integrated supply chains and specialisation of firms in narrower stages of production.

Chart 2.7: Domestic value added share of manufacturing exports



Source: OECD-WTO Trade in Value-Added

Chart 2.8: Concentration of production, 1995 and 2011



Source: World Input-Output Database. Timmer et al (2015)

Notes: Chart plots Herfindahl concentration indices across the value-added of countries' industries. Indices are normalised such that 0 represents perfectly equal shares across industries while 1 indicates concentration of production in just one industry. Groups are unweighted averages.

The theoretical literature suggests that the degree to which openness will lead to some sectors expanding relative to others (that is, the extent to which the economy as a whole specialises) is ambiguous (Head & Mayer, 2004). Nevertheless, both Combes & Overman (2004) and ECB (2004) find some tentative evidence of an increase in industry concentration over time in the EU. **Chart 2.8** looks at the concentration of

production across sectors, measured by changes in a "Herfindahl index". A score of 1 indicates that a single sector accounts for the entirety of production in an economy, while a score of 0 indicates perfectly even production across all sectors.[31] Production has become more concentrated since 1995 across a broad range of countries, but to a greater extent for EU economies relative to NAFTA, with the EU15 member states showing one of the largest increases.

Greater openness allows firms to specialise in a narrower range of products and to exploit economies of scale, raising efficiency. Greater competitive pressure also favours more productive domestic firms, enhancing economic dynamism in the long run as production shifts to them. The experience of Canada-US trade integration suggests that these channels operate within free trade areas like the EU. There is also evidence that EU countries have integrated their supply chains and specialised their production to a similar or greater extent than other advanced economies.

2.3 Better matching of capital and labour

As Chapter 1 illustrated, cross-border flows of both capital and labour have risen in recent decades. The more open an economy, the easier it is to match borrowers and savers – the allocation of capital – and the easier it is to match workers and firms – the allocation of labour. That increase in allocative efficiency should provide a boost to dynamism. This section first considers how greater economic openness can improve the allocation of capital before turning to labour.

Better matching of borrowers and savers

If capital flows more easily across borders, then savers should be able to choose from a greater range of investment opportunities and borrowers should be able to choose from a greater range of savers deploying capital. In advanced economies, that can have two positive effects on productivity: first, a more efficient allocation of capital, as higher return projects are selected (Bekaert, Harvey & Lundblad, 2011; Bonfiglioli, 2008); second, a lower cost of capital, as portfolios are diversified (Forbes, 2007; Quinn & Voth 2009). This is in addition to the secondary effects associated with certain capital flows, notably FDI, such as the transfer of technology discussed previously.[32]

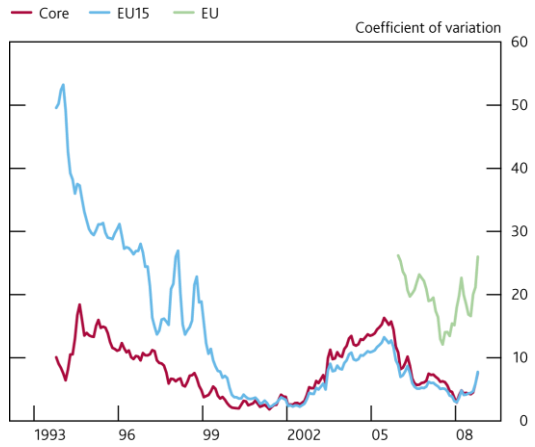
Abiad, Leigh and Mody (2009) find that the degree of capital account openness between EU countries is similar to that observed between US states. As discussed in Chapter 1, the EU's passporting regime is likely to have facilitated cross-border banking flows, while the proposed EU Capital Markets Union is intended to lead to greater diversification of borrowing and saving opportunities across member states (Anderson et al, 2015).

If such capital allocation channels are operating effectively, financing costs and rates of return across different economies should converge, something found for the euro area by Baele et al (2004). By way of illustration, **Chart 2.9** shows a reduction in the dispersion of government bond yields across EU15 countries in the run-up to global financial crisis. **Chart 2.10** shows similar convergence for lending rates to the real economy over the same period in the euro area (albeit with a shorter history available). There are almost certainly a number of factors at play here, including the introduction of the euro and a single monetary policy in the euro area in 1999 and a generalised under-pricing of credit risk in the run-up to the global financial crisis, but capital allocation channels may also have played a role.

[31] The very low degree of concentration in both periods may look surprising, though in part this must reflect the fact that sector classifications are designed to provide a useful degree of granularity to describe the economy.

[32] The positive impact of capital account openness is more contested for emerging markets, see e.g. Kose, Prasad and Taylor (2011), Kose, Prasad and Terrones (2009) and Quinn & Toyoda (2008)

Chart 2.9: Dispersion of 10-year government bond yields



Source: ECB

Notes: "Core" countries represent EU15 members excluding Greece, Ireland, Italy, Portugal and Spain. The EU series includes data for all EU member states except Estonia, for which comparable data are not available. Beyond October 2008, the dispersion of borrowing costs increases substantially, not shown.

Chart 2.10: Dispersion of bank lending rates to households and corporations, euro area

Source: ECB

Notes: Data cover continuous Euro members since 2003. Measure compiled from the lending rates of monetary financial institutions at a range of maturities. Beyond October 2008, the dispersion of borrowing costs increases substantially, not shown.

Better matching of workers and firms

Greater openness to labour market flows associated with EU membership should also facilitate better matching of workers with employers. In the traditional ("Neo-classical") growth model, changes in labour supply (whether through natural population growth or migration) are generally assumed to have no long-run impact on productivity or GDP per capita (Brunow, Nijkamp and Poot, 2015).[33] However, there is some tentative empirical evidence of a significant but small positive effect from migration on GDP per capita growth in the long-run.[34] One explanation is likely to be that migrants change the skills mix in the economy. As discussed previously, migrants might bring new skills into the workforce, raising productivity. More generally, the composition of skills in the migrant population might be different from those in the domestic population, potentially making it easier to match workers to jobs and raising the long-run level of employment.

Some firms may be unable to find the specific skills they need amongst the domestic labour force, preventing them from expanding. Opening up labour markets improves the chances of firms finding the skills they are looking for, allowing successful firms to expand and workers to move to where their skills may be best deployed. Rolfe et al (2013) highlights the importance UK employers attach to migration as a means of reducing skills shortages. This finding is consistent with recent anecdotal evidence from the Bank of England's Agents, who report that firms are turning to migrant workers as the labour market tightens.[35] There is also tentative empirical evidence from the US that inflows of highly-skilled migrants raise employment and potentially firm size (Kerr, Kerr & Lincoln, 2013), which is consistent with migrants playing a role in alleviating skill shortages.

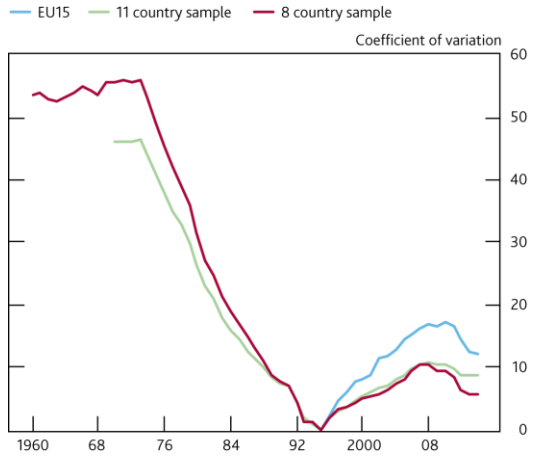
[33] In the Neo-classical growth model, people flow from where returns to labour (wages) are low to where they are high. In the short-run, this pushes down wages and GDP per capita in the receiving country, and pushes them up in the sending country. In the longer term, because an increase in the workforce reduces the capital intensity of production, returns to capital rise, leading to an increase in the capital stock and a return to the previous level of GDP per capita (Brunow, Nijkamp & Poot, 2015).

[34] The role of migration in allocative efficiency has been much less extensively studied than capital, but see Brunow, Nijkamp & Poot (2015) and Ozgen, Nijkamp & Poot (2010) for useful surveys

[35] See, for example: Bank of England Agents' summary of business conditions, August 2015.

While many studies find that immigration has no significant effect on aggregate wages, they sometimes find a small negative impact for some groups. For the UK, Dustman, Frattini & Preston (2013) find that immigration over the period 1997-2005 reduced wages slightly for the lowest fifth of earners; over a longer time horizon, Manacorda, Manning & Wadsworth (2012) find that immigration had no significant impact on native wages, but did reduce the wages of pre-existing migrants. An update of Nickell & Saleheen (2008) finds a small negative impact on average wages from immigration overall, particularly for those with lower skills; but, when comparing the impact of immigration from different countries, the results do not suggest a significant impact on aggregate UK wages as a result of migrants specifically arriving from other EU countries since 2003. [36]

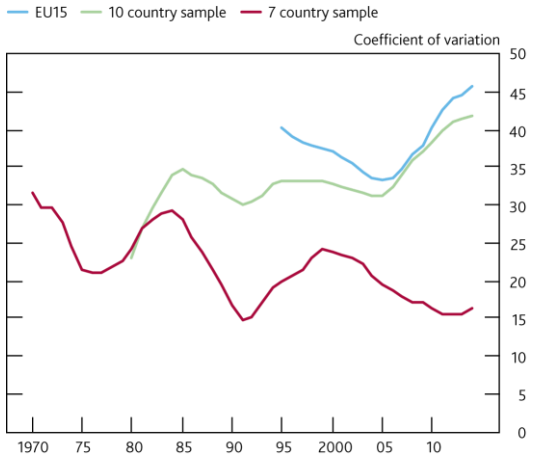
Chart 2.11: Dispersion of EU15 real unit labour costs



Source: OECD Economic Outlook 97

Notes: Unit labour costs, indexed to 100 in 1995. In order to present a longer time series, sub-samples of the EU15 have been presented where a longer time series is available. The 8 country sample covers Belgium, Finland, France, Italy, Netherlands, Spain, Sweden, and the UK. The 11 country sample adds Austria, Denmark and Luxembourg. Portugal is excluded from EU15 as no data are available.

Chart 2.12: Dispersion of EU15 equilibrium unemployment



Source: OECD Economic Outlook 97

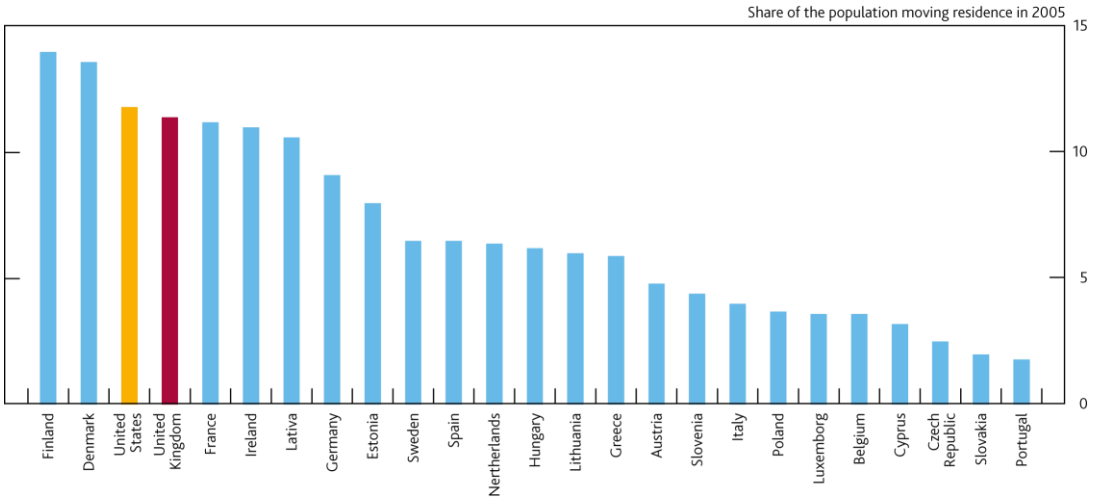
Notes: Estimates of non-accelerating inflation rates of unemployment. In order to present a longer time series, sub-samples of the EU15 have been presented where a longer time series is available. The 7 country sample covers Belgium, Finland, France, Italy, Netherlands, Sweden, and the UK. The 10 country sample adds Denmark, Portugal and Spain

These findings are consistent with D'Amuri & Peri (2014), who find that the arrival of new migrants in European countries leads native and foreign workers to specialise in different tasks. The authors argue that the ability of native workers to specialise in areas where they have an advantage (such as communication skills or knowledge of local practices) allows them to move up the skills spectrum. Furthermore, they find that these effects are stronger in countries, like the UK, that have more flexible labour markets.

The hypothesis that the openness of the EU labour market facilitates better matching of workers with employers should be consistent with labour flowing from countries where wages are low and unemployment high, to those where wages are high and unemployment low, leading to convergence in wages and unemployment (when the business cycle is controlled for). Labour costs across the EU have converged significantly over time (**Chart 2.11**), while 'equilibrium' rates of unemployment, consistent with stable inflation, have become less dispersed for a group of seven EU economies, though this pattern is not evident for broader groups (**Chart 2.12**). The group of seven account for nearly two thirds of the EU's economy and include the UK.

[36] These results are from an update of the 2008 paper by Jumana Saleheen, forthcoming in the Bank of England Staff Working Paper Series. Regressions have been re-run, for data up to 2014. In addition, it has been possible to distinguish between migrants from EU and non-EU countries, something not done in the original paper. This has been implemented through the inclusion of dummy variables in regressions. See Nickell and Saleheen (2008) for a fuller description of data and methodology.

Chart 2.13: Labour mobility within EU countries and the US

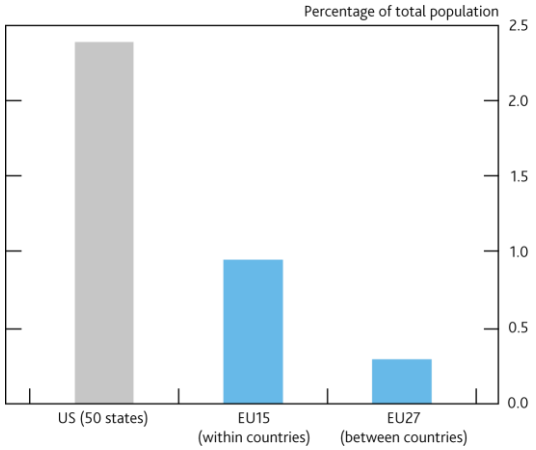


Source: Molloy, Smith & Wozniak (2011)

Notes: Chart shows fraction of the population in 2005 that moved residence in the previous year. UK data is for Great Britain only.

One interpretation of these observations is that, rather than improvements in the allocation of labour, the primary driver of wage convergence across countries has been the broad convergence of labour productivity towards the productivity frontier, noted previously. That might also be consistent with the relatively low levels of labour mobility in the EU: while mobility within EU countries is often at similar levels to those in the US (**Chart 2.13**), mobility between countries (**Chart 2.14**) is considerably lower.[37]

Chart 2.14: Labour mobility within and between EU members, compared to between US states



Source: OECD (2012)

EU member states have progressively opened up their capital accounts, which has facilitated greater matching of borrowers with lenders and a better allocation of capital. There is some evidence that this has lowered lending costs in the EU, which should boost investment and ultimately growth.

Immigration to the UK from the EU has increased in recent years; EU workers are likely to have complemented domestic workers, perhaps because they fill skill gaps or specialise in different tasks.

[37] Chart 2.15 shows the share of the population changing residence, capturing a diverse set of moves, from moves within cities or regions to longer distance moves from one state or country to another. Chart 2.16 captures only longer distance moves, from one state or country to another.

Summary

There is substantial evidence that openness supports economic dynamism through a range of channels, thereby raising economic growth and boosting living standards. These channels from openness to dynamism operate in the EU as they do elsewhere, and it is very likely that the openness associated with membership of the world's largest economic area has led to greater economic dynamism in the UK.

As a dynamic advanced economy with some of the most flexible labour and product markets in the world, the UK is well-placed to benefit from the free movement of goods, services, capital and labour associated with EU membership, alongside the broader process of globalisation.

Openness promotes innovation and the adoption of new technologies through the free movement of capital and labour. Capital and labour mobility increase access to foreign skills and technology, an effect demonstrated in some UK- and EU-specific studies. Increased competition from operating in a larger market reinforces these dynamics, enhancing incentives for firms to innovate.

Greater openness further allows firms to specialise in a narrower range of products and to exploit economies of scale, raising efficiency. Greater competitive pressure also favours more productive domestic firms, enhancing economic dynamism in the long run as production shifts to them. The experience of Canada-US trade integration suggests that these channels tend to operate within free trade areas like the EU. There is also evidence that EU countries have integrated their supply chains and specialised their production to a similar or greater extent than other advanced economies.

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Immigration to the UK from the EU has increased in recent years; EU workers may have filled skill gaps or specialised in different tasks.

Box 2.C: The relationship between dynamism and living standards

Dynamism encompasses the potential growth in income or economic output given the total amount of hours that people wish to work – or the growth of labour productivity per hour. A dynamic economy is also likely to be one where entrepreneurs will set up new firms and new jobs will be created, enhancing the welfare of its citizens by allowing resources to move flexibly to new productive opportunities. Using productivity growth to approximate the gains from dynamism, this Box examines how these gains can improve living standards. To do so, it is useful to decompose the growth in productivity per hour as:

Growth in productivity per hour = Growth in domestic income per head of population (GDP per capita)
minus the growth in average hours worked
minus the growth in the share of the population in work

Growth in productivity per hour can boost per capita incomes in the economy and allow the citizens of an economy to enjoy a higher level of consumption. Alternatively, improvements in productivity per hour can instead increase leisure time by reducing the amount of hours people need to work to maintain their income and consumption. Similarly, growth improvements in productivity per hour mean people can enjoy longer retirements and spend longer in education or bringing up a family.

Different countries may choose to improve living standards in different ways. A good example of this is given by the differential performance of the UK and EU on the one hand, versus the US on the other, since the UK joined the EEC in 1973.

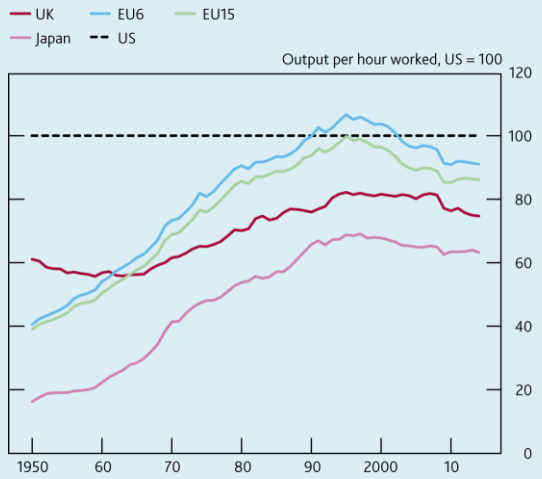
The UK government's White Paper of 1971 laid out the UK government's perspective on the main benefits of EEC entry, noting the impressive growth performance of the EEC countries in the 1950s and 1960s. This performance enabled the EU6 countries to converge on the US in terms of both productivity per hour **(Chart A)** and GDP per capita **(Chart B),** whereas the UK had stood still relative to the US. EEC membership, it was argued, would deliver gains for the UK via improved access to the large European market, including through some of the channels set out in Chapters 1 and 2.

In the period since the UK joined the EEC in 1973, the UK has converged towards the US in terms of productivity per hour, as has the EU as a whole. However, there has been relatively little convergence in terms of domestic income (GDP) per capita by either the UK or the EU as a whole. This reflects two factors:

- First there was a much larger increase in the proportion of the population employed in the US relative to the UK and the EU, reflecting a large increase in female participation and other demographic factors (see Aaronson et al, 2012). So as reflected in terms of domestic income per capita, part of the productivity improvement in the UK and the EU was offset by relatively slower increases in employment participation in the population (**Chart C, for the UK**).
- Second, the UK and the EU have used improvements in labour productivity per hour to reduce the average amount of hours worked by more than the US over the past 60 years (**Chart D**). So improvements in living standards in the UK and EU have occurred to a larger extent in the form of reduced time spent in work and relatively less in terms of higher income and consumption.

The different choices countries make over how to use productivity improvements to improve living standards is a complex interaction between demographics, social and cultural preferences and government policies. Allowance for these factors is needed when comparing different metrics of living standards.

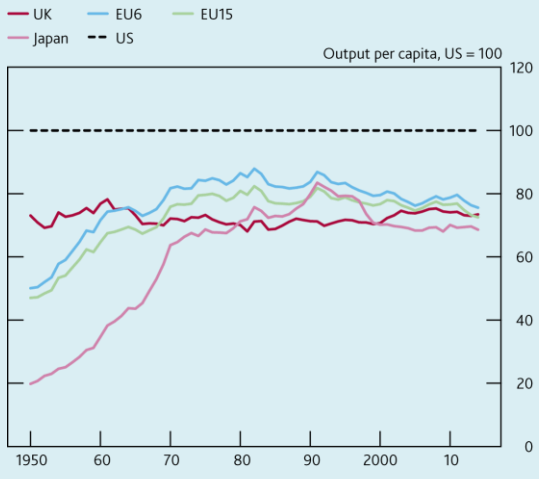
Chart A: Output per hour worked



Source: The Conference Board Total Economy Database

Notes: Output per hour measured in 2014 US$, with price levels converted using 2011 PPPs.

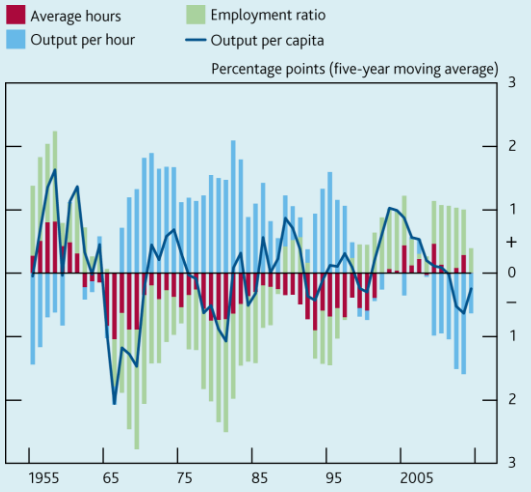
Chart B: Output per capita



Source: The Conference Board Total Economy Database

Notes: Output per capita measured in 2014 US$, with price levels converted using 2011 PPPs.

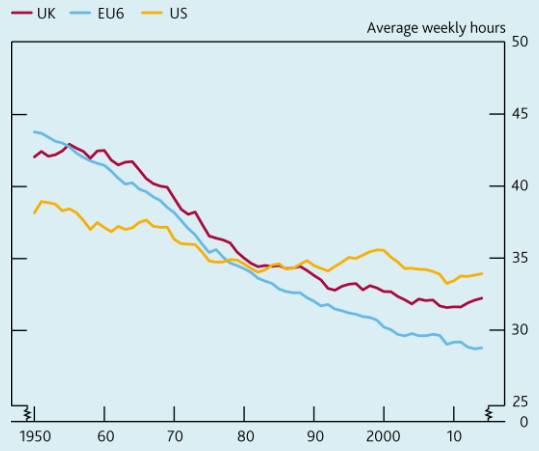
Chart C: Breakdown of output per capita growth in the UK relative to the US



Source: The Conference Board Total Economy Database

Notes: Output per hour measured in 2014 US$, with price levels converted using 2011 PPPs.

Chart D: Hours worked in the EU,UK and US



Source: The Conference Board Total Economy Database

3 Openness and UK Stability

As the UK has become increasingly open, its interdependence with other economies, including the euro area, has increased. Other things equal, this has the potential to improve UK stability through greater risk sharing and a more diversified financial system. But since risk sharing is never perfect, greater openness can also create challenges. The global financial crisis and the euro-area crisis showed that openness can increase the exposure to, and impact of, foreign shocks, particularly in the absence of a sound domestic and international regulatory framework. This had implications for both UK monetary and financial stability.

Introduction

As discussed in Chapter 1, the UK has become more economically and financially open in the period since it joined the EU in 1973. As the UK has opened up, the amount of goods, services, people and capital flowing in both directions across the UK's borders has risen. This has made the UK more exposed to events overseas – changing both the nature of the shocks hitting the economy and the forces shaping the structure of the economy itself. Chapter 2 outlined how such changes have affected economic dynamism in the UK. This chapter investigates how such changes can affect UK stability and how the Bank of England sets policy in response to shocks.

The Bank of England is responsible for monetary and financial stability in the UK. Monetary stability means that prices rise at a low, stable and predictable rate (as defined by the Government's 2% inflation target). Financial stability means that there is no disruption to the critical economic functions that the financial system performs for households and businesses in the UK economy. Monetary and financial stability are necessary conditions for sustainable dynamism – supporting a rise in living standards over time.

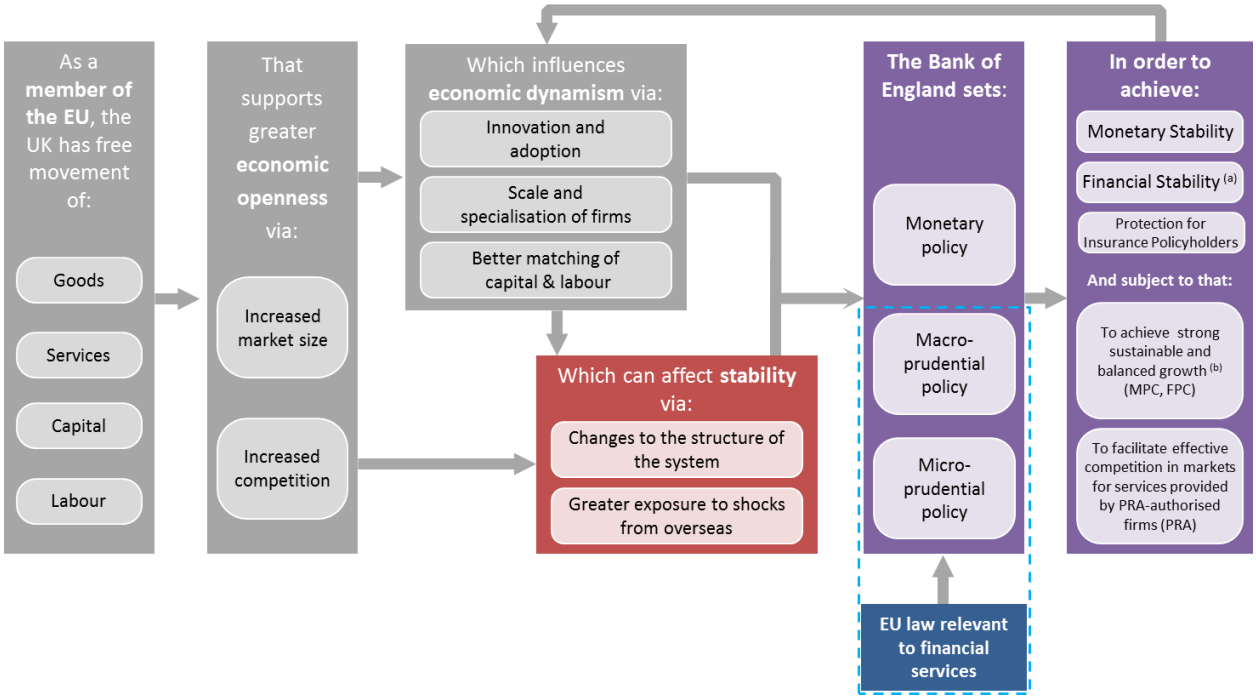
Greater openness means that demand for UK output is spread across a wider economic area. It also encourages specialisation at a sectoral level. This changes the mix of shocks impacting the economy – increasing its exposure to foreign and certain sector-specific shocks, while reducing its exposure to other purely domestic shocks. To the extent that it leads to less volatile domestic output, this different mix of shocks may improve stability. In addition, greater openness can increase economic dynamism (as highlighted in Chapter 2) and dynamic economies tend to be more resilient to shocks. Hence, a more open and dynamic economy can grow more rapidly without generating inflationary pressure or creating risks to financial stability.

If greater openness leads to more volatile domestic output, stability of per capita incomes may still be maintained through international risk sharing. For example, if workers are free to move across borders and the UK is unexpectedly hit by a downturn in domestic demand, workers can move to other countries to remain in work. Similarly, if capital and financial markets are open, investors in the UK can insure against adverse shocks by investing in a more diversified pool of assets – smoothing income growth over time. If risk sharing is perfect, then greater openness should allow for greater stability of per capita income growth, even if domestic output volatility goes up.[38] (**Box 3.B** at the end of this chapter discusses risk sharing in more detail).

[38] If financial markets are complete, then it should be possible to ensure that income earned from overseas assets will perfectly offset idiosyncratic sector-specific shocks that affect the income from producing domestic output. Technically this means that there exist a complete set of "Arrow-Debreu" state-contingent securities that will pay out in all states of the world.

However, market imperfections and frictions in the economy can prevent the full benefits of risk sharing being realised, creating challenges for policymakers to manage. Greater openness can affect monetary and financial stability in two broad ways (as illustrated in the red box in **Figure A**):

Figure A: The channels through which the EU affects stability



[a] Financial stability includes: protecting and enhancing the stability of the financial system (FPC) and promoting the safety and soundness of PRA-authorised firms (PRA)

[b] In addition, the Chancellor's 2015 remit letter to the FPC asked the committee to consider how, subject to its primary objective to protect and enhance the stability of the UK's financial system, its actions might affect competition and innovation, and their impact on the international competitiveness of the UK financial system.

- **Changes to the structure of the system** – Greater openness can alter the structure of the economy and its financial system, and hence can either improve or reduce its resilience to shocks. Structural changes in the economy, which change the UK's exposure to external forces, have to be taken into account when setting monetary policy and create a more complex policy challenge, in which the past may not be an accurate indication of how the UK will respond to external forces in the future. From a financial stability perspective, a particular challenge arises in the UK because greater openness and dynamism have been associated with increased specialisation in financial services. Other things equal, the participation of foreign financial institutions in the UK should lead to a more diversified financial system, which should be more resilient to shocks. However, greater openness can also open channels of contagion between banking systems and the creation of large, complex and interlinked institutions, which makes the UK more reliant on institutional and policy frameworks in other jurisdictions. Since the crisis, the Bank of England has, in conjunction with other regulators, addressed this issue by both developing stronger and more consistently applied international standards for financial-sector regulation and stronger coordination between authorities.

- **Greater exposure to overseas shocks –** Greater openness can increase the exposure of the UK economy to overseas shocks. This has the potential to amplify economic volatility in the UK – for example, if foreign shocks are bigger, or more likely to occur, than domestic shocks. Further difficulties may arise when foreign and domestic shocks that affect the UK economy are positively correlated. This was the case, for example, during the global financial crisis and euro-area crisis, when

a common shock had a significant impact on the UK financial sector. It is therefore crucial that the UK has the institutional framework and policy tools the authorities need to manage risks from openness and to mitigate their impact should they crystallise.

The rest of this chapter highlights the role that openness and EU membership has had on UK economic and financial stability. Section 3.1 identifies how openness has affected the structure of the UK economy and its financial system. Section 3.2 outlines how the UK's exposure to foreign shocks has evolved during recent history and how the Bank of England has set policy in response. That section covers three distinct periods: the Great Moderation, the Global Financial Crisis and the euro-area crisis.

3.1 Changes to the structure of the UK economy and financial system

Openness and the structure of the UK economy

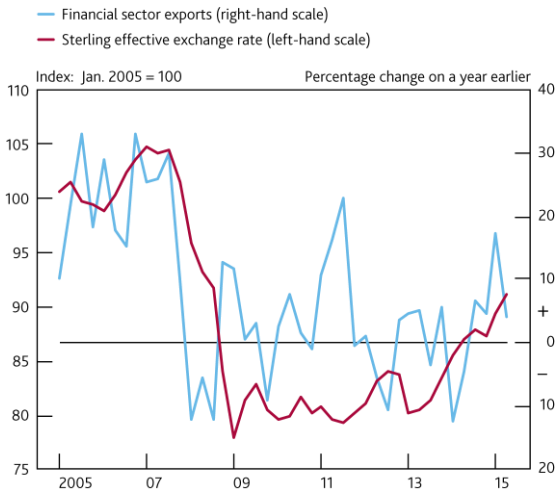
As discussed in Chapter 1, the UK economy has become significantly more open over the past forty years, particularly via trade flows. The UK's membership of the EU is likely to have helped facilitate this change. Greater openness to trade can affect the structure of the UK economy in ways that can challenge monetary and financial stability. This can occur via two mechanisms: 1) by increasing the importance of sector-specific shocks; and 2) by raising the importance of import prices in driving inflation volatility. In addition, greater openness could in theory affect the relationship between inflation and output volatility over the business cycle. **Box 3.A** discusses the channels through which this effect could occur, but notes there is little evidence – at least for the UK – of this occurring in practice.

i) Trade openness, specialisation and the importance of sector specific shocks

Increased openness to trade and the associated rise in competition can lead countries to become more specialised in certain sectors over time (as noted in Chapter 2). If those sectors are particularly susceptible to shocks, output volatility for the whole economy may rise. This raises trade-offs that monetary policymakers need to manage.

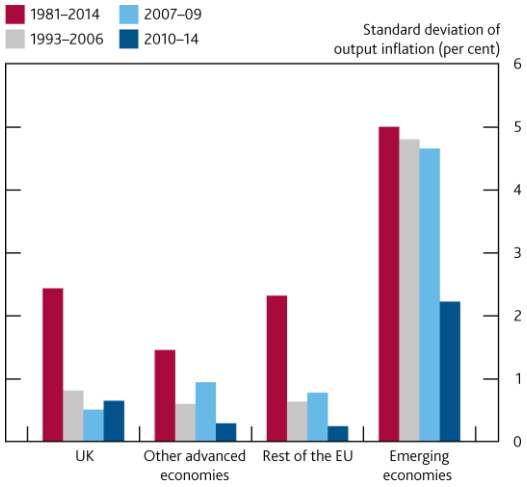
The UK has tended to become more specialised in financial services over time, which contributed to the substantial impact on the UK economy of the recent global financial crisis and the resulting instability of the UK financial sector. The UK economy contracted by around 6% between the start of 2008 and the middle of 2009. This effect was partly visible in the movement of the exchange rate during that period, which depreciated sharply to offset the effect of lower financial exports on the balance of payments **(Chart 3.1)**. This depreciation helped to avert an increase in the current account deficit, but it also resulted in higher import prices, which put upward pressure on UK companies' costs and inflation. This demonstrates how increased specialisation may lead to increased exchange rate and inflation volatility if a country specialises in sectors that are subject to larger and more frequent shocks. As noted in Chapter 2, there is evidence that EU countries have integrated their supply chains and specialised their production to a similar or greater extent than other advanced economies in recent decades, which may have made the UK more susceptible to certain sector-specific shocks, particularly those in the financial sector.

Chart 3.1: UK financial services exports and sterling



Source: ONS and Bank of England

Chart 3.2: Volatility of inflation in different regions



Source: IMF World Economic Outlook October 2015 and Bank calculations

Notes: Other Advanced economies include the United States, Canada, Australia New Zealand, Japan, Switzerland and Norway. Inflation volatility is measured using the GDP deflator.

ii) Trade openness and the importance of import prices for inflation volatility

Greater openness to trade also means that foreign goods and services become a larger part of the consumption basket for UK households and a more important source of productive inputs, and hence costs, for UK businesses. Movements in the exchange rate and the foreign currency prices of these goods and services can therefore, in the absence of a policy response, have a larger effect on the UK inflation rate.

In general it is not clear that open economies should have more volatile inflation rates than closed economies, if all countries have floating exchange rates, target price stability and have stable and credible institutions to deliver that goal. For example, in the face of purely nominal shocks from abroad – such as a tightening of foreign monetary policy – disinflationary impulses from abroad could be expected to be offset by an exchange rate depreciation in a fully credible regime. In this case, overseas prices and the exchange rate will move in opposite directions and leave UK inflation unchanged.

However, shocks to overseas supply and demand for goods and services can lead to persistent variations in overseas prices if policymakers abroad do not offset them, or if the exchange rate cannot move, or moves in a way that reinforces, rather than offsets, the movement in imported costs. In this case the real exchange rate and real wages in the economy may need to adjust. Domestic monetary policymakers then have a choice. They can either allow those imported costs to be passed through to domestic prices, which has the potential to affect inflation at policy-relevant horizons and can change inflation expectations. Alternatively they can use monetary policy to try and offset shocks to overseas prices through the influence of domestic interest rates on wages and other domestic costs. However, if wages are downwardly rigid in the short-run, such a change in policy can result in more volatile output and employment growth.

By being a member of the EU and the single market, imports from the rest of the EU are likely to have played a bigger role in driving UK price movements in recent decades than otherwise would be the case – over half of all UK imports are from the rest of the EU. However, underlying EU price inflation, as proxied by the GDP deflator, has tended to be much less volatile than in emerging economies and on a par with other advanced economies over the past twenty years (**Chart 3.2**). This would suggest EU membership may have resulted in smaller import price shocks for the UK than otherwise might have been the case.

Box 3.A: Openness, the business cycle and the volatility of inflation

Business cycles are caused by shocks that cause output to deviate from its underlying trend because prices, wages or factors of production do not adjust instantaneously to a given shock. For example, if a business goes bankrupt, it takes time for workers to move between jobs, particularly if they have to re-train. Similarly, in the face of a rise in production costs, it can take time for businesses to adjust their prices, particularly if the costs of changing prices are high – so called 'menu costs'. Openness may affect these rigidities in several ways:

- Greater cross-border labour mobility can reduce the volatility of the business cycle by increasing the responsiveness of labour supply to changes in demand. For example, if the demand for UK goods and services increases, and prices and wages are slow to adjust, then the number of employment opportunities in the UK is likely to increase – potentially drawing in labour from abroad. This expansion in the UK workforce would enable production to keep pace with demand, and leads to lower volatility of wages, costs and inflation.
- Increased openness to trade can change the speed and extent to which companies' adjust their profit margins, and hence prices, in response to shocks over the cycle – sometimes known as the slope of the Phillips curve. The theoretical effects are ambiguous (see Sbordone, 2009). Trade openness and increased competition may lead to more frequent price changes and generate a faster response of inflation to costs. However, greater competition can also reduce firms' market power, meaning there is less scope to vary prices without loss of market share – providing a disincentive to change prices.

There is little evidence to suggest the first channel has been important in the UK. Labour market flexibility may have contributed to the Great Moderation in the UK, though it is not clear what role migration played in this. Indeed, there was a range of significant changes that occurred during this period, which are likely to have played a bigger role in enhancing stability– such as the reduction in the volatility of demand and technology shocks and a switch in monetary policy regime (Young, 2008).

In terms of the second channel, there is some empirical evidence that openness has flattened the Phillips curve in some countries (IMF, 2013), but whether this has occurred for the UK is much less clear (Carney, 2015). Formal econometric testing that takes into account the correct weighting of domestic and imported costs has failed to detect evidence of a structural change in the slope of the UK Phillips curve over time.[39]

Openness and the structure of the UK financial system

As discussed in Chapter 1, the UK has substantially increased its financial openness over the past 40 years. EU membership is likely to have facilitated capital account liberalisation for many of its member states, particularly those within the euro area who have become most integrated. As noted in Chapter 1, capital account liberalisation in the UK largely occurred before other EU countries, so EU membership itself is likely to have played less of a role in increasing the UK's openness to foreign capital. The fact that EU membership has probably increased the openness of other EU member states to capital flows, will in turn have increased the openness of those countries to the UK, thereby indirectly increasing the UK's capital account openness. In addition, there is some evidence that the UK's membership of the EU has played a role in facilitating the attractiveness of the UK as a destination for Foreign Direct Investment (FDI) from outside the EU. The EU has also probably had a powerful impact on the UK's openness to financial services as a result of the single market in financial services and regulation of the EU financial sector.

[39] See for example Greenslade, J, Millard, S and Peacock, C (2008), Peacock, C and Baumann, U (2008), and Groen and Mumtaz (2008).

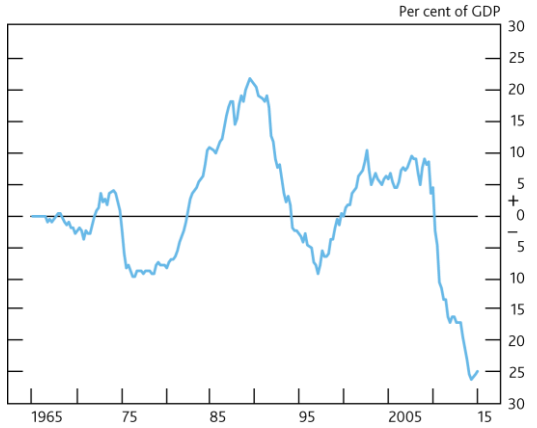
Greater financial openness can potentially affect the structure of the economy and financial system in a number of ways: 1) by affecting the volatility of the UK credit cycle; 2) by exposing the UK to macroeconomic imbalances that exist overseas; 3) by increasing the average size of financial firms; 4) by increasing the geographic concentration of financial activity; and 5) by increasing the complexity and interconnectedness of the financial network. The global financial crisis exposed vulnerabilities related to all of these areas, which are discussed in more detail below:

i) Capital account openness and the volatility of the credit cycle

Credit cycles are caused by shocks interacting with frictions and market imperfections in the financial system, which cause the flow of credit to the real economy to fluctuate around an underlying trend (Borio, 2012). Greater openness to capital can potentially either dampen or amplify the credit cycle. In normal times, overseas capital flows may mitigate shocks to domestic financial markets by providing alternative sources of finance – dampening the credit cycle. However, financial markets can also be subject to common shocks and common herding behaviour across markets, so domestic and foreign credit provision may be positively correlated – amplifying the credit cycle.

There is some evidence that the UK's greater financial openness has amplified the UK credit cycle – particularly during the global financial crisis (**Chart 3.3**). Greater openness and the associated increase in cross-border capital flows between the UK and other countries appeared to exacerbate the impact of the collapse of the US sub-prime market on the UK. Milesi-Ferretti and Tille (2011) suggest greater financial integration led to a great retrenchment during the crisis. Risk perceptions changed abruptly prompting overseas investors to withdraw short-term funding from stressed banks and domestic investors to repatriate liquid assets from overseas. Since banks were the main proximate funding providers to other banks, this cross-border retrenchment added to the general breakdown in interbank markets during the crisis – contributing to a reduction in lending to the real economy.

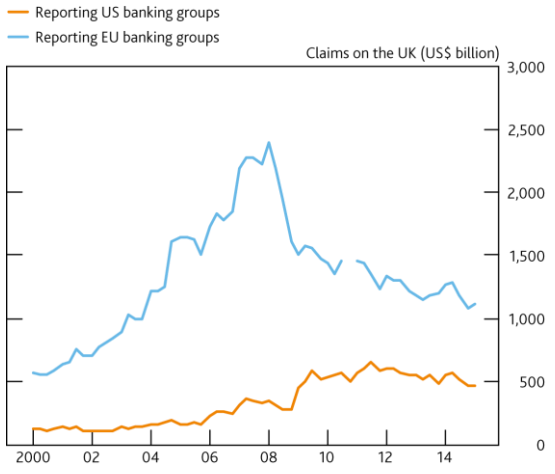
Chart 3.3: UK Credit to GDP Gap



Sources: British Bankers Association, ONS, Revell, J and Roe, A (1971): 'National balance sheets and national accounting – a progress report', Economic Trends, No. 211 and Bank calculations.

Notes: Credit is defined as debt claims on the UK private non-financial sector. The credit-to-GDP gap is calculated as the percentage point difference between the credit-to-GDP ratio and its trend, which is based on a one-sided HP filter with a smoothing parameter of 400,000.

Charts 3.4: EU and US bank claims on the UK



Source: BIS consolidated banking statistics.

Note: Each series represents the total immediate claims outstanding of reporting banking groups based in the rest of the European Union and the United States on UK counterparties. EU banking groups that report over the whole 2000-2015 period cover Belgian, Dutch, French, German and Spanish banking groups only. The break in the EU series in 2010 Q4 reflects a lack of reported data for France in that period.

European banks, including UK banks, were vulnerable during the global financial crisis, partly because they were heavily invested in US asset-backed securities, which fell sharply in value (Hills and Hoggarth, 2013). As a result, banks in the rest of the EU withdrew cross-border funding from the UK rapidly – and by much

more so than US banks (**Chart 3.4**). Since the crisis, banks in the rest of the EU have continued to reduce cross-border funding – contributing to the tightening in credit conditions seen globally and to the weakness in lending seen in the UK (**Chart 3.3**). Thus, while the primary impact of the crisis on the UK financial system and economy came through direct channels from overseas, capital flows between the UK and the rest of the EU may also have been a secondary channel.

The nature of the EU regulatory regime may have also played a role. EU passporting, introduced during the 1990s, allows banks from elsewhere in the EU to provide cross-border services and set up branches freely in the UK, without requiring them to seek prior authorisation from UK regulators – as discussed in Chapter 1. Foreign branches (and subsidiaries) can provide large benefits to the UK economy, by providing an alternative source of credit for the UK private sector and increasing effective competition in the domestic financial market. However, in the recent past, UK lending by foreign branches has been more volatile than lending by UK-incorporated banks (see Hoggarth, Hooley and Korniyenko, 2013). This is partly because foreign branches in the UK have tended to lend to sectors that were more sensitive to the economic cycle in the run up to the crisis – so when those sectors contracted relatively more during the crisis, so too did their demand for credit from foreign branches. However, this volatility also reflected the fact that branches are not generally required to hold capital and liquidity in the country in which they operate and were more reliant on short-term interbank funding. During the crisis, foreign banking groups exhibited a degree of home bias – in the face of scarce funding and capital, some of these banking groups used the balance sheet of their UK branches to support lending in the their home market. So by enabling bank branching, the EU passporting regime may have played some role in affecting the volatility of the UK credit cycle during this period. Of course, branches of UK banks in EU countries may have had a similar impact on the credit cycles in those countries. These issues were partly caused by a lack of adequate liquidity standards before the crisis.[40]

ii) Capital account openness and exposure to macroeconomic imbalances overseas

In the absence of market imperfections, larger flows of capital entering and leaving a country should lead to greater allocative efficiency and higher growth. However, if countries exhibit macroeconomic imbalances – as a result of market imperfections, policy distortions, or investor misperceptions – then opening up to foreign capital can both exacerbate the growth of such imbalances in the country receiving the flow and expose other countries to their effects. This can lead to persistent current account surpluses and deficits between countries and to destabilising corrections.

Given different preferences for savings and investment, gauging the extent to which a build-up of surpluses and deficits in different economies is optimal or a sign of growing imbalances is difficult. If large deficits are based on over-optimistic investor perceptions and funded by short-term capital inflows, then countries run greater risks, for example of a sudden stop in funding, which could have costly repercussions for the wider economy. International imbalances do appear to have played a role in contributing to both the recent global financial crisis and the euro-area crisis, which have both had a material impact on the UK economy – as discussed in Section 3.2.

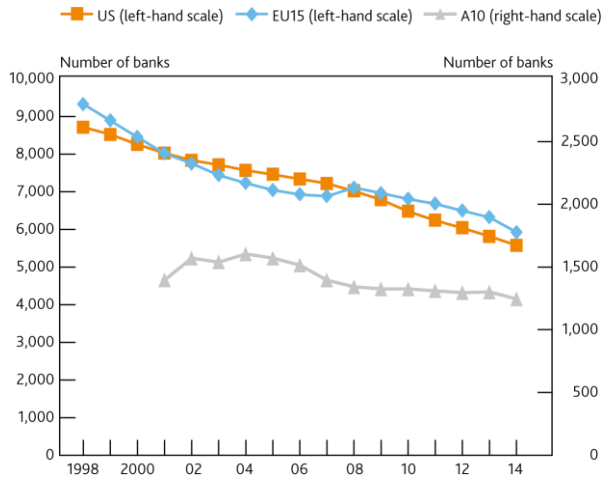
iii) Competition, firm size and financial resilience

As highlighted in Chapter 2, greater openness increases the number of firms able to access a given market, increasing competition. In the presence of a robust regulatory framework, effective competition in the financial sector should help to support the safety and soundness of the financial system. However, in the

[40] Since then, new international standards have been agreed to address such shortfalls, including minimum Liquidity Coverage Ratios (LCR) and Net Stable Funding Ratios (NSFR) – as set out in Basel III and implemented in the EU via the Capital Requirements Directive IV.

run up to the crisis, greater competition was also associated with a merger and consolidation process in the financial sector, which saw the number of financial firms within the industry fall (**Chart 3.5**).[41] Financial activity expanded rapidly during this period – increasing the average size of firms (**Chart 3.6**). These structural changes meant financial firms had much larger and more complex balance sheets at the start of the financial crisis, and proved to be less resilient (see Laeven et al. 2014).

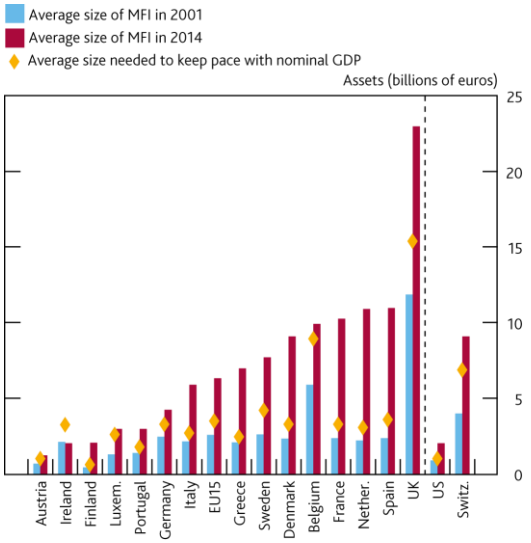
Chart 3.5: Number of credit institutions in the European Union and United States



Source: ECB Banking Structural Financial Indicators and Federal Financial Institutions Examination Council (US) retrieved from FRED, Federal Reserve Bank of St. Louis

Notes: EU figures refer to all credit institutions, US figures just to commercial banks. The 'A10' refers to the ten countries that joined the EU in 2004: Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia.

Chart 3.6: Average size of monetary and financial institutions in the EU15, US and Switzerland



Source: ECB, Swiss National Bank, IMF World Economic Outlook April 2015, and Federal Financial Institutions Examination Council (US) retrieved from FRED, Federal Reserve Bank of St. Louis

Notes: The bars show the average size of Monetary and Financial Institutions (MFIs) in each country, calculated by dividing total MFI assets by the number of MFIs resident in that country. The diamonds show how much the average bank would have grown by 2014 if bank assets had risen in line with nominal GDP over the period 2001-2014.

The wave of UK and EU financial deregulation polices in the 1980s and 1990s may have helped propagate the general trend towards larger firms.[42] The specific role of EU membership, however, is difficult to judge as the trend toward larger banks is not specific to EU countries. There is some evidence that joining the EU sped up the consolidation process for the ten accession countries that joined the EU in 2004 (grey line, **Chart 3.5**). However, the fact that the consolidation process in the EU15 member states has followed much the same trend as the US banking sector (orange and blue lines, **Chart 3.5**) suggests that EU membership was not a significant driver of larger firm size and the associated reduction in financial resilience during the crisis.

[41] Competition can both increase and reduce financial stability. On the one hand, competition can squeeze profits, incentivise more risky lending behaviour and constrain the ability of financial firms to accumulate loss absorbing capacity. On the other hand, by compressing lending rates, competition among lenders mean borrowers stand to gain more from successful projects – reducing moral hazard and leading to safer lending portfolios. Moreover, efficient firms can thrive under intense competition, encouraging more rigorous lending practices (See OECD 2010, Beck, 2008 and Ratnovski 2013, for recent reviews). In practice a robust regulatory framework should ensure the latter effects dominate.

At first glance, a more concentrated financial sector with larger firms may be a sign that competition has been declining over time, but this is not necessarily the case. Highly concentrated industries can still be competitive and can benefit consumers if larger companies are able to reduce production costs by achieving economies of scale. Such scale economies are partly linked to overcoming fixed costs such as the infrastructure cost of setting up a bank branch network and partly relate to synergies from offering products to a wider range of clients. Mester (2005) conducts a review of the empirical evidence on scale economies for banks and finds that there is some evidence they exist, though the evidence for the largest banks (with more than $25bn in assets) is less well-established.

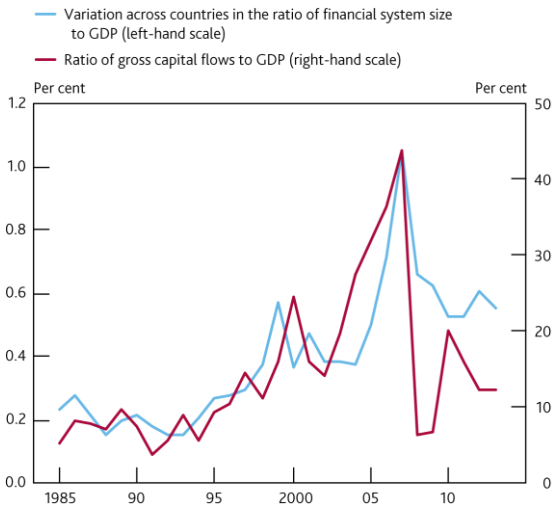
In principle, having a more consolidated financial industry consisting of a few large firms can aid stability since such firms may be better able to diversify their portfolios, they may develop more sophisticated risk management practices, and may be easier for regulators to monitor than a collection of smaller firms. Indeed, several empirical studies conducted before the financial crisis found that more concentrated banking sectors were less susceptible to crises (see for example Beck et al. 2007). However, since the crisis the balance of evidence and opinion has shifted – as highlighted in Laeven et al (2013).

[42] In the early 1990s the EU's passporting regime enabled EU financial institutions to lend directly across borders within the EU and setup branches in other member states, while the 1999 Financial Services Action Plan focused on boosting competition within the EU by harmonising legal and institutional standards across markets.

iv) Openness, geographic concentration of industry and financial resilience

Greater openness, rising competition and increased specialisation were also associated with a higher geographical concentration of financial services activity in the run up to the crisis. **Chart 3.7** shows one metric of this association at the global level. The red line shows a measure of financial openness – the ratio of gross capital flows to world GDP. The blue line shows a measure of the cross-country variation in banking system size relative to GDP. When this line is low, banking systems across the world are similarly sized, but when it is high, financial services activity has become more geographically concentrated. The chart shows that between 2000 and 2007 – the peak of financial openness – financial activity was particularly clustered in a few large international financial centres.

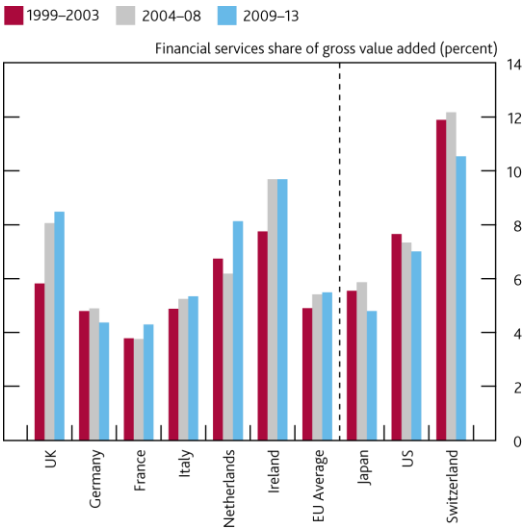
Chart 3.7: Openness and financial sector size



Sources: OECD, IMF World Economic Outlook April 2014 & October 2015

Notes: Variation in financial system size is measured as the variance of financial sector output as a share of GDP divided by average size across countries. The blue line is constructed based on a sample of twenty OECD countries for which data are available back to 1985. Gross capital flows (red line) are measured on a global basis and are shown as a share of world GDP.

Chart 3.8: Financial services activity as a share of total gross value added, selected countries



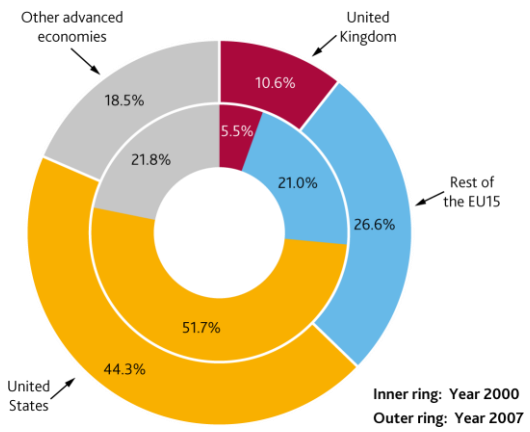
Source: OECD

Notes: Figures show financial and insurance activity as a share of total gross value added based on OECD sector accounts.

Chart 3.8 shows that some EU countries, particularly the UK, were among those that saw their financial sectors increase in size between 2000 and 2007 – a trend not seen as clearly in other advanced economies. As a result, the distribution of global financial service activity shifted towards those countries in the run up to the crisis. Among the major advanced economies for which data are available, the EU15's share of total financial service activity rose from 26.5% in 2000 to 37.2% in 2007, with the UK accounting for almost half of this increase (**Chart 3.9**). Within the EU15, financial services activity also shifted, with the UK's share rising from 20.8% in 2000 to 28.6% in 2007. The five euro-area economies that proved most vulnerable during the euro-area crisis also saw their share of activity expand (**Chart 3.10**). Overall, these figures are at least suggestive that EU membership – and the associated increase in cross-border financial integration – has played some role alongside more global factors in increasing the size of the financial sector in the UK and other EU countries in the run up to the financial crisis. However, in the case of the more vulnerable euro-area economies, the expansion in the size of their financial sector also reflected the build-up of macroeconomic imbalances and rapid credit growth – vulnerabilities that were subsequently exposed during the euro-area crisis.

In the absence of robust institutional arrangements and effective regulatory frameworks, hosting a large financial sector can pose challenges for economic and financial stability by making the system more susceptible to financial shocks and by increasing the chance that taxpayers will be required to backstop the system in the event of default (see Bush et al 2014, for a discussion).[43] The potential fiscal costs of financial crises can occur directly via backstopping institutions that are too big to fail, and indirectly through the impact of crises on the wider economy.

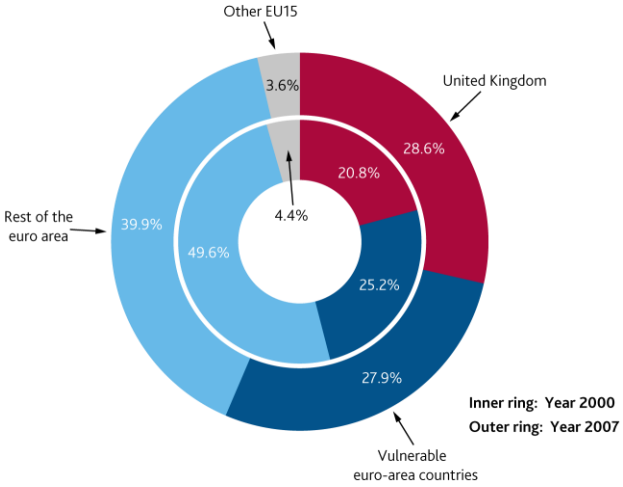
Chart 3.9: Distribution of financial service activity across major advanced economies in 2000 and 2007



Source: OECD

Notes: Figures show gross value added for the financial and insurance sector for 20 advanced economies for which data are available over the period 2000-2007. 'Other advanced economies' includes Japan, Australia, Switzerland and Norway.

Chart 3.10: Distribution of financial service activity across the EU15 in 2000 and 2007



Source: OECD

Notes: Figures show gross value added for the financial and insurance sector for the EU15. 'Vulnerable euro-area countries' includes Greece, Ireland, Italy, Portugal and Spain. "Other EU15" refers to Denmark and Sweden.

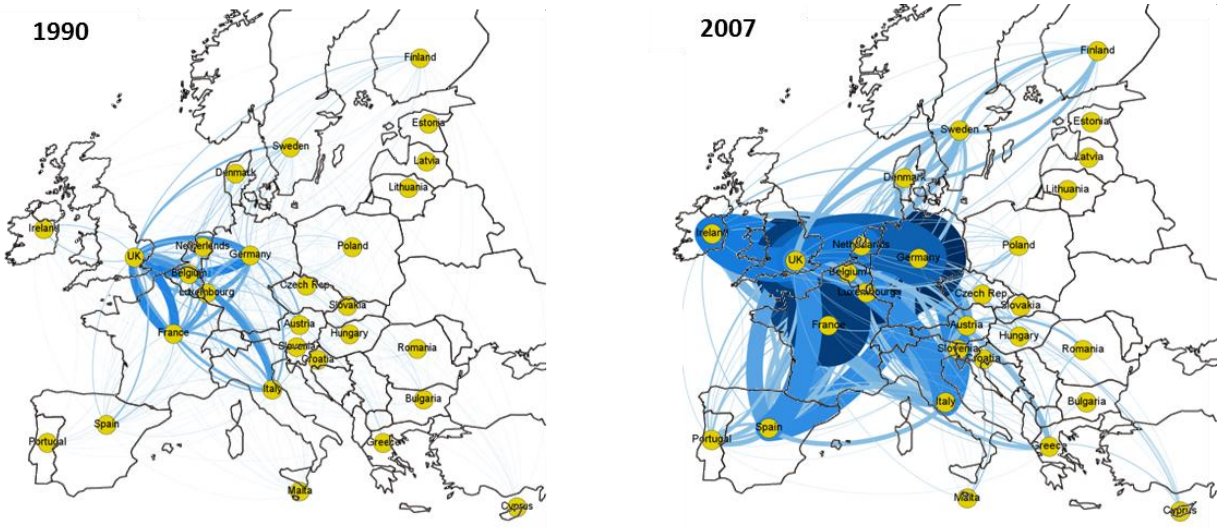
Hosting a large financial sector should not pose problems for economic and financial stability if sufficient regulatory safeguards are in place (Carney, 2013). Indeed, greater geographic concentration of industry can actually enhance stability if activity is concentrated in a few well-regulated jurisdictions rather than scattered across countries adhering to a mixed-quality of regulatory standards. Increased concentration of financial firms can also provide regulators in the hub country with a more complete view of the financial system and enable them to tackle systemic risks better. The impact of the EU on the UK's regulatory framework is discussed in Chapter 4. In addition, as highlighted in Chapter 2, a greater geographic concentration of industry may help boost growth if it is associated with countries specialising in their most productive sectors.

v) Openness, interconnectedness and financial resilience

Greater openness and cross-border financial integration also increased the interconnectedness of the financial network in the run up to the crisis. The cross-border nature of financial flows also introduced new risks to manage – foreign currency mismatch became a significant source of vulnerability for banks in the UK and several other advanced countries during the crisis (as noted by Al-Saffar et al, 2013). **Chart 3.11** gives an indication of the shift in complexity of the EU financial network during the 1990s and 2000s. Specifically, the chart shows how volumes of cross-border lending by banks located within the EU evolved between 1990 and 2007. A similar trend is seen in global cross-border lending, but the extent of the rise is greater within the EU, reflecting its greater degree of financial integration.

[43] As the financial industry grows larger its lobbying power may also rise – increasing the risk of regulatory capture (as discussed in Monnet, Pagliari and Vallee, 2014). In the US, the Financial Crisis Inquiry Commission (2011) found that "the financial industry itself played a key role in weakening regulatory constraints on institutions, markets and products".

Chart 3.11: Cross-border banking flows within the EU – 1990 vs 2007

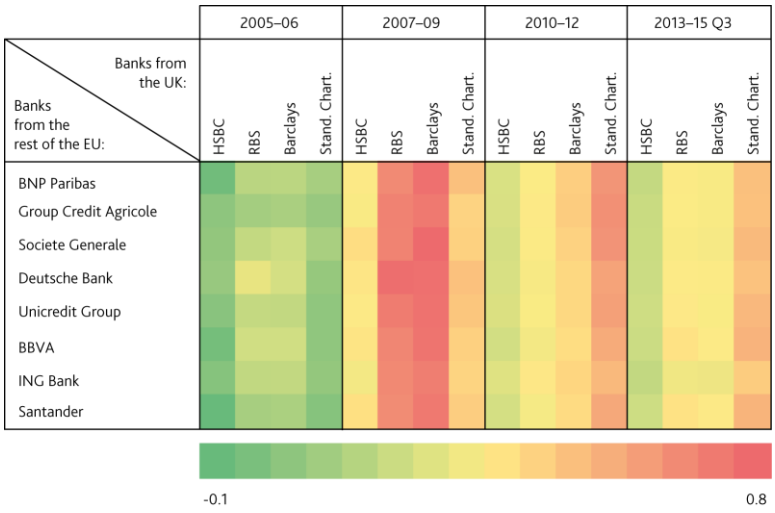


Source: BIS and Bank Calculations

Notes: Figures are based on the BIS's locational banking data. The countries represent nodes, while the links between the countries represent the volume of all cross-border bank loans that exceed $1bn each year. Thicker and darker coloured links indicate larger flows.

To an extent, this increase in interconnectedness is a natural side effect of portfolio diversification and risk sharing, which can support stability. However, the crisis also showed that greater interconnectedness can undermine the resilience of the system in times of stress (Haldane, 2009). In the run up to the crisis, as firms searched for yield their approach to risk management became more uniform. In the Great Moderation, the system was able to cope with one-off shocks. However, in the face of a large common shock – the sub-prime crisis – the system proved unstable. Prior to the crisis, the correlation between UK credit default swap premia (CDS), which provide a proxy measure of bank credit risk, and those in the rest of the EU was low or even negative, suggesting investors under-priced this form of risk (**Chart 3.12**). Since then, such correlations have risen substantially and remain high – reflecting common exposures and interconnectedness.

Chart 3.12: Correlation between UK banks CDS premia and banks from the rest of the EU



Sources: Thomson Reuters DataStream, Markit Group Limited, Bloomberg and Bank calculations

Note: Chart shows correlations between changes in 5-year senior CDS for UK banks and those located in the rest of the EU. Red (green) indicates high (low) correlation. Banks in the sample are selected based on data availability and whether they are classified as a Globally Systemically Important Bank (GSIB) by the Financial Stability Board.

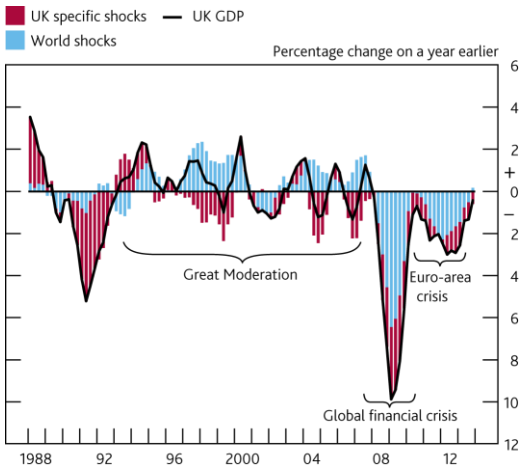
Free movement of capital and financial services within the EU is likely to have facilitated greater financial integration among its member states. In this regard, EU membership may have added to the rise in interconnectedness between EU banks. However, since non-EU countries have adopted similar approaches to capital flow management through mechanisms like the OECD's Code of Liberalisation of Capital Movements, it is difficult to separate the role of EU membership from global factors.

3.2 Greater exposure to shocks from overseas

As well as changing the underlying structure of the economy, greater openness has increased the UK's exposure to events overseas – changing the nature of the shocks hitting the economy. Foreign shocks have become an increasingly important influence on UK GDP growth – boosting growth during the Great Moderation but detracting from growth during the global financial crisis and euro-area crisis (**Chart 3.13**).

Since the 1980s, there is also some evidence that the volatility of UK output has been higher than the rest of the world on average (red bars, **Chart 3.14**). By contrast, output volatility in the rest of the EU has been slightly lower than for other regions of the world since 1980. This suggests that by being more open to the EU, the volatility of UK output may have been slightly lower than otherwise would have been the case. However, such conclusions are heavily dependent on the timeframe of comparison. During the global financial crisis and the subsequent euro-area crisis, the volatility of output in the rest of the EU has been higher than in the UK and other regions of the world (blue and navy bars, **Chart 3.14**). As such, any static assessment of the impact of openness and EU membership on the shocks hitting the UK economy would miss this variation. The rest of this section outlines the principal foreign shocks that have affected the UK economy, and how the Bank of England has set policy in response, in three periods of recent economic history: the Great Moderation; the Global Financial Crisis, and the euro-area crisis.

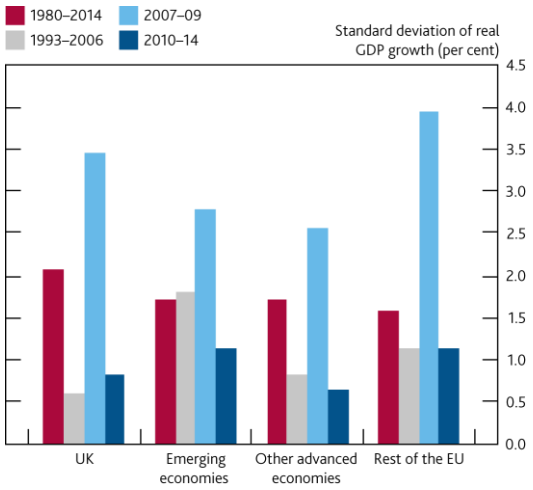
Chart 3.13: World shocks and UK GDP growth



Source: Chowla, Quaglietti and Rachel (2014)

Notes: Line shows UK GDP growth relative to the average over the period 1988-2007, which is 3.1%. The contribution of world shocks are relative to model-consistent trend growth rates.

Chart 3.14: Volatility of growth in different regions



Source: IMF World Economic Outlook, October 2015 and Bank calculations

Notes: Other Advanced economies include the United States, Canada, Australia New Zealand, Japan, Switzerland and Norway.

A. The Great Moderation

The Great Moderation – which in the UK is usually defined as the period from 1993 to 2006 – marked a time of relative economic stability for the UK, when growth was higher and less volatile than in earlier phases of history (Hills et al 2010). This was also a period when the UK economy became substantially more open and integrated with the rest of the EU and wider world. International trade, migration and cross-border financial flows all grew substantially (as discussed in Chapter 1). Greater openness is likely to have supported UK stability during this time by exposing the UK to a more favourable mix of shocks including to those in the EU – providing an economic tailwind that helped propel growth forward and keep inflation low and stable (Bean, 2009). Indeed, foreign shocks often acted to offset slower growth in the UK (**Chart 3.13**). The relative stability of inflation and growth in the rest of the EU is likely to have supported UK economic stability over this period (grey bars, **Charts 3.2** & **3.14**).

Monetary Stability: During the first decade of inflation targeting, the appreciation of sterling in 1996 coupled with the integration of China, India and the ex-Soviet bloc into the global economy in the 1990s put sustained downward pressure on the price of UK imports. Despite this, monetary policy was able to keep inflation stable and close to the inflation target by ensuring services price inflation and wage growth were sufficiently high to offset declining goods prices (see Carney, 2015). After the mid-2000s, import prices became more volatile, largely due to movements in energy and other commodity prices and also, in part, due to movements in sterling. As discussed earlier, this poses trade-offs for monetary policymakers. Judging the appropriate trade-off in the context of the MPC's remit – achieving price stability without unnecessarily increasing output instability – has required the MPC to analyse and understand the lags between changes in exchange rates, import prices and CPI inflation and the horizon over which they operate.

Financial Stability: The relatively benign environment of the Great Moderation meant that the resilience of the UK financial system was not seriously tested between 1993 and 2006. That is not to say there were no financial shocks. The demise of LTCM, the Asian financial crisis, and the bursting of the dot-com bubble in the late 1990s and early 2000s all impacted on the UK. But the resilience of the UK's major financial institutions appeared sufficiently robust to cope with these idiosyncratic events and the flow of credit to the real economy was not materially affected. However, as the Great Moderation drew on, many people began to interpret the low risk global economic environment as a new normal. This perception contributed to a search for yield, which led to greater risk taking and increased leverage. The early to mid-2000s also saw rapid financial innovation, particularly via securitisation and derivative activity, causing the complexity of financial products to rise. These trends led investors to misprice risks and over-invest in assets that were perceived to be safe – most notably US sub-prime mortgages. Such mechanisms were one of the underlying drivers of the Global Financial Crisis.

B. The Global Financial Crisis

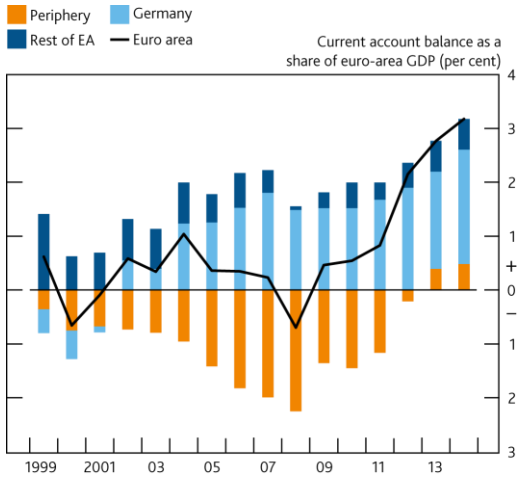
The global financial crisis proved to be a stark reminder of how, in the absence of sufficiently robust institutions and an effective regulatory framework, greater openness can reduce stability. Between 2007 and 2008, global stock prices fell by over a third, the sterling exchange rate fell by a quarter and oil prices surged to over $140 per barrel before plummeting below $40. In 2009, the year after the failure of Lehman Brothers, global GDP fell by over $3 trillion (5%). These substantial shocks, which were partly a result of the global imbalances that built up before the crisis, represented a severe test of the UK monetary and financial system (King, 2011).

The crisis affected the UK economy directly through its impact on the UK financial system. However, during this period, the UK's membership of the EU may also have had an indirect bearing on the UK's economic outcomes – as a route through which overseas shocks were transmitted to the UK (and vice versa). Given the close links between UK banks and those in the rest of the EU, the EU banking system represented a key link in the chain by which the global financial crisis affected the UK. The UK's membership of the EU is likely to have made this link stronger than otherwise would have been the case – exacerbating the impact of the global financial crisis on the UK economy via the withdrawal of funding by EU banks (as highlighted previously in **Chart 3.4**).

The global financial crisis also exposed some of the imbalances that had been building up within the euro area. Following the launch of the euro and the removal of exchange rate risk, country risk premia had all but vanished as investors anticipated default risk to converge across the currency bloc. These easier financing conditions and inability of exchange rates between euro-area countries to respond, facilitated the build-up of current account deficits in some countries – as domestic production could not keep pace with

demand (**Chart 3.15**). As a result, the price of financial and property assets increased and leverage in the financial system rose. The external environment also affected euro-area economies differently. Peripheral countries lost market share to low-cost competition from emerging Asia, while others such as Germany benefitted from demand for capital goods. Inflation was also considerably above the euro-area average in several member states, yet productivity gaps were slow to decline. As a result of these trends, competitive positions diverged considerably (**Chart 3.16**). The sizeable shock of the global financial crisis exposed these underlying divergences, causing fiscal positions to deteriorate rapidly in the euro-area periphery. The subsequent euro-area crisis had a substantial impact on the UK's economic outcomes from 2010-2012, as discussed below.

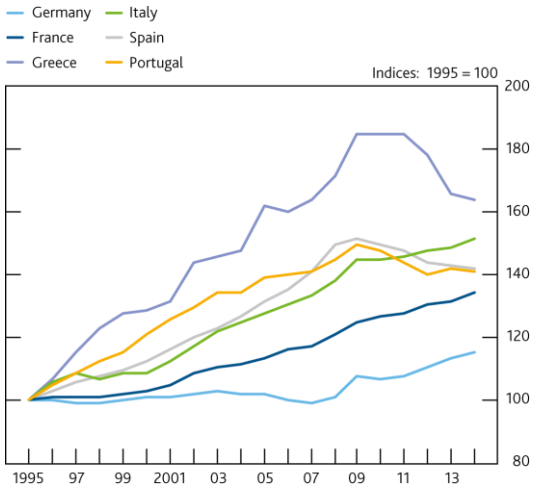
Chart 3.15: Current account imbalances in the euro area



Source: IMF World Economic Outlook, October 2015

Notes: 'Periphery' refers to Greece, Ireland, Italy, Portugal & Spain.

Chart 3.16: Unit labour costs in selected euro-area countries



Source: Eurostat

Notes: Unit labour costs are defined as the ratio of labour costs (nominal compensation per worker) to labour productivity (GDP per worker).

Financial Stability: The global financial crisis exposed widespread vulnerabilities in the financial system, and showed that the financial stability framework – both at the domestic and global level – was wanting. The UK was disproportionately affected given the size and openness of its financial sector. At the time, the UK did not have either the institutional framework or the tools to deal adequately with the shock. Like many other authorities, the Bank of England did not appreciate fully the build-up of risk in the financial system, or spot the fault lines in the UK regulatory architecture. In addition, the Bank's framework for providing liquidity insurance had not kept pace with the needs of markets and intermediaries (see Bank of England, 2015). As a result, the flow of credit to the real economy was severely impaired, disrupting critical economic functions and contributing to the UK's largest recession in at least 75 years.

In response to the crisis, a number of emergency schemes and operations were adopted by various UK authorities to deal with the immediate effects of the crisis. As part of that, the Bank of England launched liquidity insurance operations and facilities. First, in late 2007, the Bank introduced 'Term Auctions' and the Extended Collateral Long-Term Repo operations (ELTRs), which served to widen the range of collateral the Bank accepted in its open market operations and extend the proportion of the Bank of England's lending to commercial banks at longer maturities. In this regard, the Bank of England effectively used its own balance sheet to undertake liquidity and maturity transformation when the banking system struggled to do so itself. Second, in light of continuing funding and liquidity problems for banks, the special liquidity scheme (SLS) was launched allowing banks to swap high-quality mortgage-backed and other securities for UK Treasury bills for up to three years. Together these facilities helped banks finance their operations at a

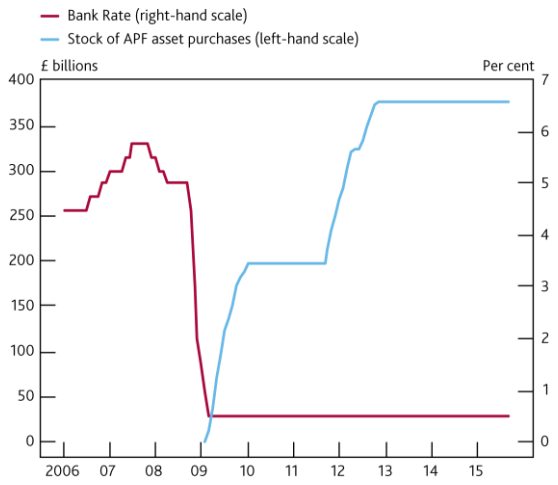
time when bank funding markets ceased functioning. Third, in response to liquidity pressures in dollar markets the Bank of England joined other central banks, including the ECB, in offering to lend US dollars overnight, beginning on 18 September 2008. The Bank of England established a facility with the Federal Reserve to provide the funding for these operations, swapping US dollars for sterling.

In addition to these liquidity measures, HM Treasury organised the recapitalisation of the banking system with public funds and established a Credit Guarantee Scheme (CGS) backed by the taxpayer to provide capital to eligible banks that needed it and to encourage investors to lend to eligible banks. In addition, HM Treasury established a state backed insurance scheme – the Asset Protection Scheme in 2009 to protect financial institutions against exposure to exceptional future credit losses on certain portfolios of assets.

Overall, the crisis demonstrated the need for the development of a more robust regulatory framework in the UK, EU and internationally. Following the crisis, a wave of financial reforms have been designed and implemented to improve the resilience of the system on a longer-term basis – these are discussed in more detail in Chapter 4.

Monetary Stability: The absence of a sufficiently robust financial framework put even greater burden on monetary policy to stabilise the economy during the crisis – severely testing UK monetary stability. At the onset of the crisis, a large adjustment of the UK's real exchange rate was necessary to rebalance the economy, which put upward pressure on import prices. Given the severe demand shock affecting the economy, the MPC judged it appropriate to 'look through' the short-term effects of sterling's depreciation on inflation in order to strike an appropriate balance between the need to stabilise inflation and avoid undue volatility in employment and output. Monetary policy was loosened substantially, with Bank Rate cut from 5% to 0.5% between October 2008 and March 2009. Then, in order to provide further stimulus, the MPC decided to undertake asset purchases (**Chart 3.17**). Between March 2009 and January 2010 the MPC purchased £200bn of UK government bonds financed by the issue of central bank reserves, which was estimated to have lowered ten-year government bond yields by around 100 basis points (Joyce et al, 2011). These measures helped to boost UK GDP growth back toward its pre-crisis average by 2010 (as shown earlier in **Chart 3.13**). Overall, despite the severe shocks, inflation remained stable by historical standards, inflation expectations remained anchored and the monetary system ultimately proved resilient (**Chart 3.18**). However, the subsequent recovery proved to be slower and weaker than in the past.

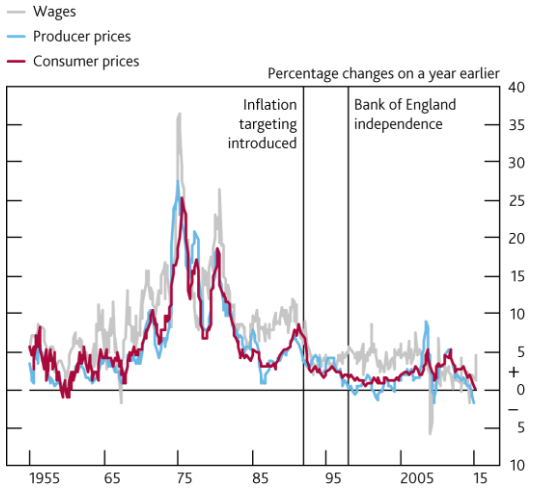
Chart 3.17: Bank rate and MPC asset purchases



Source: Bank of England

Notes: APF refers to the Bank of England's Asset Purchase Facility.

Chart 3.18: UK inflation



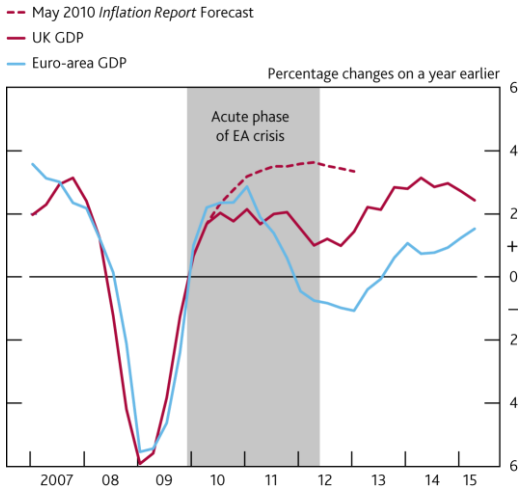
Source: ONS and Hills, Thomas and Dimsdale (2015)'Three Centures of Data – Version 2.2', Bank of England

C. The euro-area crisis

By the end of 2009, growth in the UK and the euro area had begun to recover from the Global Financial Crisis, but in the background, imbalances within the euro area were reaching breaking point. Some euro-area countries – particularly Ireland, Spain, Portugal, Italy and Greece – were disproportionately hit by the financial crisis, exposing shortfalls in competitiveness and over-extended banking systems. By 2010, fiscal positions had begun to deteriorate significantly and some investors began to question whether such countries could remain within the euro area. The risk that the euro area would break up, represented a major threat to global and UK economic and financial stability.[44]

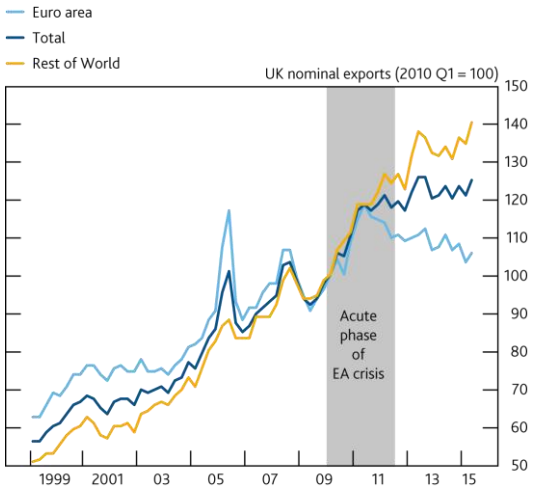
Although the UK's membership of the EU appeared to have only an indirect bearing on the UK's economic outcomes during the Global Financial Crisis, EU membership had a significant effect on the UK during the euro-area crisis. The UK's strong economic and financial links with the rest of the EU economy, over 85% of which is accounted for by the euro area, means the euro-area crisis is likely to have had a material impact on UK GDP growth (**Chart 3.19**). In addition, growth in the rest of the EU has become more volatile (navy bars, **Chart 3.14)**, potentially increasing the volatility of UK growth.

Chart 3.19: UK and euro-area GDP



Source: ONS, Eurostat and Bank calculations

Chart 3.20: UK nominal exports to different regions



Source: ONS

The acute phase of the euro-area crisis (2010-2012) affected the UK through a number of channels.

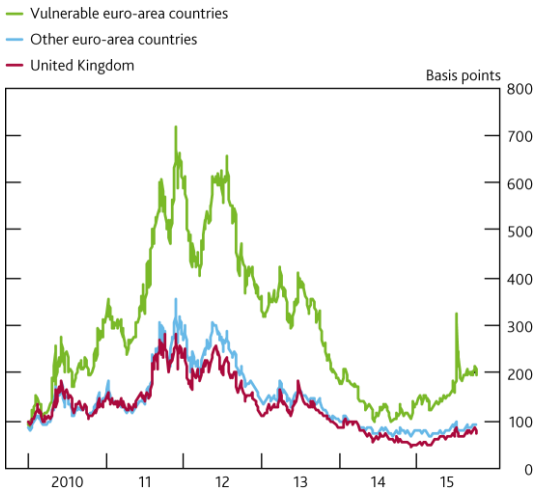
First, the euro area is the UK's largest trading partner – accounting for around two-fifths of the UK's exports. Weak domestic demand in the euro area weighed on UK export performance and reduced growth. In the years prior to the crisis, UK nominal exports to the euro area and the rest of the world grew at similar rates, but since the crisis exports to the euro area have declined (**Chart 3.20**).

Second, the euro-area crisis weakened demand in the UK through movements in asset prices and uncertainty. Business and consumer confidence in the UK followed the downward trend seen in the euro area, and was likely to have been associated with businesses postponing investment and households putting off major spending decisions.

[44] A box in the August 2011 *Inflation Report* outlined the channels by which developments in the euro area could affect the UK. Hackworth et al (2013) discuss the impact the euro-area crisis had on the UK economy relative to the Bank of England's August 2010 *Inflation Report* forecast.

Third, the euro-area crisis had an impact on the UK economy via the banking sector. Five-year CDS premia, rose very sharply in vulnerable euro-area countries from early 2010. Initially, this change had little impact on bank funding costs in the UK or other euro-area countries. However in mid-2011, as the crisis intensified, the perceived riskiness of the UK and other EU banking sectors to the risk of break-up of the euro increased significantly (**Chart 3.21**). As the crisis spread to Spain and Italy (countries that were too large to be supported by existing euro-area crisis mechanisms), fears of a euro-area break-up intensified. Such an event could have generated large losses for UK banks, not only through exposures to the most vulnerable countries but also to the wider euro area. As a result CDS premia for UK banks rose substantially, raising bank funding costs. This reduced the incentive for banks to provide credit to the real economy, lowering UK aggregate demand further.

Chart 3.21: Cost of default protection for selected banking systems



Sources: Markit Group Limited, SNL Financial, Thomson Reuters DataStream and Bank calculations.

Notes: Figures refer to average five-year senior CDS premia of selected European banks, weighted together by bank assets. 'Vulnerable euro-area countries' refer to Greece, Ireland, Italy, Portugal and Spain.

Overall, by mid-2012, the level of UK GDP was materially lower than expected at the time of the Bank of England's May 2010 *Inflation Report,* with the euro-area crisis likely to account for much of this demand shortfall. This substantial effect would have been even larger without central bank policy action both at home and abroad. In late 2011, the ECB conducted long-term refinancing operations, which avoided a substantial further tightening in euro-area corporate credit conditions. However, the crisis re-ignited in early 2012, prompting the ECB to announce Outright Monetary Transactions (OMTs) in mid-2012. This action appeared to convince investors that the ECB would stand behind any euro-area government threatened with redenomination risk.

The announcement of OMTs went a long way towards stabilising market sentiment, but it could not by itself remove the structural channels of contagion between banks and sovereigns in the euro area. Euro-area leaders recognised such challenges and in their summit declaration of 29 June 2012 announced plans to "break the vicious cycle between banks and sovereigns" by setting up a single supervisory mechanism (SSM) – a first step towards what has become known as "Banking Union". Until this point, member states had addressed the systemic fragility of their banking systems using largely national banking policy tools – a range of government guarantees, capital and liquidity injections, and asset removal ('bad bank') or insurance schemes (for more details see Stolz and Wedow, 2010). Banking Union has two main pillars: the SSM (the ECB became the licensing authority for all euro-area banks on 4 November 2014 and the single supervisor for the 122 most significant banks within the euro area); and the single resolution mechanism (a single resolution board was created in Brussels, from 1 January 2015). Immediately prior to the inauguration of the SSM, on 26 October 2014, the ECB and EBA published a comprehensive review of the euro-area banking sector: an asset quality review and a stress test, with those banks suffering from a capital shortfall in the stress test scenarios required to raise additional CET1 capital.

Euro-area growth recovered somewhat after 2012, but remained weak (**Chart 3.19**) and inflation stayed low or negative. Partly this reflected the prolonged adjustment underway in the euro area – particularly in the periphery. Debt levels rose substantially, which required tighter fiscal policy for a prolonged period in order to restore a measure of fiscal space. In addition, these countries needed to see a persistent fall in relative wages and prices to re-establish competitiveness vis-à-vis the rest of the currency bloc.

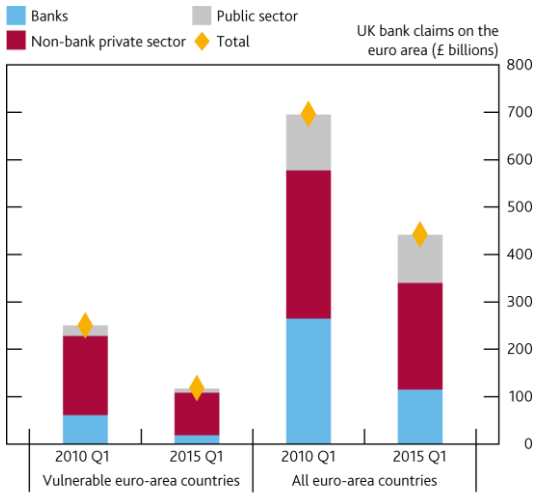
The sustained weakness in euro-area demand prompted the ECB to ease monetary policy again in 2015, with the announcement of an expanded asset purchase programme – involving the purchase of €60bn of assets per month from March 2015 until at least September 2016, or as long as is required to achieve a sustained adjustment in the path of inflation – consistent with the ECB's aim of inflation below, but close to, 2% over the medium term.

This additional loosening by the ECB also had significant effects on the UK economy. Greater monetary stimulus in the euro area is likely to have supported euro-area demand, with a positive knock-on effect on UK export growth. In addition, as the ECB bought up euro-area government bonds from private sector investors, those investors may have switched to substitutes such as UK and US government bonds, putting downward pressure on their yields. Empirical estimates of term premia – the compensation that investors require for the risks associated with holding an asset over time – account for most of the decline in ten-year UK and US government bond yields between the end of October 2014 and end of April 2015. Together these factors will have pushed up on demand and inflationary pressure in the UK. However, at the same time, the accompanying depreciation of the euro relative to sterling reduced the competitiveness of UK-produced goods and lowered the price of imports from the euro area. This has reduced the demand for UK-produced goods and put downward pressure on inflation. On balance, the positive spillover effects are likely to have dominated, suggesting a loosening of euro-area monetary policy is likely to be a net positive for UK growth and inflation.

Monetary Stability: The Bank of England took a number of actions during this period to boost UK demand. In October 2011, around the same time as the ECB conducted its long-term refinancing operations, the MPC undertook a second round of asset purchases. Then in mid-2012, at a similar time to the ECB's OMTs, the Bank of England and HM Treasury introduced the Funding for Lending Scheme (FLS). This scheme offered funding to banks and building societies for an extended period and at a cost that was below market rates, with both the price and quantity of funding linked to their performance in lending to the UK real economy. As a result of these measures, bank funding costs both in the UK and euro area declined. The UK recovery broadly coincided with the end of this acute phase of the euro-area crisis (**Chart 3.19**). More recently, the MPC has continued to analyse and understand the different implications of the ECB's monetary policy actions for the UK economy – given the strong interconnections between the two. Throughout, the Bank of England and other central banks maintained a close dialogue. The ECB General Council, which includes representatives of the 19 euro-area countries and the 9 non-euro area countries, offers one forum where information and analysis on monetary policy issues are shared.

Financial Stability: The UK banking sector is more resilient now to shocks emanating from the euro area – partly as a result of a decline in UK exposures. The direct exposure of the UK's financial institutions to the most vulnerable euro-area countries has more than halved between 2010 Q1 and 2015 Q1 from £250bn to £118bn, while exposures to the euro area as a whole have fallen by more than a third from £696bn to £442bn (**Chart 3.22**). In 2012, the FPC recommended that UK banks take action to manage and mitigate balance sheet risks from euro-area stress. In addition, UK bank capital and liquidity levels have improved materially since 2010 as UK banks transition to stricter internationally agreed standards (applied at EU level in CRD IV) and following the FPC recommendation for banks to increase capital ratios further in 2012.[45] As a result, the UK banking system is now better able to withstand euro-area shocks. However, given the degree to which the UK economy and financial system is intertwined with the euro area, a more severe crisis – particularly if it prompted renewed concerns about euro-area break up – would almost certainly have a material impact on UK economic and financial stability.

Chart 3.22: UK bank exposures to the euro area



Source: BIS Consolidated Bank Statistics, Thomson Reuters DataStream and Bank calculations.

Notes: Figures show the total reported claims outstanding of UK banks on counterparties based in the euro area. Figures are consolidated by banking group and reported on an ultimate risk basis. 'Vulnerable euro-area countries' refer to Greece, Ireland, Italy, Portugal and Spain.

The members of the single currency have taken steps to reinforce the stability of the monetary union. Risk-sharing arrangements, such as the European Stability Mechanism, have been developed to provide a safety net for the countries of the euro area. Fiscal discipline and economic governance have been reinforced through the revision of the Stability and Growth Pact and the macroeconomic imbalances procedure. Financial stability has been strengthened by the launch of a banking union in the euro area, as discussed above. The Bank Recovery and Resolution Directive (BRRD) should also aid euro-area stability by reducing the link between banks and sovereigns and ensuring that private investors are bailed in to rescue failing banks.

However, the euro-area member states have made clear that much remains to be done; as highlighted in the EU's Five Presidents' Report (Completing Europe's Economic and Monetary Union, 2015) the euro area's economic and monetary union remains "unfinished business".[46] For all economies to be permanently better off inside the euro area, further reforms are necessary to be able to spread the impact of shocks through both public and private risk-sharing. In the short-term, private sector risk sharing can be improved by completing the Banking Union – through the creation of a common backstop and deposit insurance scheme – and by developing a deeper Capital Markets Union in the EU. In the medium term, public-sector risk sharing should be enhanced through a mechanism of fiscal stability for the euro area as a whole. Ultimately, as the Five Presidents and other reports have made clear, in order for monetary union to succeed, further financial and fiscal integration will be required among the euro area's member states. That union would also contribute to the stability and dynamism of the rest of the EU, including the United Kingdom.

[45] In June 2012, the interim FPC recommended that 'banks ensure they build a sufficient cushion of loss-absorbing capital in order to help to protect against the heightened risk of losses'. The Committee also recommended that 'banks work to assess, manage and mitigate specific risks to their balance sheets stemming from current and future potential stress in the euro area'.

[46] This quote is taken from 'Stability and Prosperity in Monetary Union' (2015) by Mario Draghi, one of the authors of the "Five Presidents Report".

Summary

As the UK has become increasingly open, its interdependence with other economies, including with the rest of the EU and more recently the euro area, has increased. This has changed the forces that shape the structure of the UK economy and the nature of the economic and financial shocks to which it is subject. Other things equal, increased openness should lead to lower economic volatility through time as it enables households, businesses and financial institutions to diversify their risks across countries and so insure against domestic and overseas shocks. In addition, as a result of increased participation of foreign institutions, a diversified financial system should be more resilient and competitively intense. However, since risk sharing is never perfect, greater openness can also create challenges. When risk sharing is incomplete or policy and institutional frameworks are weak, openness can increase the exposure to, and impact of, foreign shocks, thereby reducing the resilience of the financial system and accentuating existing imbalances.

Greater openness has implied structural changes that have increased the exposure of the UK economy to sector specific and overseas price shocks. Membership of the EU may have made the UK more susceptible to financial sector shocks but may have supported lower import price volatility more generally. Overall, a floating exchange rate – against both EU and non-EU members – has helped the UK to insulate itself against shocks from abroad, which together with the UK's institutional and policy framework, has meant that there has been little impact on underlying stability. Greater financial openness – facilitated both by membership of the EU and the broader trend towards globalisation – is likely to have affected the size and structure of the UK financial sector and increased the complexity and interconnectedness of the UK financial network. These changes were not taken into account by the UK's institutional and regulatory framework and affected the resilience of the system in the run up to the financial crisis.

As the UK has become more economically and financially open, foreign shocks have become an increasingly important influence on UK GDP output and inflation stability – supporting stability during the Great Moderation but detracting from it during the Global Financial Crisis and the euro-area crisis. The UK economy was materially affected by the euro-area crisis. The euro area accounts for over 85% of the GDP of the rest of the EU, it is the largest destination for the UK's exports and its financial system is tightly linked with that of the UK. A successful and sustainable Economic and Monetary Union (EMU) is therefore important for the dynamism and stability of both the euro area and the UK. As highlighted in the European Commission's 'Five Presidents' Report', the euro area is "unfinished business." Although much has been accomplished since the crisis, further financial and fiscal integration within the euro area is necessary to strengthen EMU. In particular, closer financial integration requires increased risk sharing in the public and private sector. That risk sharing can be achieved by the development of the more complete Banking Union in the euro area and, more broadly, a Capital Markets Union for the EU.

From a monetary policy perspective, EU membership does not prevent the MPC from achieving monetary stability in the UK. Although closer integration with the EU has changed the nature and amplitude of shocks to which the UK economy is subject, and the complexity of the policy response, a floating exchange rate and the UK's institutional and monetary policy framework has enabled the UK to absorb these shocks with little impact on underlying price stability. In addition, where foreign shocks have directly affected UK inflation, the Monetary Policy Committee has been able to either 'look through' them if they are temporary in order to avoid unnecessary output volatility, or offset them if they are more persistent, in order to achieve its inflation target.

The impact of EU membership on financial stability is more challenging. Greatly increased financial openness, in part associated with EU membership, has made the UK financial system larger, more complex and more exposed to shocks from abroad. These developments reinforced domestically generated vulnerabilities in the run up to the Global Financial Crisis. The UK, along with many of its main international partners, lacked the institutions and tools for managing the build-up of risks from financial openness and for addressing them when they crystallised. As a result, when the crisis hit, global shocks were transmitted virulently across borders, doing great damage to financial systems and the real economies of many countries. The UK was particularly affected as its institutional framework and policy tools proved inadequate given its high degree of financial openness.

Box 3.B: Risk Sharing in the EU and the Euro Area

International risk sharing enables individuals to smooth their income over time. Having a stable source of income allows people to plan for the future better and reduces the need to save for precautionary reasons, enabling them to consume more or take more leisure. In that regard, risk sharing can help maximise social welfare by helping to facilitate sustainable income growth.

Income can be derived from two sources: through wages and profits earned from producing domestic economic output: and via rents earned from owning assets at home or abroad. As discussed in Section 3.2, the volatility of economic output can be amplified or dampened by greater openness, depending on the frequency and severity with which foreign shocks occur relative to domestic shocks. Increased openness also enables economies to disperse such shocks across countries through risk sharing. This can occur via three channels:

- **Capital Market Channel** – As an economy opens up, investors can hold a more geographically diversified portfolio of financial assets. This should ensure investment returns are not only less volatile but also less correlated with domestic output.

- **Credit Market Channel** – When a country is hit by an economic shock, cross-border lending flows should enable residents to borrow from overseas to offset the shock – thereby smoothing the flow of credit to the economy.

- **Fiscal Insurance Channel** – The public sector can also play a role in facilitating risk sharing via fiscal policy – where tax revenues are used to fund fiscal transfers.

All three of these channels should enable investors to smooth consumption over time. If such channels operated perfectly, then greater openness should allow the stability of per capita income growth to be maintained – even if domestic output volatility goes up. In practice however, markets are imperfect. Information asymmetries and rigidities in the economy mean that factors of production do not instantaneously adjust to shocks (Bank of England, 2009). This means that risk sharing is incomplete and openness can create challenges as well as benefits for stability.

One specific example of an imperfection or friction is home bias – the tendency of investors to favour their home market over those abroad. The origins of home bias are not well understood, but the most cogent explanations are grounded in legal restrictions (including capital controls and lack of property rights) and information asymmetries between home and host countries (see for example, Lewis, 1999).

Charts A and **B** illustrate the extent of home bias in bond and equity markets for a number of countries. Home bias is similar or even a little lower in some EU member states compared with the United States. However, interpreting these numbers is difficult as larger countries may need to diversify less across borders in order to benefit from risk sharing. Home bias has tended to fall over time across countries but still remains elevated. Put differently, risk sharing remains far from 'perfect'

Chart A: Home bias in equity markets

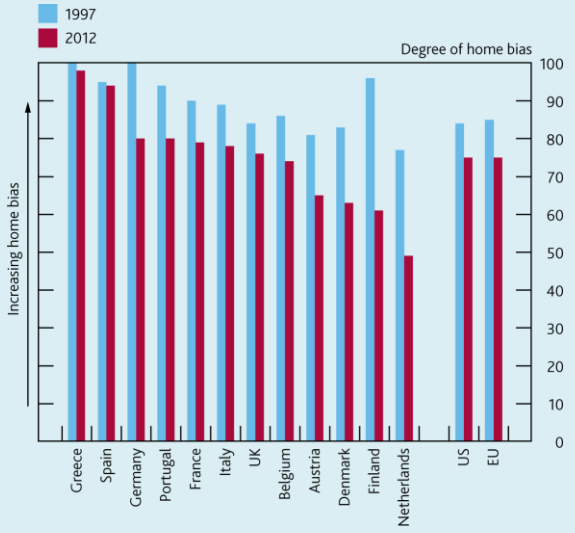


Chart B: Home bias in bond markets

Sources: Schoenmaker and Soeter (2014), 'New evidence on the home bias in European investment'. Calculations based on IMF CPIS

Notes: Home bias = 100*(1-actual share of foreign assets/optimal share), where optimal share = 1-domestic market capitalisation /world market capitalisation. If the index equals 100, the domestic portfolio exclusively contains domestic assets, meaning maximum home bias. If the index equals 0, the actual share of foreign assets equals the optimal share and there is no home bias. It is possible for the index to be negative, if foreign assets are over-represented in the portfolio. EU figures are calculated as a weighted average across 14 member states for which data are available.

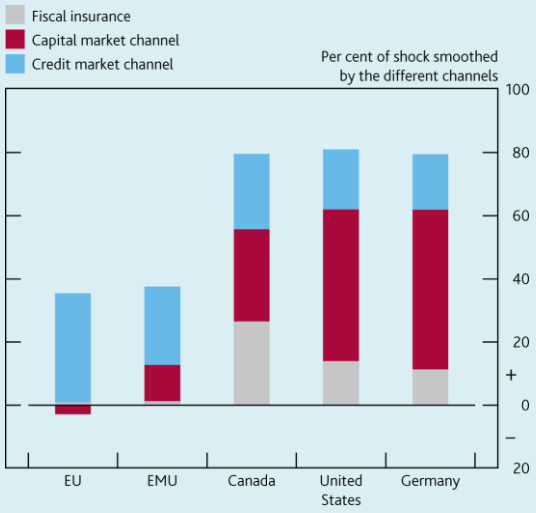
Empirical estimates of the impact of imperfect risk sharing

Studies that attempt to analyse risk sharing typically use an accounting framework based on the three different risk sharing channels – as pioneered by Asdrubali, Sorensen and Yosha (1996). These studies find that the overall level of risk sharing in the EU and the euro area is substantially less than within individual countries with a federal structure, such as the United States, Canada and Germany. The results, shown in **Chart C**, suggest that when GDP falls by 1% in one of the EU or euro-area countries, consumption in that country is depressed by as much as 0.6%. By contrast a localised 1% fall in the income of one of the federal states in the United States, Canada or Germany results in only a 0.2% fall in consumption in the relevant state. The literature suggests that the biggest reason for the lower degree of risk sharing in the EU is due to insufficient risk sharing in capital markets (red bars in **Charts C**), while the credit market channel (blue bars) actually plays a slightly larger role in the EU. With the exception of Canada, the role of fiscal transfers is in general relatively small.

Additionally, a study by Furceri and Zdzienicka (2013) found that risk-sharing mechanisms in the euro area appear to have been particularly ineffective during financial crises and severe downturns (**Chart D**). Specifically, this reflected declines in risk sharing through credit markets — credit markets typically weaken during financial crises, and credit constraints bind more in deeper, more persistent downturns. Also, credit markets typically smooth only transitory shocks, in part because lenders in other countries are likely to be reluctant to grant credit to borrowers in countries hit by shocks that are expected to be long-lasting. It is also noteworthy that the capital market channel amplified output shocks during times of stress in the euro area, especially in financial crises. Corroborating this, Van Beers, Bijlsma and Zwart

(2014) find evidence that the capital market channel amplified shocks during the crisis period in the euro area. Without updated estimates for the US or other federations for the crisis period, however, it is not possible to conclude that risk-sharing mechanisms within federal countries were any more effective in the crisis.

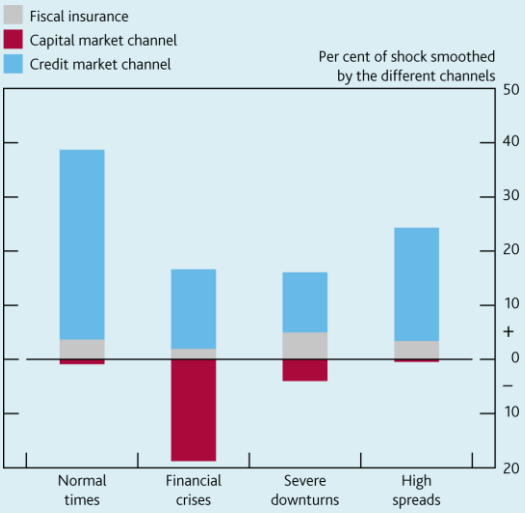
Chart C: Risk sharing in the EU, EMU and selected federations



Source: IMF (2013) – 'Toward a fiscal union for the euro area, technical background notes'. Based on Hepp and von Hagen (2012) for Germany; Asdrubali, Sorensen and Yosha (1998) for the US; Balli, Basher and Jean Louis (2011) for Canada; and Afonso and Furceri (2008) for the EMU and EU.

Notes: The terminology to describe the main risk-sharing channels varies in the literature. The credit market channel is sometimes called the saving channel; the capital market channel is occasionally referred to as the factor income channel. The capital market channel includes capital depreciation.

Chart D: Risk sharing in the euro area in normal times and in times of stress



Source: IMF (2013) – 'Toward a fiscal union for the euro area, technical background notes'. Based on Furceri and Zdzienicka (2013).

Notes: Normal times = full sample (fifteen euro-area countries, 1979-2010); Financial crises = currency, sovereign debt and banking system crises from Laeven and Valencia (2012); Severe downturns = periods of recession as identified by Harding and Pagan (2002); High spreads = spread of 10-year government bond to US 10-year treasury bond in excess of 300bps.

Role of the EU

Notwithstanding uncertainty about the extent of risk sharing in federations during the recent crisis, these results suggests that the risk-sharing mechanism related to the capital market channel is probably weaker in the EU and euro area than in federations such as the United States. The EU's Capital Markets Union (CMU) project – which aims to diversify and integrate European capital markets (discussed in Bank of England, 2015) – has the potential to improve private-sector risk sharing within the EU. The European Commission has highlighted a number of areas for action that could help facilitate this, including: eliminating barriers to cross-border capital raising, providing greater funding choices for Europe's businesses and SMEs, facilitating access to public markets, fostering retail and institutional investment, improving the regulatory environment for long-term infrastructure investment and enhancing banks' capacity to lend. However, even if fully implemented, CMU is unlikely to generate the same level of risk sharing as exists in federations such as the United States, partly because some of that risk sharing reflects labour income flows from workers commuting to neighbouring states. As discussed in Chapter 1, cross-country labour mobility is relatively low within the EU compared with the US and Canada, so risk sharing within the EU is likely to be less complete.

4 EU membership and the Bank of England's policy making framework

The previous chapter showed the economic and financial challenges that openness can create for policy makers in maintaining monetary and financial stability and the need for robust institutional and policy frameworks to manage these risks. Membership of the EU has an impact on these frameworks due to EU legislation and policy, which can define important elements of the UK institutional framework and policy tools. Given a floating exchange rate and the UK's institutional and monetary policy framework, EU legislation and policy have not greatly affected the MPC in achieving monetary stability in the UK. The impact of EU membership on financial stability, however, is more challenging. Financial stability is ultimately a national responsibility, with the UK taxpayer the ultimate backstop of the UK financial system. The UK's institutional framework for financial stability has been comprehensively reformed since the crisis. Strong domestic frameworks are however only one element of the management and mitigation of the risks from financial openness. Domestic regulators must also have the tools and the flexibility to use them to do the job. Participation in the single market means that the majority of the legislation and regulation applying to the financial sector in the UK is determined at EU level.

As home to the world's leading international financial centre, it is vital that the UK authorities are able to apply the highest standards and have the flexibility to take action to address financial stability risks. Following the crisis, the EU has carried out a major legislative and regulatory programme, which has implemented and often exceeded the internationally agreed G20 post crisis reform agenda. The need for national regulators and supervisors to have the flexibility in applying EU rules to address the particular risks they face has in the main been respected. However, the general movement away from setting minimum standards in favour of 'maximum harmonisation' has in some instances been problematic. Looking forward, closer union between euro-area member states is likely to necessitate greater harmonisation of regulations and integration of supervision across the euro area. It is also likely to lead to reduced flexibility and discretion of the national authorities of those euro-area member states in favour of decisions and rules by the authorities of the Banking Union – the ECB, the Single Supervisory Mechanism and the Single Resolution Authority. It is important, particularly given the weight of the members of the single currency in the EU, that arrangements are put in place so that the future development of the EU regulatory framework aids the necessary deepening of the integration in the euro area without impairing the ability of the Bank of England to meet its financial stability objectives.

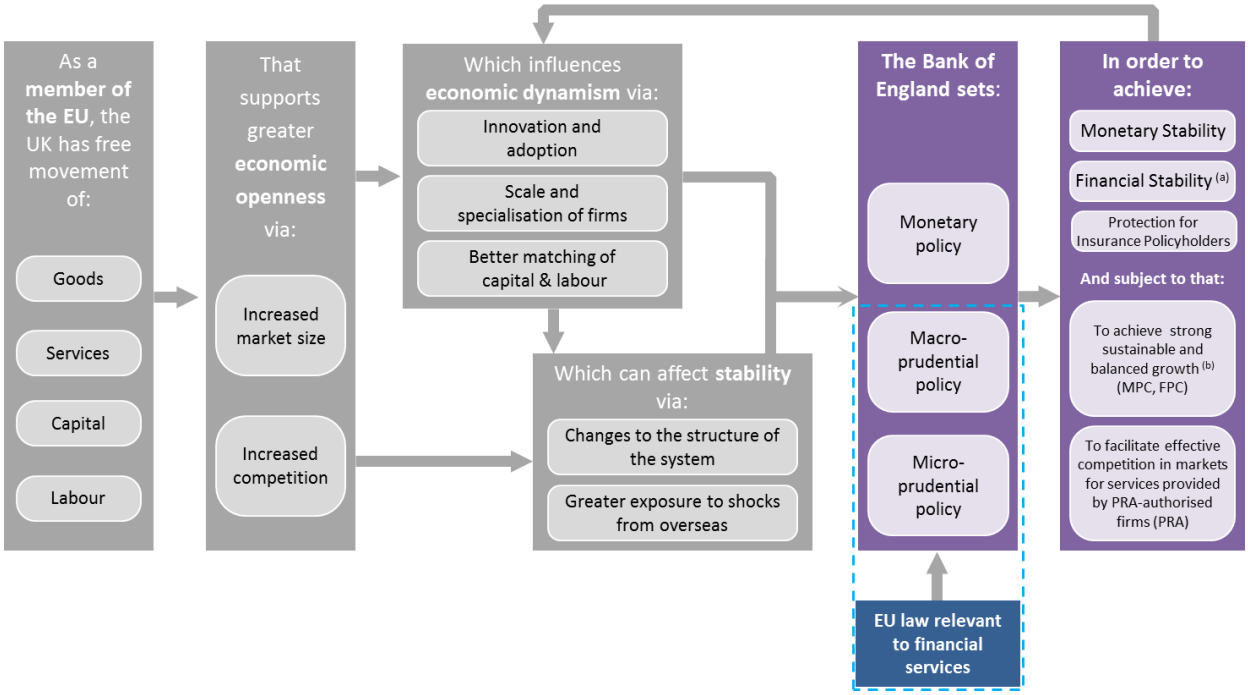
Introduction

This Chapter describes how the Bank of England's policy framework – and so its ability to achieve its objectives – is affected by EU rules. As illustrated in **Figure 4.A**, this is largely through EU legislation relating to the financial sector.

Section 4.1 discusses how EU rules affect the Bank of England's ability to achieve price stability. The implications are substantially larger for prudential regulation and financial stability policy, however, which is the focus of the rest of the Chapter. Section 4.2 summarises the reforms to the UK's financial stability framework following the financial crisis. Section 4.3 describes the importance of EU legislation to the UK's financial stability framework, while Section 4.4 describes the EU's reform of financial regulation post crisis, including the adoption of international standards. Section 4.5 discusses how a balance has been struck

between harmonising regulation across countries and providing for national flexibility in the post crisis EU regulatory framework. Finally, section 4.6 considers potential implications of the evolution of the EU regulatory framework in future, with a particular focus on to the need to enhance economic and monetary union in the euro area following the recent euro-area crisis.

Figure 4.A: How EU law relevant to financial services affects the Bank of England and PRA policy framework



(a) Financial stability includes: protecting and enhancing the stability of the financial system (FPC) and promoting the safety and soundness of PRA-authorised firms (PRA)

(b) In addition, the Chancellor's 2015 remit letter to the FPC asked the committee to consider how, subject to its primary objective to protect and enhance the stability of the UK's financial system, its actions might affect competition and innovation, and their impact on the international competitiveness of the UK financial system.

4.1 EU rules and the UK's monetary stability arrangements

The UK's inflation targeting regime was established in 1992 and the Bank of England was made operationally independent in 1997. In 2003, the decision was taken by the UK government not to join the euro-area currency union on the basis of an assessment against the 'five economic tests'.[47] As discussed in the previous Chapter, the flexibility of the UK to set its own monetary policy has been critical given the structural changes that have affected the UK economy and, in particular, when responding to the shocks that hit the UK economy during the Global Financial Crisis and the euro-area crisis. In the face of these large negative shocks to UK demand, the MPC was able to cut Bank Rate to historically low levels and supplement that action with large-scale asset purchases in order to support demand and return inflation to target.

Membership of the EU has not constrained the Monetary Policy Committee (MPC) in its setting of policy to achieve price stability, as defined by the Government's 2% inflation target. EU law imposes no constraints on the MPC's use of conventional monetary policy tools – in the UK, the setting of Bank Rate. While EU state aid rules prohibit any aid granted by an EU member state (or through state resources), which distorts,

[47] These tests were 1) are business cycles and economic structures compatible so that we and others could live comfortably with euro interest rates on a permanent basis? 2) If problems emerge is there sufficient flexibility to deal with them? 3) Would joining European monetary union (EMU) create better conditions for firms making long-term decisions to invest in Britain? 4) What impact would entry into EMU have on the competitive position of the UK's financial services industry, particularly the City's wholesale markets? 5) In summary, will joining EMU promote higher growth, stability and a lasting increase in jobs? For more details, see http://webarchive.nationalarchives.gov.uk/20130129110402/http://www.hm-treasury.gov.uk/euro_assess03_repindex.htm

or threatens to distort, competition by favouring certain market participants or affecting trade between member states, the ordinary activities of central banks related to monetary policy, such as open market operations and standing facilities, do not fall within the scope of the state aid rules. EU law also prevents any direct or indirect discrimination on the grounds of nationality and the Bank of England is subject in its operations and policies to EU competition law and the monetary financing prohibition.[48] Consequently, the design, or operation of, any unconventional monetary policy operations must comply with these laws. EU legislation also places restrictions on the use of capital controls or interventions designed to influence the exchange rate.[49]

4.2 Reforms to the UK financial stability framework since the crisis

As discussed in Chapter 3, greatly increased financial openness, in part associated with EU membership, has made the UK financial system larger, more complex and more exposed to shocks from abroad. These developments reinforced domestically generated vulnerabilities in the run up to the global financial crisis. The UK, along with many of its main international partners, lacked the institutions and tools for managing the build-up of risks from financial openness and for addressing them when they crystallised. The UK was particularly affected as its institutional framework and policy tools proved inadequate given its high degree of financial openness. The total assets of the UK financial system are over eight times as large as UK GDP, with around half of those accounted for by the banking sector.

As the leading international financial centre, the UK is likely to be particularly vulnerable to the propagation of shocks that affect the global financial system. Following the global financial crisis, the UK economy underwent a severe downturn and UK taxpayers additionally bore the cost of supporting systemically-important institutions.

Equally, the UK itself can be a source of instability for other countries, both EU and non-EU, if risks in the UK financial system are not adequately managed given the large number of systemically-important global financial institutions, markets and structures which are located in the UK.

The UK's institutional framework for financial stability has been comprehensively reformed since the crisis, with the creation of the Financial Policy Committee, the Prudential Regulation Authority and the Financial Conduct Authority. Improving the coherence of the framework was a key objective of these reforms, given the large and complex nature of the UK financial system. To this end, the UK government introduced wholesale changes to the UK regulatory landscape through the Financial Services Act 2012. It gave the Bank of England primary responsibility for maintaining UK financial stability, replacing the previous tripartite structure involving the Bank, HMT and the Financial Services Authority.

The Act also established the Prudential Regulatory Authority as a subsidiary of the Bank of England.[50] It is responsible for the prudential regulation and supervision of deposit-takers, insurers and major investment firms, and contributing to the securing of an appropriate degree of protection for insurance policyholders. It sets standards and supervises financial institutions at the level of the individual firm. In support of the

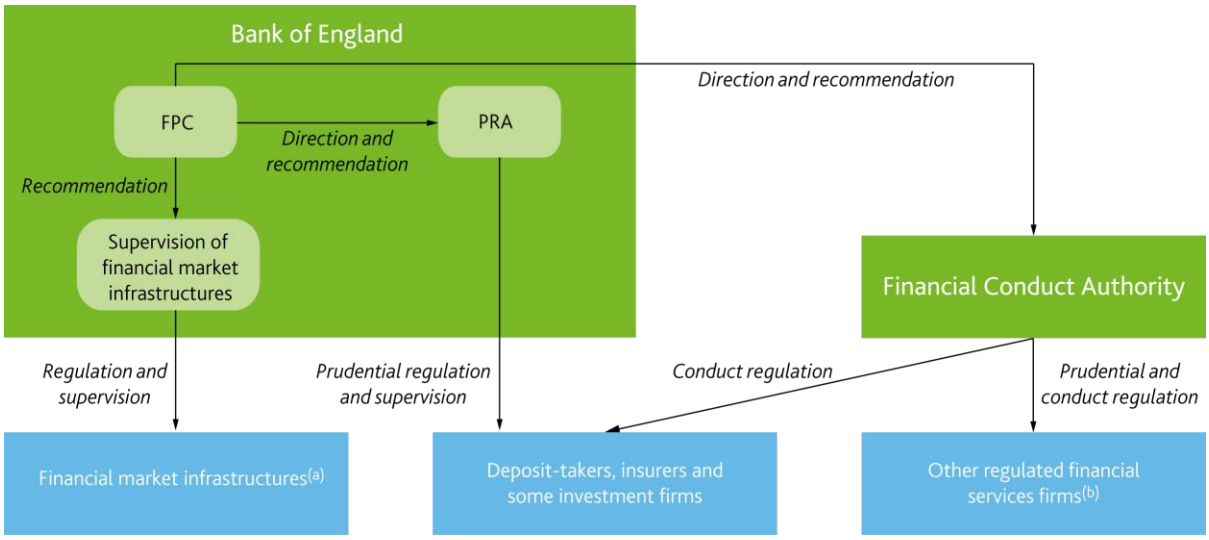
[48] Article 123 of the Treaty of the Functioning of the European Union prevents national governments using central banks to finance budget deficits, as well as prohibiting such central banks from exercising any state functions.

[49] Article 64 of the Treaty on the Functioning of the European Union allows for intervention in the movement of capital on the basis of a number of specific public policy concerns, notably: macroprudential regulation and capital controls; tax differentiation; public policy, public security, national security and defence; and financial sanctions. Article 142 requires that each member state treats its exchange-rate policy "as a matter of common interest".

[50] The government has since published a new Bank of England and Financial Services Bill that would, amongst other things, mean that the PRA would no longer be a subsidiary of the Bank. Its objectives and functions would be unchanged, but they would be exercisable through a new Prudential Regulation Committee, which would be on the same legal footing as the existing MPC and FPC.

Bank's financial stability objective, the Financial Policy Committee was formally established under statute within the Bank. It is charged with identifying, monitoring and taking action to remove or reduce systemic risks to the financial system as a whole. Additionally, the Bank was given responsibility for the regulation of some post-trade financial market infrastructures, including the supervision of central counterparties and securities settlement systems. This responsibility sits alongside the Bank's responsibilities for overseeing recognised payment systems. The Financial Conduct Authority was also established. It is responsible for ensuring that relevant markets function well and for the conduct regulation of all financial services firms. In doing so, it aims to advance the protection of consumers, the integrity of the UK financial system and promote effective competition. These arrangements are shown in **Figure 4.B.** Reinforcing this integrated framework, there is cross-membership of the FPC, PRA Board and FCA Board. Additionally, the FPC has cross-membership with the MPC and a non-voting member from HM Treasury to ensure that macroprudential policy is well coordinated with the other arms of UK policy.

Figure 4.B: Stylised diagram of the post-crisis UK regulatory framework



(a) Includes recognised payment systems, securities settlement systems and central counterparties. Excludes regulation of trading platforms, which is the responsibility of the FCA.

(b) Includes asset managers, hedge funds, exchanges, insurance brokers and financial advisers.

The UK authorities have undertaken a number of important initiatives to enhance the framework for regulating the financial sector. For example, the Financial Services (Banking Reform) Act 2013 included a number of measures designed to enhance the resilience and resolvability of firms. These included introducing a 'ring-fence' around the parts of banking groups that undertake specified core services.[51] The UK government has granted the Bank powers of direction over a number of macroprudential policy tools, as described below. The Bank has launched a framework for annual and concurrent stress-testing of the UK banking system.[52] Annual stress tests of the UK banking system form one part of the overall capital adequacy framework, contributing to the FPC and PRA Board's ability to assess potential risks to the UK banking system and capital adequacy on a forward-looking basis. All of these reforms, however, are subject to, and need to be accommodated within, the wider institutional and legislative requirements that are set at the EU level.

[51] The government has stated its intention for ring-fencing to be implemented from 1 January 2019.

[52] On 21 October 2015 the Bank set out the main features of the stress-testing framework out to 2018. See 'The Bank of England's approach to stress testing the UK banking system'.

Overall, the reforms since the crisis provide the UK with a coherent and comprehensive architecture of national macroprudential and microprudential regulators and supervisors commensurate with the scale and nature of the risks that the UK's high degree of financial openness can pose. These provide the foundation for the UK to maintain and develop its role as the world's leading international financial centre, one which can safely be home to the largest global, systemically important banks and insurers.

4.3 The importance of EU legislation to the UK's financial stability framework

Strong domestic regulatory and supervisory institutions are crucial to ensuring financial stability. They are, however, only one element of the management and mitigation of the risks from financial openness. First, domestic regulators and supervisors must also have the tools and the flexibility to do the job. Second, UK authorities depend in no small part on the quality of regulation in the home jurisdictions of foreign financial firms that are active in the UK. The UK's membership of the EU is especially relevant in both respects.

First, participation in the single market for financial services means that the majority of the legislation and regulation applying to the financial sector in the UK is determined at EU level. This in large part sets the overall regulatory framework within which the UK authorities work and defines much of their policy and supervisory toolkit. Consistent with its objective to establish an effective single market for financial services across member states, EU legislation has sought a high degree of harmonisation in the regulatory framework. This has particularly been the case since the financial crisis, when the EU has also placed more weight on financial stability considerations relative to its objective establishing the single market within the EU. It is important that EU legislation both incorporates the highest international standards and provides regulatory and supervisory authorities with the flexibility to apply these standards to match the particular risks they face.

Second, and equally important, EU legislation is relevant to financial firms located in the EU. To the extent that EU legislation and regulation is of high quality and incorporates relevant international standards, it raises standards and reduces risks across the EU. Since it has the force of law, it enables the UK authorities to have far greater assurance in relation to the regulation of the large number of financial firms from other EU jurisdictions that operate in the UK. This is particularly relevant since under the EU's financial services passporting rules, as described in Chapter 1, it is not possible to require EU firms that do business in the UK to establish subsidiaries regulated and supervised by the Bank of England. By contrast, where there are no EU rules relating to branching or access by non-EEA firms, the UK authorities will usually determine whether or not a UK branch of a non-EU firm is subject to broadly similar regulation by the home state supervisor and may, if they deem necessary, require those non-EU firms to establish subsidiaries in the UK.

These points are particularly important for the UK given it is home to a leading international financial centre. The scale, complexity and degree of global activity of the UK financial system are unmatched in the EU. As set out in Chapter 1, a very large number of foreign banks operate in the UK, and around half of the world's largest financial firms have their European headquarters in the UK. The UK has the largest global share of cross-border bank lending, foreign exchange trading and interest rate OTC derivatives. It has the third largest insurance industry and the second largest asset management industries in the world. The assets of the UK banking sector are four times UK GDP and non-bank financial institutions are a similar size. In 2012, the financial services sector accounted for 8% of UK output and around 3½% of employment.

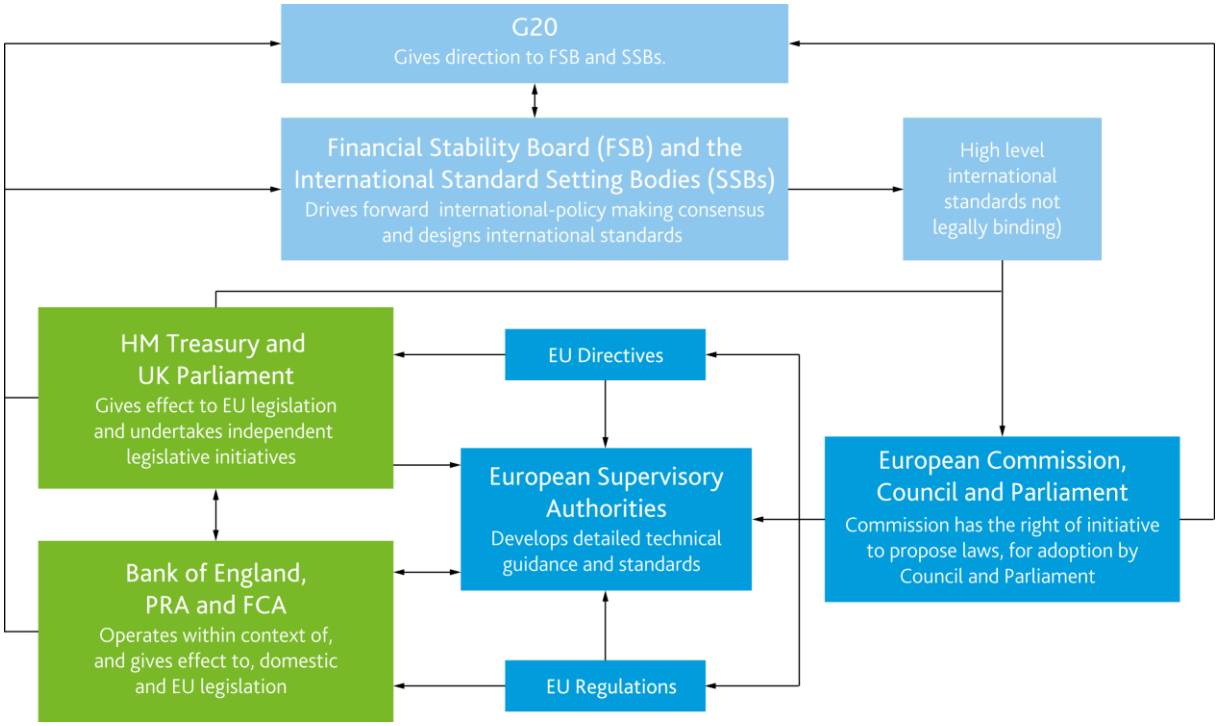
The next section looks at the post-crisis international and EU programme of reform of financial regulation.

4.4 The post-crisis international and EU financial sector reform programme

In the light of the Global Financial Crisis and the vulnerabilities it exposed, the international community has agreed a set of fundamental reforms to the standards for regulation of the financial sector. To implement those standards for EU member states, the EU has carried out a major programme of legislative and regulatory reforms. This section summarises these developments. Given the importance of these international standards and the EU legislation to the UK's financial stability, the Bank of England has engaged very actively with both the international standard setting process and its implementation in the EU.

In April 2009, the G20 group of economies agreed that there was a need for more systematic co-operation between countries and the establishment of internationally agreed high standards for global financial regulation. The Financial Stability Board (FSB) was established as a successor to the Financial Stability Forum with an enhanced mandate to promote the reform of international regulation. Since then, the G20 group of economies have given guidance to both the FSB and international standard setting bodies (SSBs) such as the Basel Committee on Banking Supervision (BCBS) and the International Organisation of Securities Commissions (IOSCO) to develop improved international regulatory standards. In light of this, new global standards have been developed for, amongst others things, the quantity and quality of capital and liquidity for major banks (BCBS and FSB), the resolution of systemically important global banks (FSB) and the clearing of OTC derivatives (IOSCO and FSB). **Figure 4.C** sets out a stylised description of this post-crisis international policy making process.

Figure 4.C: Stylised diagram of the international, EU and UK financial services policy-making process



These internationally agreed standards have been enshrined into EU law via Regulations and Directives such as the Bank Resolution and Recovery Directive (BRRD) and the European Market Infrastructure Regulation (EMIR). The EU has also legislated in areas not covered by internationally agreed standards and undertaken a number of independent initiatives. Examples include the Deposit Guarantee Scheme

Directive, which requires member states to establish a deposit guarantee scheme for bank depositors, and the Alternative Investment Fund Managers Directive, which harmonised regulatory standards and enhanced disclosure requirements for all in scope fund managers. **Table 4.A** summarises the major components of the EU post crisis regulatory reform programme.[53]

Table 4.A: Selected key events in the post-crisis development of EU financial services legislation

Date	Event	Details
January 2011	Establishment of the European System of Financial Supervision, comprising three European Supervisory Authorities (ESAs) and the European Systemic Risk Board (ESRB)	The ESAs – the European Banking Authority (EBA), European Securities and Markets Authority (ESMA) and European Insurance and Occupational Pensions Authority (EIOPA) – were established to improve coordination between and consistency across national regulatory authorities. Each has powers to take decisions that are binding on national supervisors and, in limited circumstances, on firms directly. The ESRB is responsible for the macro-prudential oversight of the financial system within the European Union.
August 2012	European Market Infrastructure Regulation (EMIR) applies	EMIR imposes mandatory central clearing and bilateral risk requirements for OTC derivatives, including reporting requirements. It also created an authorisation and supervisory regime for CCPs and trade repositories.
July 2013	Alternative Investment Fund Managers Directive (AIFMD) applies	The AIFMD introduces a passporting regime and harmonised regulatory standards and enhanced disclosure requirements for all in scope fund managers.
January 2014	Capital Requirements Regulation (CRR) and Capital Requirements Directive IV (CRD IV) applies	This legislation gives effect to Basel III prudential standards into the EU legal framework, setting prudential requirements for EU banks, building societies and investment firms, and introducing new provisions for macroprudential tools. Some additional EU-specific standards were included with respect to corporate governance remuneration and regulatory reporting.
November 2014	Banking Union: Single Supervisory Mechanism (SSM) entered into operation	The SSM is a key element of the euro-area Banking Union (alongside the establishment of the Single Resolution Board). It places the European Central Bank as the central prudential supervisor of credit institutions in the euro area.
January 2015	Bank Recovery and Resolution Directive (BRRD) applies	BRRD introduces a set of minimum standards designed to ensure that national authorities are able to intervene and resolve banks and investment firms in an orderly manner without recourse to taxpayer money.
July 2015	Deposit Guarantee Scheme Directive applies	This directive provides for maximum harmonised coverage of bank deposits at €100,000 and minimum timescales for pay outs under the scheme across the EEA.
January 2016	Banking Union: Single Resolution Board (SRB) becomes fully operational	The SRB is a key element of the euro-area Banking Union and will be the resolution authority in respect of relevant institutions incorporated in countries that are members of the Banking Union.
January 2016	Solvency II Directive applies	This Directive harmonises the regulatory standards used for prudential supervision of insurance companies in the EU, including coverage of capital standards, asset and liability valuation and disclosure.
January 2017	Markets in Financial Instruments Directive (MiFID II) and Regulation due to apply	MiFID II will introduce initiatives to improve the transparency and regulation of financial markets and common standards for the regulation of investment services.

[53] For a more comprehensive list of EU financial services legislation, see Annex F of the 'Review of the Balance of Competences between the United Kingdom and the European Union – The Single Market: Financial Services and the Free Movement of Capital'.

The new EU-wide microprudential framework is based around the 'Single Rulebook' for firms, regulators and supervisors. The rulebook incorporates the relevant EU legislation and defines the areas of flexibility to allow regulators to address country-, market- and firm-specific risks. The European Supervisory Authorities (ESAs), governed by Boards comprised of member state supervisors, were established after the crisis, and are charged with responsibilities and powers to help achieve consistency in the application of the rulebook and develop more detailed standards. For macroprudential policy, there is some recognition both of the benefits of authorities reciprocating the policies implemented by others, as well as establishing ground rules for the use of macroprudential policies to prevent their inappropriate use. Post-financial crisis EU policies and legislation, as well as the new European supervisory framework, all have substantial interaction with the Bank of England's objective to ensure financial stability in the UK and are discussed in more detail in the next section.

Overall, the EU has carried out a major legislative and regulatory programme that implemented and often exceeded the internationally agreed G20 post crisis reform agenda. The Bank of England has contributed actively to this process. The resulting legislation has substantially raised the quality of regulation in the EU overall. By ensuring those strengthened standards apply EU-wide and with the force of law, this helps support financial stability in the UK. This is particularly important given the UK's financial openness, enabling the UK authorities to have far greater assurance as to the safety and soundness of the large number of financial firms from other EU jurisdictions that operate in the UK.

4.5 The trade-off between full harmonisation and national flexibility

Since the financial crisis, EU legislation has sought a markedly higher degree of regulatory and supervisory harmonisation across member states. This has been driven, in part, by the objective to establish an effective single market for financial services across member states. It has also been motivated by the desire to ensure consistency of implementation of EU legislation and to reduce cross-border impacts from regulatory discretion exercised at the member state level – for example, when the tightening of regulation on financial firms in one member state affects the provision of financial services in another member state in which those firms also operate. In large part this has been achieved by a greater use of EU Regulations which are directly applicable in law in all member states, rather than EU Directives which need to be implemented by member state legislation. Even where Directives have been used there are often a large number of mandates for further directly applicable measures. This has had an impact on the degree of discretion and flexibility at the national level.

When setting harmonised rules, there are two key dimensions that jointly determine national flexibility. The first is a choice between 'minimum harmonisation' and 'maximum harmonisation' of regulation. Minimum harmonisation brings all financial institutions across countries up to common minimum standards whilst allowing national authorities to raise those standards for firms in their own jurisdiction to meet particular risks. Maximum harmonisation prevents national discretion being applied by prescribing a fully common overall standard that cannot be exceeded. The second dimension is the scope for supervisory judgement to be exercised within that legislation.

Structural or cyclical differences across member states may require a degree of national flexibility in financial regulation. As host to a large, internationally integrated financial sector, it is right that the UK should be held to robust minimum standards. However, the UK may also need to go further and adopt tighter regulatory standards than are appropriate for smaller, more domestically-focused financial systems. Such tighter standards can prevent adverse spillovers from the UK, not only to EU countries, but to the global economy more widely.

Financial stability is ultimately a national responsibility. The Bank of England has an objective to protect and enhance UK financial stability, for which it is accountable to Parliament. Similarly, when exercising its general functions, the PRA must seek to minimise the adverse effects that firm failures could have on the stability of the financial system. UK taxpayers act as the ultimate backstop to the domestic financial system, in the event that an orderly resolution of a systemically-important financial institution was not possible and recourse to public funds was required. This means that it is important that UK authorities have sufficient flexibility to apply the highest standards and take action to address particular financial stability risks.

Against that backdrop, the remainder of this section looks at four examples of post-crisis EU regulatory initiatives, with a particular focus on the adoption of international standards and how and whether the balance between harmonisation of rules and provision for national flexibility has been appropriately struck.

Example 1: The Capital Requirements Regulation (CRR) & Capital Requirements Directive IV (CRD IV)

The CRR and CRD IV are the laws that implement Basel III across the EU. They implement a revised framework for the prudential regulation of banks, including a stronger definition of capital, higher minimum capital requirements, new capital buffers, new liquidity requirements and a supplementary non-risk-based leverage ratio. CRR and CRD IV also introduce some macroprudential instruments, although the scope of these is relatively limited. In large parts, the EU legislation has made directly binding, or adopted a maximum-harmonising approach to implementing, the minimum standards included in the Basel III agreement. As the key legislation that sets out the framework for the prudential regulation of banks, CRR and CRD IV are together a vital component of the overall regulatory framework.

The Basel Committee on Banking Supervision's December 2014 review of CRR and CRD IV found it to be materially non-compliant with the minimum standards of Basel III. Of the 14 components of the Basel framework that were assessed, one was found to be non-compliant (counterparty credit risk) and another was found to be materially non-compliant (the Internal Ratings Based approach to credit risk, particularly with reference to lending to SMEs). Nevertheless, these areas of non-compliance have not significantly inhibited the Bank's ability to conduct prudential regulation of banks. There are some other aspects, however, that may be more problematic going forwards. CRD IV introduces a bonus cap, for example – a measure that was not included in the Basel III agreement. This limits the proportion of flexible remuneration that can be paid to material risk takers in EU banking groups' to half (or with shareholder approval, two thirds) of total pay. As previously argued by Carney (2014) and Bailey (2014), this measure could have undesirable side-effects for financial stability if it limits the scope for remuneration to be clawed back. In particular, it is likely to make it harder for banks to adjust variable remuneration to reflect the financial health of the individual bank, and could limit the use of deferral arrangements that can better align remuneration with the long-term interests of the bank. Since the introduction of the bonus cap, there has been a marked increase in the proportion of fixed remuneration as a percentage of total pay for staff defined as material risk takers in the major UK banks, from 28% in 2013 to 54% in 2014; overall remuneration has risen only slightly.

The requirements specified in CRR and CRD IV are generally maximum-harmonising in nature, which could constrain national authorities' ability to support domestic financial stability in some cases. CRR, for example, specifies the required threshold at which certain contingent capital instruments convert into the highest quality regulatory capital, in order for those instruments to count towards banks'

capital requirements. It does not permit national authorities to require a higher conversion threshold, if in their opinion, that is required to help safeguard domestic financial stability.[54]

Example 2: The Bank Recovery and Resolution Directive (BRRD)

The ability to resolve financial institutions in an orderly fashion, when required, is vital for maintaining financial stability and protecting public funds. This is particularly important in the UK given that the Bank of England regulates a number of large international banking groups which are headquartered in the UK and a substantial number of other UK firms that are part of EU and international banking groups. The BRRD implements in the EU the Financial Stability Board's "Key Attributes of Effective Resolution Regimes for Financial Institutions" with respect to EU banks and investment firms.[55] Those standards require the introduction of resolution regimes for all financial institutions whose failure could be systemic, to ensure that when one fails, it does so without causing disruption to the financial sector or real economy and without loss of public funds.

The establishment of minimum standards for the resolution of EU banks is an important development. It ensures that all EU member states have a sufficiently robust resolution framework and sets out how cross-border co-operation should operate with regard to resolution. It thereby reduces the probability of adverse spillovers within the EU, in the event that a firm which is incorporated in the EU requires resolution. In implementing global standards through the BRRD, the EU has largely struck an appropriate balance between requiring a robust application of those standards, whilst allowing national authorities appropriate operational flexibility when taking actions to enhance resolvability or when implementing a resolution.

Example 3: The Solvency II Directive

Unlike for banks and investment firms, there are no comprehensive globally-agreed capital standards for insurers. Solvency II will raise the standards of prudential supervision for insurance firms in the EU by consolidating the previous patchwork of prudential supervision of insurance firms. At the same time, it will embed the core principles required for sound regulation, requiring of firms: appropriate market-based valuation methodologies, a comprehensive measure of risk and solvency covering all group activities, and capital resources of an appropriate quality to absorb loss. This should provide for better protection of insurance policyholders and reduce risks to financial stability.

Solvency II follows a maximum-harmonised approach in most areas, however, including for establishing capital requirements and disclosure. Given the structural differences in the insurance industries across EU member states, this could in future reduce the ability of regulators to account for country- or firm-specific risks. There are also no express provisions for national authorities to introduce or use macroprudential tools in the insurance sector.

Example 4: Macroprudential policy tools

Since the financial crisis it has been increasingly recognised that regulatory frameworks need to explicitly address potential risks from the financial system as a whole. The FPC's powers over the counter cyclical capital buffer (CCB) are derived from CRD IV and CRR. This EU legislation also puts in place a comprehensive framework for policy co-ordination and reciprocation between EU member

[54] Contingent capital instruments convert to Core Equity Tier 1 (CET1) eligible capital instruments in the event that that bank's CET1 ratio falls below the specified threshold in order to provide additional going concern loss absorbing capacity. CRR specifies that this threshold must be 5.125% CET1 in order for the instruments to count towards banks' Additional Tier 1 capital requirements for the purposes of the risk-based capital requirements.

[55] For the latest version, see FSB (2014), 'Key attributes of effective resolution regimes for financial institutions', available at www.financialstabilityboard.org/2014/10/r_141015/

states when setting the CCB, with an important role for the European Systemic Risk Board (ESRB). The other three tools over which the FPC has powers of direction – sectoral capital requirements (SCRs), leverage ratio and housing tools – are compliant with the CRD IV / CRR regime, which also specify EU approval procedures for changes to the SCRs, but the powers are contained in UK legislation. Those three tools are not subject to formal reciprocation requirements.

The international reciprocity for the CCB helps to ensure that macroprudential policy decisions are implemented effectively and that cross-border leakages are dealt with appropriately. Macroprudential toolkits, both in the UK and internationally, are still evolving and the EU framework around these will continue to evolve alongside that. As this happens, it will be important that, alongside appropriate cross-border co-operation, there is sufficient flexibility for national competent authorities to use macroprudential tools in a way that recognises fully both cyclical and structural differences across EU member states.

Overall, finding the right balance between full harmonisation and national flexibility has been more challenging in the post-crisis period. The need for national regulators and supervisors to have the flexibility in applying EU rules to address the particular risks they face has in the main been respected. However, the general movement away from setting minimum standards in favour of 'maximum harmonisation' which prevents national authorities strengthening regulation to meet particular risks in their jurisdiction has in some instances been problematic.

4.6 Prospects for the evolution of the EU regulatory framework and further integration of the euro area

Looking forward, ensuring the Bank of England has the instruments necessary to deliver on its financial stability objective will depend on the EU continuing to have regulations of the highest standards, which strike the appropriate balance between harmonisation and flexibility, and accommodate national responsibilities, including for supervision. The scale and nature of risks to the financial system and to financial firms changes quickly and the UK regulatory and supervisory authorities will need to have the right tools within the EU framework be able to respond to risks in the bank and non-bank sectors of the system as they emerge.

The evolution of the EU's financial regulatory framework is very likely also to be influenced by the development of a Banking Union in the euro area. Banking Union is a major and welcome step towards the integration and risk sharing necessary for Economic and Monetary Union in the euro area, as set out in Chapter 3. As part of that, the Single Supervisory Mechanism (SSM) gives new supervisory powers to the ECB for large euro-area banks and charges it with ensuring a coherent and consistent application of the 'Single Rulebook' for prudential regulation in the euro area.[56] The Single Resolution Board (SRB) will be responsible from 2016 for carrying out the resolution of failing banks in the euro area. [57]

The further development of the Banking Union in the euro area can contribute significantly to increased risk sharing between the countries of the a single currency. This is likely to give rise to the need for further harmonisation of financial regulation and integration of supervision across the euro area. It is likely to lead to the reduction of flexibility and discretion at the level of the national authorities of euro member states in

[56] The 'Single Rulebook' is a term coined by the European Council in 2009 in order to refer to the aim of a unified regulatory framework for financial services in the EU, in order to promote the single market.

[57] See, for example, 'A European Capital Markets Union: implications for growth and stability', Bank of England Financial Stability Paper, February 2015.

favour of decisions and rules by the authorities of the Banking Union – the ECB, the Single Supervisory Mechanism and the Single Resolution Authority. Closer financial integration in the euro area also requires increased risk sharing in the private sector. A capital markets union in the EU is an important measure for achieving this, which will be benefit all EU member states, particularly those within the euro area.

It is important, particularly given the weight of the ECB and of the members of the single currency within the EU, that arrangements are put in place so that the future development of the EU regulatory framework aids the necessary deepening of the integration in the euro area without impairing the ability of the Bank of England to meet its financial stability objective or compromising the single market.

Summary

EU membership does not prevent the MPC from achieving monetary stability in the UK, but the impact of EU membership on financial stability is more challenging. Greatly increased financial openness, in part associated with EU membership, has made the UK financial system larger, more complex and more exposed to shocks from abroad. These developments reinforced domestically generated vulnerabilities in the run up to the global financial crisis. The UK, along with many of its main international partners, lacked the institutions and tools for managing the build-up of risks from financial openness and for addressing them when they crystallised. As a result, when the crisis hit, global shocks were transmitted virulently across borders, doing great damage to the financial systems and real economies of many countries. The UK was particularly affected as its institutional framework and policy tools proved inadequate given its high degree of financial openness.

Financial stability is ultimately a national responsibility. The Bank of England is charged with ensuring UK financial stability and is accountable to the UK parliament. The UK taxpayer is the ultimate backstop of the UK financial system.

The UK's institutional framework for financial stability has been comprehensively reformed since the crisis, with the creation of the Financial Policy Committee and the Prudential Regulation Authority of the Bank of England and the Financial Conduct Authority. These reforms provide the UK with a coherent architecture of national macroprudential and microprudential regulators and supervisors commensurate with the scale and nature of the risks that the UK's high degree of financial openness can pose. These provide the foundation for the UK to maintain and develop its role as the world's leading international financial centre, one which can safely be home to the largest global, systemically important banks and insurers.

Strong domestic frameworks are however only one element of the management and mitigation of the risks from financial openness. Domestic regulators must also have the tools and the flexibility to use them to do the job. UK authorities depend in no small part on the quality of regulation in the home jurisdictions of foreign financial firms active in the UK. The UK's membership of the EU is especially relevant in both respects.

Participation in the single market means that the majority of the legislation and regulation applying to the financial sector in the UK is determined at EU level. Such EU legislation and regulation must balance the achievement of the safety and soundness of firms and overall financial stability of the system with the need to ensure the fair competition and common rules necessary for the single market. To the extent EU regulation is of high quality and incorporates relevant international standards, it raises standards and reduces risks across the EU. Since it has the force of law, it also enables the UK authorities to have far

greater assurance as to the safety and soundness of the large number of financial firms from other EU jurisdictions that operate in the UK. This is particularly important as under the rules of the single market, it is not possible to require EU firms that operate in the UK to establish subsidiaries regulated and supervised by the UK authorities.

As home to the world's leading international financial centre, it is vital that UK authorities are able to apply the highest standards and have the flexibility to take action to address particular financial stability risks. The scale, complexity and degree of global activity of the UK financial system are unmatched in the European Union. More foreign banks operate in the UK than any other country, and around half of the world's largest financial firms have their European headquarters in the UK. The UK has the largest global share of cross-border bank lending, foreign exchange trading and interest rate OTC derivatives. It has the third largest insurance industry and the second largest asset management industries in the world. The assets of the UK banking sector are four times UK GDP and non-bank financial institutions are a similar size. In 2012, the financial services sector accounted for 8% of UK output and around 3½% of employment.

Following the financial crisis, the EU has carried out a major legislative and regulatory programme which implemented and often exceeded the internationally agreed G20 post crisis reform agenda. The Bank of England has contributed actively to this process. The resulting legislation has substantially raised the quality of regulation in the EU overall. The need for national regulators and supervisors to have the flexibility in applying EU rules to address the particular risks they face has in the main been respected. However, the general movement away from setting minimum standards in favour of 'maximum harmonisation', which prevents national authorities from strengthening regulation to meet particular risks in their jurisdiction, has in some instances been problematic.

How financial regulation in the EU evolves will be important to the resilience of both the euro area and the UK. Ensuring the Bank of England has the instruments necessary to achieve its financial stability objective will depend on the EU continuing to have regulations of the highest standards, which strike the appropriate balance between harmonisation and flexibility, and accommodate necessary national responsibilities, including for supervision. In addition, closer union between euro-area member states is likely to necessitate further harmonisation of financial regulation across the euro area. It is also likely to lead to reduced flexibility and discretion of the national authorities of euro-area member states in favour of decisions and rules by the authorities of the Banking Union – the ECB, the Single Supervisory Mechanism and the Single Resolution Authority. It is important, particularly given the weight of the ECB and of the members of the single currency within the EU, that arrangements are put in place so that the future development of the EU regulatory framework aids the necessary deepening of integration in the euro area without impairing the ability of the Bank of England to meet its financial stability objective or compromising the single market.

Annex 1: External estimates of the impact of EU membership on the UK economy

It is difficult to quantify the precise impact of EU membership on the UK economy. First of all, it is impossible to say with any certainty what the UK economy would have looked like had the UK not joined the EU in 1973. Second, EU membership affects the UK economy in many different ways, and through many different channels, at least some of which are not easy to quantify with any degree of certainty. Third, any quantitative assessment will necessarily depend on a wide range of very uncertain economic assumptions.

Despite these difficulties, several studies have attempted to quantify the costs and benefits of EU membership. Many of these studies tend to either focus on the benefits of trade liberalisation[58] or of the single market[59] or of membership of the euro.[60] There are very few studies that look at the ex-post benefits of EU membership as a whole - even fewer do so for the UK – and none of these studies provide an exhaustive evaluation of all the potential economic channels. Moreover, the majority of these studies tend to focus on the 'static' benefits from EU membership (such as increases in market size) that lead to a one-off increase in the level of GDP, rather than the 'dynamic' benefits from EU membership (such as technology transfer and innovation) that might lead to a persistent increase in the long-run growth rate of the economy.

Table 1 summarises a number of estimates of the net impact of EU membership on the UK economy. It is not intended as a comprehensive list of all the studies in this area.[61] Rather, it is meant to highlight the uncertainties and sensitivities around quantifying the role of the EU. The estimates range from anywhere between -4.5% to +20% of annual GDP, largely reflecting the different assumptions and methodologies used. The papers that tend to find a negative impact of EU membership tend to focus on the 'static' costs - associated with regulation, immigration or the UK's contribution to the EU Budget in a given year- summing them up to produce an overall cost. However, these papers fail to take account of the potential 'dynamic' effects associated with EU membership. Moreover, the counterfactual scenarios considered in these studies only cover a sub-set of possibilities for the UK's relationship with the EU and the rest of the world as a non-member. As noted by Boltho and Eichengreen (2008), "imagining a counterfactual is no easy task".

A novel approach employed recently is based on constructing 'synthetic counterfactuals' for various stages of EU integration (Campos, Coricelli and Moretti (2014)). This study uses other small open economies outside the EU as a proxy for how countries would have evolved outside the EU. In the case of the UK, it is assumed that EU membership may have boosted GDP in the UK by 20%.

Other recent studies have explicitly assessed the costs, or benefits, of leaving the EU. These studies, which take different approaches, estimate that, if the UK were to leave the EU, annual GDP could be anywhere from 9.5% lower to 1.6% higher (or equivalently, implicitly estimate that the net benefit of EU membership is between -1.6% to + 9.5% of GDP). The wide range around these estimates reflects the uncertainty around the UK's future relationship with the EU following exit. The study by the CEP at LSE in 2014

[58] Baldwin (1989), Anderson and Van-Wincoop (2003),

[59] Baldwin and Seghezza (1996), EC (1996)

[60] Frankel (2010)

[61] See Badinger and Breuss (2011) and Sapir (2011) for a survey of the literature.

calculated that UK GDP would be reduced by up to 9.5% of GDP in a world where the UK is not able to negotiate favourable trade terms. Under a more optimistic scenario, in which the UK continues to have a free trade agreement (FTA) with the EU, they estimate losses to be around 2.2% of GDP. Open Europe (2015) calculate a positive impact of UK exit on GDP under their optimistic scenario. In that scenario, the UK manages to enter into liberal trade arrangements with both EU and non-EU economies, while pursuing large-scale deregulation at home, which boosts GDP by +1.6% (in 2030).

Table 1: Summary of studies that provide partial estimates of the net benefits associated with UK membership of the EU

Authors	Impact on the level of GDP of EU membership[1]
Campos, Coricelli and Moretti (2014)	+20% [2]
CEP(2014)*	+2.2% to +9.5%
CBI (2013, literature review)	+4% to +5%
Mansfield – Brexit Prize (2014)*	-1.1% to +2.6%
Pain & Young (2004)*	+2.25%
Open Europe (2015)*	-1.6% to +2.2%
US International Trade Commission (2000)*	+0.02%
IoD(2000)	-1.75%
IEA (Minford et al)(2005)	-3.2% to -3.7%
Civitas (2004)	-4.0%
UKIP (2010)	- 5.0%

[1] Studies highlighted with a "*" in the table are those which estimate the costs or benefits of the UK leaving the EU. In the table, these studies are converted to provide an implicit impact on UK GDP associated with membership of the EU. Where ranges are shown for these studies, this represents uncertainty around the terms of a post-exit renegotiation.
[2] Relative to a synthetic counterfactual.

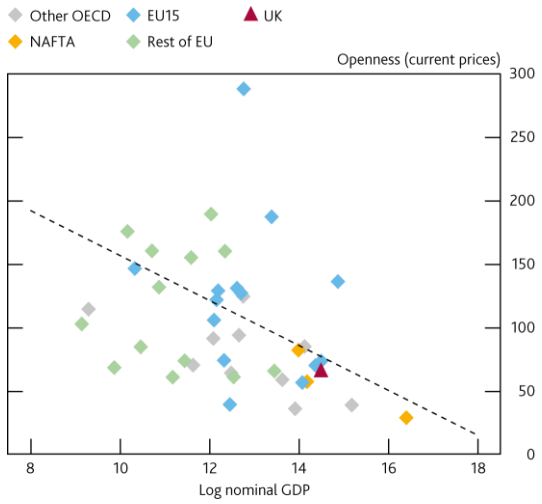
Annex 2: Defining openness

EU membership affects the openness of the UK economy through the free movement of goods, services, capital and labour (the so-called 'four freedoms'). The 'openness' of an economy can be thought of as the ease with which goods, services, capital and labour move across borders. But in practice, openness is hard to measure, which means that there is a need for proxy measures to be used instead. This annex describes measures that are commonly used to capture openness in trade, financial services, capital markets and labour markets.

Trade openness: Empirical studies have estimated trade openness in many ways. The two most commonly used measures are: trade intensity and trade costs.

Trade intensity captures the total amount of trade in goods and services relative to the overall size of the economy. Importantly, this measure will be influenced by the economic size of a country: smaller countries are likely to trade more than larger countries simply because they produce fewer goods domestically. As **Chart 2A** shows, countries with lower GDP are, on average, associated with a higher level of trade openness on this measure. As a result, trade intensity measures such as those shown in **Chart 1.1** in Chapter 1 need to be interpreted carefully. Still, **Chart 2A** shows that even for a given country size, EU countries are on average more open than other advanced economies.

Chart 2A: Ratio of trade volumes relative to GDP and country size, 2010



Source: Penn World Tables, Version 8.1 (Feenstra, Inklaar & Timmer, 2015).

Notes: Openness measure calculated using nominal goods trade at 2005 US$ PPPs. Dashed line represents the correlation across OECD countries.

Trade costs capture tariff and non-tariff barriers to trade, which are less likely to be distorted by the relative wealth of a country. **Chart 1.3** in Chapter 1 shows that members of the EU face lower costs of trading with each other than non-EU economies face when trading with the EU. However, trade costs can be difficult to compute because it is hard to measure accurately non-tariff barriers such as transport costs, legal costs and linguistic differences.

Openness in capital markets: The ideal way to measure financial openness would be the ease with which cross-border financial transactions can take place. Two methods are commonly used to assess openness in the literature: *de jure* indicators which assess the extent of regulatory controls on capital movement and *de facto* indicators which assess the extent of cross-border capital flows. The IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) is the primary source for most *de jure* indicators of financial openness. The two most commonly used indices in the literature are Chinn-Ito[62] and Quinn-Toyoda[63] because of the breadth of their long time series and their cross-country coverage. **Chart 1.5** in

[62] The Chinn-Ito index is based on the binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER).

[63] The Quinn-Toyoda index is created from the text published in the IMF's annual AREAER volume that reports on the restrictions on international financial transactions. These indicators take a different approach to the Chinn-Ito index by offering a measurement not only of the existence (absence) of restrictions, but the severity or magnitude of those restrictions. The authors construct measures of capital account and financial current account openness for 94 nations between 1950-2009. For more detail, see http://rfs.oxfordjournals.org/content/21/3/1403.full.pdf+html

Chapter 1, based on the Chinn-Ito measure, shows that the UK and other EU countries, on average, have significantly deregulated their capital accounts over the past 40 years. But these changes have lagged the US and Japan for most EU countries, with Germany a notable exception.

A limitation of *de jure* measures is that they do not capture the extent of cross-border activity – hence the use of *de facto* indicators. A commonly used metric of *de facto* financial openness is the sum of external assets and liabilities relative to GDP. **Chart 1.4** in Chapter 1 shows that the sum of external assets and liabilities relative to GDP for the UK has increased dramatically since the UK became a member of the EU in 1973. Measures shown in **Chart 1.4** and **Chart 1.5** are often used together to illustrate the extent of capital account openness of countries. And there tends to be a high correlation between *de jure* and *de facto* indicators. So countries that have fewer capital restrictions tend to have a larger stock of external assets and liabilities than countries with greater restrictions.

Openness in financial services: Openness in financial services should reflect the ease with which foreign institutions can establish themselves in the UK and provide services as well as the ease with which UK financial institutions can conduct business abroad. There are a wide range of measures used to measure the financial services element of financial openness: the size of cross-border trade in financial services; the number of foreign financial institutions in a country and the number of domestically-owned financial institutions with foreign branches; and the scale of foreign financial activity in a country and the scale of global activity of domestically owned financial institutions.

Cross-border trade in financial services captures the extent to which a country exports and imports financial services. **Chart 1.9** in Chapter 1 shows that the UK's exports and imports of financial services increased substantially relative to GDP between the early 1990s and the start of the financial crisis. However, this measure is based on the contribution of exports and imports to domestic output which is not straightforward and involves a number of assumptions.[64] Measures that calculate the scale of foreign financial activity in the UK (**Chart 1.11** in Chapter 1) and global financial activity (**Chart 1.12** in Chapter 1) may therefore be a better representation of the financial services element of UK financial openness. Chart **1.11** shows that around 50% of banking assets in the UK are held by foreign-owned banks (with around a third of that held by EU banks in the European Economic Area (EEA)). **Chart 1.12** shows that the UK is a leading centre of global financial activity.

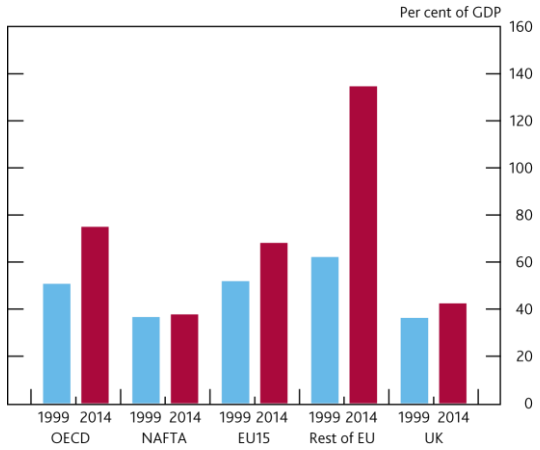
Openness in labour markets: Openness in the labour market is defined as the ease with which people can move into and out of a country. Chapter 1 focuses on two metrics of labour market openness – migration flows and labour market mobility. Migration flows capture the number of people moving in and out of a country. **Chart 1.17** in Chapter 1 shows that both immigration and emigration flows have increased since the mid-1990s. However, this measure does not capture the ease with which these people can move in and out of the country. Labour mobility measures can capture the extent to which workers are able or willing to move between countries. A commonly used measure of labour mobility is the extent to which the population in a country (or a region) relocates every year. As **Chart 1.20** in Chapter 1 shows, rates of mobility between EU member states are low compared to those within EU countries and other advanced economies**.** Around 2.5% of the US population relocates to a different state every year while within the EU the equivalent figure is around 0.3%.

[64] For more detail, see Burgess (2011) http://www.bankofengland.co.uk/publications/Documents/quarterlybulletin/qb110304.pdf

Annex 3: Goods and Services Trade Patterns

The pattern of trade in goods and services can differ across countries. Alongside measures of aggregate trade openness, it is useful to look at openness in the goods and services sectors separately. While there has been an increase in trade openness in both goods and services over time, cross-border services flows are much smaller than cross-border goods flows **(Charts 3A and 3B).** This likely reflects the fact that some services are non-tradable as well as the fact that legal, regulatory and cultural barriers mean that trade in services tends to be less open than trade in goods, not only across the EU but globally. Over the past fifteen years, EU countries have seen the largest increases in their trade openness amongst OECD peers: this is especially true for the newer EU member states for goods, and for older member states in services**.** In contrast, NAFTA members have seen their level of trade openness largely unchanged.

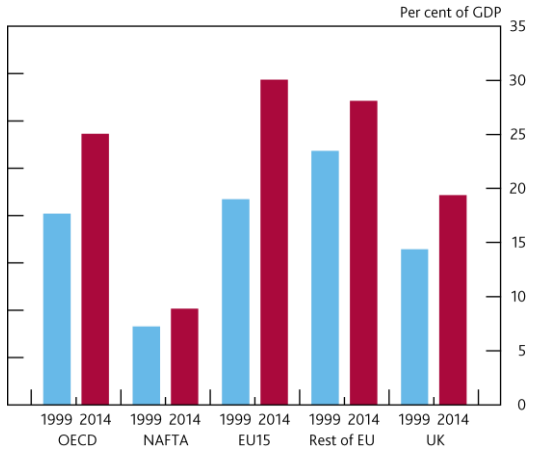
Chart 3A: Trade openness, goods



Source: OECD National Accounts

Notes: Due to data availability OECD excludes Luxembourg and Poland; EU15 excludes Luxembourg; Rest of EU excludes Poland, Bulgaria, Romania, Malta, Cyprus and Croatia.

Chart 3B: Trade openness, services

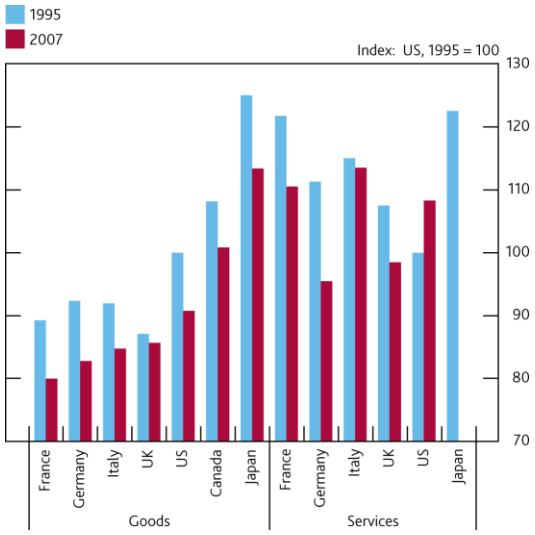


Source: OECD National Accounts

Notes: Due to data availability OECD excludes Luxembourg and Poland; EU15 excludes Luxembourg; Rest of EU excludes Poland, Bulgaria, Romania, Malta, Cyprus and Croatia.

Alternative measures of openness, as proxied by trade costs, suggest that both goods and services trade integration for the UK and EU countries has increased since the mid-1990s **(Chart 3C)**. Moreover, the services measure suggests that trade costs have fallen in EU countries while they have increased for the US. Miroudot, Sauvage & Shepherd (2013) show that this is particularly true for the newer member states. In part, this reflects the EU's initiatives to deepen the integration in services over the past ten years. Indeed the EU single market in services is further from completion than that in goods and the European Commission regards completion of the single market in services as one of its key priorities.[65]

Chart 3C: Ad-valorem equivalent trade costs



Source: World Bank-UNESCAP Trade Costs Database for goods. Miroudot, Sauvage & Shepherd (2013) for services.

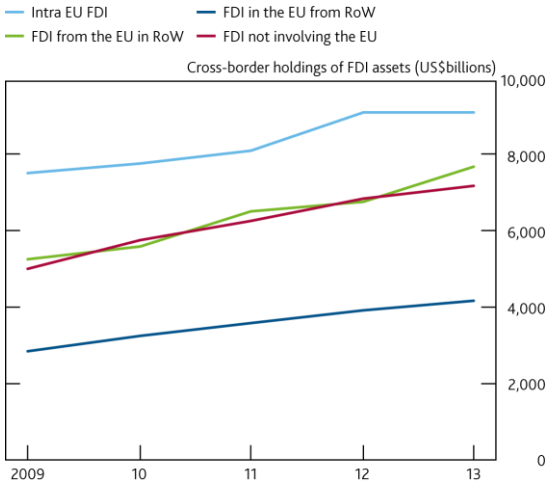
Notes: Trade costs are expressed as the equivalent of a tariff paid on the value of the import ("ad valorem equivalent"). All data are for 2008. Averages are weighted using bilateral GDPs.

[65] For more detail, see: http://ec.europa.eu/growth/single-market/services/services-directive/index_en.htm

Annex 4: Measuring the destination of FDI flows

The EU accounts for a significant proportion of the stock of global FDI. As **Chart 4A** shows, cross-border FDI investment involving the EU is much larger than cross-border FDI investment not involving the EU. In addition, FDI inflows have increased faster in both the UK and the rest of the EU (as a percentage of GDP) than in the US and the rest of the world since the establishment of the single market on 1 January 1993 **(Chart 4B)**.

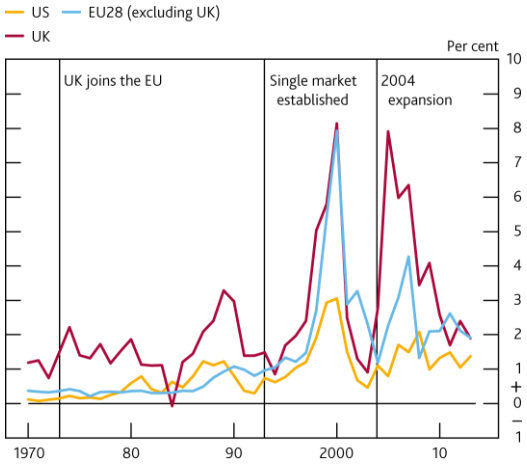
Chart 4A: Cross-border stock of FDI



Source: IMF Coordinated Direct Investment Survey

Note: Series show best data available, although some countries have missing values.

Chart 4B: FDI inflows over time (as a % of GDP)



Source: UNCTAD

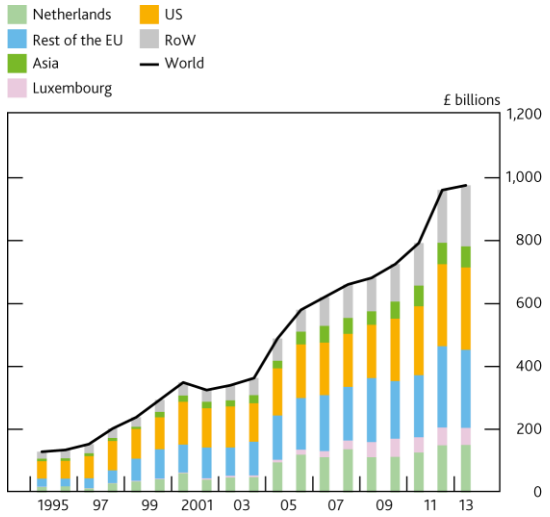
The EU is a significant source of and destination for FDI for the UK. The EU accounts for around 46% of the stock of inward FDI and around 43% of outward FDI for the UK **(Charts 4C and 4D)**. Within the EU, the Netherlands is the largest originator of UK inward FDI accounting for 15% of the total; France and Germany account for 8% and 6% respectively. Luxembourg and the UK offshore Islands account for around 5% of inward FDI each. In terms of outward FDI, the Netherlands and Luxembourg are also important as a destination of UK FDI (12% and 9% respectively). France accounts for 5%, Germany just 2% and the UK offshore Islands account for around 4%.

In an economic sense, jurisdictions like the Netherlands, Luxembourg or the UK offshore islands may be less important as a source of or destination for FDI if they serve as entrepôt centres for FDI flows. As noted in a recent OECD paper[66] "*some multinationals use complex ownership structures to manage their global operations, their finances, and their intellectual property as well as to reduce their tax and regulatory burdens.*" These structures can have a distortionary impact on FDI data so that, for example, particular countries might appear more important as a geographic counterpart of FDI than they are in an underlying economic sense. Changes to statistical reporting standards aim to address some of these issues with FDI data increasingly reported on an 'ultimate investing country' basis rather than the previous 'immediate partner country' basis. These data are not yet available for the UK, but are available for some countries including the US, France and Poland.

66 http://www.oecd.org/daf/inv/FDI-statistics-by-ultimate-investing-country.pdf

According to the OECD, switching to an ultimate investor basis significantly reduces the importance of the Netherlands and to a lesser extent Switzerland as investors in the US. The importance of Canada, Germany and Ireland increases. The UK, which is the largest investor in the US, is little changed in importance by the switch in methodology. For France, switching to an ultimate investor basis significantly reduces the importance of the Netherlands and Luxembourg as sources of inward investment with the importance of the US rising substantially. A similar switch is evident in the Polish data.

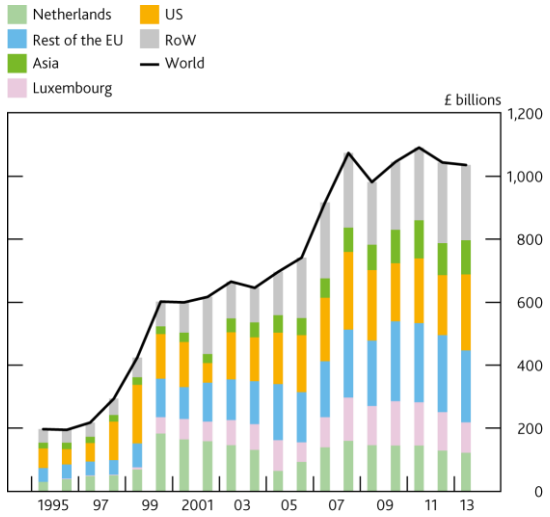
Chart 4C: Inward FDI by country



Source: ONS

Notes: EU data are for EU28. But, due to data availability, Croatia is excluded from the EU prior to 2004; Bulgaria and Romania are excluded prior to 1997. Pre-2012, data are on a BPM5 rather than BPM6 basis.

Chart 4D: Outward FDI by country



Source: ONS

Notes: EU data are for EU28. But, due to data availability, Croatia is excluded from the EU prior to 2004; Bulgaria and Romania are excluded prior to 1997. Pre-2012, data are on a BPM5 rather than BPM6 basis.

While lack of data limits our ability to draw firm conclusions for the UK's FDI position, the experience of other countries suggest that data reported on an 'ultimate investing country' basis could reduce the contribution from the Netherlands and Luxembourg (which together account for around 20% of UK inward and outward FDI). If the French and Polish patterns were repeated, there might be a relative increase in the importance of the US for inward FDI into the UK. That said, when the US investment data are adjusted, the UK's position as a destination for US FDI is little changed. The Office for National Statistics have started collecting data on an 'ultimate investing country' basis and are aiming to publish a supplementary report on FDI statistics in the near future.

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