

4 Risks from the financial sector

Introduction

- 4.1 The financial sector is of particular importance to the economy and to the public finances. It is a source of employment and tax revenue in its own right, as well as facilitating saving and investment in the wider economy. Moreover, its importance in the UK is greater than in many other countries. But this importance also brings risks – be that the sudden consequences of financial crises, with large direct and indirect costs, or the gradual loss of revenue and economic benefits should the sector suffer a period of relative decline.
- 4.2 This chapter discusses:
- key features of the **financial sector**;
 - the impact of **financial crises** on the economy and the public finances;
 - **risks in the UK financial sector today**;
 - the associated **risks to our medium-term fiscal forecast**;
 - the possible **risks to fiscal sustainability**;
 - some **conclusions** that can be drawn; and
 - **issues for the Government's response**.

Characteristics of the financial sector

- 4.3 The financial sector's economic importance arises from its roles in clearing payments between individuals, in intermediating the flow of funds from savers to borrowers and in providing ancillary services to meet investor demand and to reallocate risks towards those who are better able to bear them. In deciding who to provide loans to, banks and other financial intermediaries also play a central allocative function. Disruption to the ability of financial intermediaries to carry out these functions can have very large costs.
- 4.4 Empirical analysis suggests that an efficient and effective financial sector facilitates economic growth and development. For example, countries with larger banking systems and more developed stock markets have been found to grow faster.¹ But there may be a limit to that relationship – some studies have found that an oversized banking system

¹ Levine, *Financial development and economic growth: views and agenda*, World Bank Policy Research Working Paper Series 1678, 1996.

(measured by the credit-to-GDP ratio) actually inhibits economic growth, perhaps by acting as a magnet for scarce skilled resources. In practice, the relationship between credit and economic growth is likely to be influenced by a number of factors, including whether lending finances productive investment or speculative bubbles and how finance is provided, for example via derivative instruments or more traditional bank lending.²

Size and composition of the UK financial sector

4.5 The UK financial sector has grown rapidly in recent decades and, despite shrinking in the aftermath of the recent financial crisis, it remains a prominent part of the economy:

- Measured in terms of the financial sector's **consolidated non-equity liabilities**, shown in Chart 4.1, the UK financial sector is around nine times larger than annual nominal GDP. That is greater than in any other major European country.
- Value added by the finance and insurance industry, as defined in the National Accounts, accounted for around 7 per cent of **national output** in 2016, down from a peak of 9 per cent in 2009 but still above the EU average of around 5 per cent.^{3,4}
- As of December 2016, finance and insurance accounted for 3 per cent of workforce **jobs**,⁵ but 10 per cent of the jobs in the top decile of the earnings distribution.⁶
- Finance and insurance generates a significant **trade surplus** that partly offsets the deficits in many other sectors – and which is bigger than the equivalent surpluses in most other advanced economies. The UK financial services trade surplus stood at 2.3 per cent of GDP in 2016, almost four times the EU average of 0.6 per cent.

4.6 The financial sector encompasses many activities, including at its core the banking sector. Since the 1970s, the assets of UK banks (known as 'monetary financial institutions' in the official statistics) have increased more than fourfold⁷ and in 2015 stood at around 5½ times GDP (Chart 4.2).⁸ This makes the UK's banking sector the largest among major OECD countries and, relative to the size of the economy, more than five times bigger than the banking sector in the US.⁹ Around half of UK banks' assets are loans to households, companies and public sector bodies, and half are interbank loans and derivatives.

² Arcand, Berkes and Panizza, *Too much finance?*, IMF Working paper 12/161, 2012.

³ ONS, UK GDP(O) low level aggregates, June 2017.

⁴ OECD, *Value added by activity*, 2017.

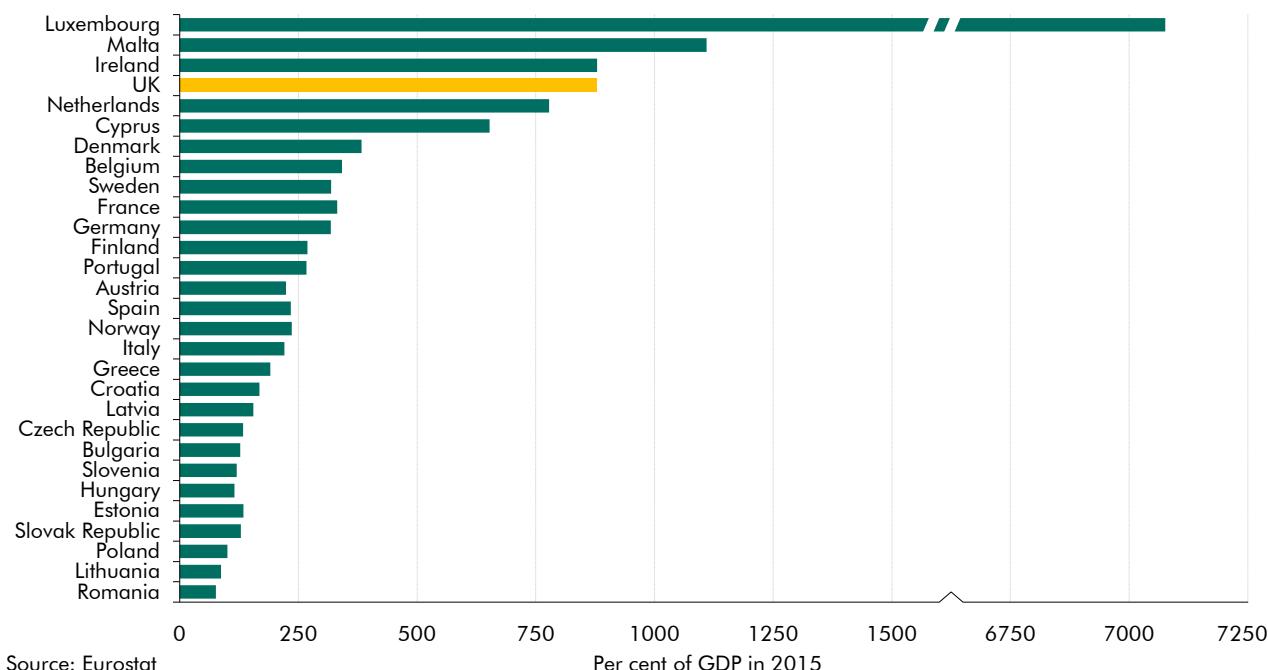
⁵ ONS, *Workforce jobs by industry*, 2017.

⁶ ONS, *Number and share of employees within the 90th percentile of the earnings distribution by industry using bonus adjusted ASHE 2016 provisional UK*, 2017. This refers to those within and above the 90th percentile of the earnings distribution, not just those within it.

⁷ Bean, *Independent review of UK economic statistic*, 2016.

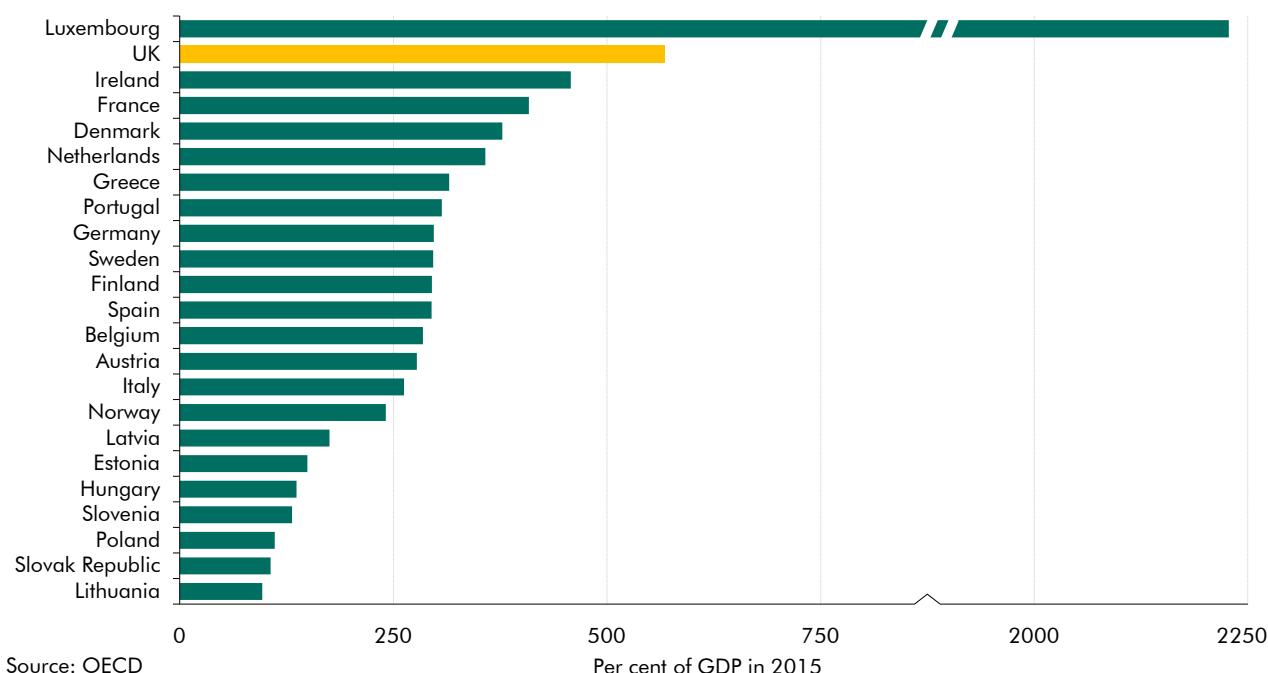
⁸ This measures the banking system's assets according to the National Accounts definition of residence.

⁹ Bush, Knott and Peacock, *Why is the UK banking system so big and is that a problem?*, Bank of England Quarterly Bulletin Q2, 2014.

Chart 4.1: Consolidated non-equity liabilities of financial corporations in Europe

Source: Eurostat

Per cent of GDP in 2015

Chart 4.2: Banks' assets relative to nominal GDP

Source: OECD

Per cent of GDP in 2015

Direct implications for the public finances

- 4.7 The financial sector is more important to the public finances than its 7 per cent contribution to national output might suggest. This reflects both the high average pay rates in the sector and differences in how financial sector companies are taxed relative to other sectors. For example, in 2014-15 the financial sector accounts for only 3 per cent of total jobs, but 7 per cent of total pay and 12 per cent of PAYE income tax and NICs receipts (because of the

progressive design of income tax). The financial sector also contributes a disproportionately large share of corporate taxes, including 17 per cent of onshore corporation tax, plus all receipts from the bank levy and bank surcharge. Together these raised £12.7 billion in 2016-17, but we forecast that will fall to £10.1 billion by 2021-22 as the bank levy rate is cut progressively. It is worth noting that taxable financial company profits differ substantively from the National Accounts measure of 'financial company gross trading profits', which excludes estimates of the value of implicit intermediation services provided by the financial sector (and is difficult to interpret).

Market failures in the financial system

4.8 Banking systems tend to be heavily regulated, which reflects the fact that governments believe that the market for banking services, left to its own devices, would deliver economically inefficient outcomes. The potential 'market failures' in banking include:

- **Systemic risk:** the many interlinkages within the financial sector mean that the failure of one institution could precipitate the failure of others and lead to a severe economic downturn. Individual institutions cannot be expected to internalise the cost that their actions might have on the system as a whole.
- **Too big to fail** (a form of systemic risk): governments often feel compelled to provide financial support when large and complex financial institutions get into serious difficulty (a 'bail out'), because of the wider economic costs if it was allowed to fail. But implicit (or even explicit) state guarantees of this sort means that the bank's creditors will be insulated from losses, unless there are explicit mechanisms to 'bail them in'. This implicit subsidy to the bank's creditors in the event of failure means that the cost of bank debt is artificially low, encouraging excessive expansion of the bank's balance sheet and increasing the risk of failure. In effect, the gains from banking accrue privately, but the losses in times of severe stress are transferred to the public sector.
- **Herding behaviour:** financial markets can exhibit herding behaviour, where correlated decisions can lead to inefficient outcomes. If there is imperfect information in the market, firms may feel compelled to follow the actions of competitors that they think may be better informed. Investors may also behave irrationally, for example taking inefficient actions purely for reputational reasons. After the last crisis, the role of league tables in signalling brokers' status was seen as one cause of herding behaviour, with firms chasing activity to move up the league table and thereby secure more business. The irrational nature of some pre-crisis activity was summed up by the infamous comment in 2007 by Citigroup's then CEO Chuck Prince that "...as long as the music is playing, you've got to get up and dance. We're still dancing."
- **Myopia:** some managers and traders may adopt an overly short-term perspective in taking decisions. That may arise from informational and behavioural factors, but may also reflect remuneration arrangements that pay too much attention to short-term, rather than long-term, performance.

Regulatory responses to market failures

- 4.9 In the UK, the regulatory framework is set by the Treasury and operated by the Bank of England. The Prudential Regulation Authority (PRA) is responsible for the micro-prudential regulation and supervision of individual institutions, while the Financial Policy Committee (FPC) is responsible for the oversight and regulation of the system as a whole ('macro-prudential policy'). Box 4.1 summarises the current regulatory framework and the steps that governments have taken to improve its effectiveness since the financial crisis.
- 4.10 The financial sector is unusual in the volume of regulation that applies if an institution fails. This is due to systemic risk and contagion effects – the possibility of 'bank runs' if concerns spread about the health of specific institutions or the system as a whole. The rules governing resolution in the event of failure aim to transfer the direct financial risk from government to the creditors of the institution through 'bail-in', reducing the implicit contingent liability and improving the incentives faced by financial institutions and their creditors.
- 4.11 A key challenge for government is to strike the right balance between over- and under-regulation. Either could be a source of economic and fiscal risk. By imposing greater costs on institutions, excessively heavy and complex regulation could impair the efficiency of the financial system and the wider economy – with lower economic activity feeding through into weaker public finances. Conversely, excessively lax regulation could allow risks to build up that generate large economic and fiscal costs should they materialise. The late-2000s crisis had a deep and lasting effect on output, employment and the public finances.
- 4.12 This balancing act helps to explain why the scale and scope of regulation ebbs and flows over time, being ramped up after crises and then eased again as the memory of them fades. For example, the US Glass-Steagall Banking Act of 1933 was introduced as a response to the Wall Street crash of 1929 and the Great Depression that followed. It was repealed in 1999 – a decision that has since been linked by some to the build-up of risk that preceded the late 2000s crisis. The Dodd-Frank 'Wall Street Reform and Consumer Protection Act' of 2010 saw the pendulum swing back again.

Financial crises and their fiscal impact

Types and frequency of financial crises

- 4.13 Financial crises come in many forms and have multiple dimensions. It is difficult to characterise them with a single indicator, but there are some common elements that tend to reappear. Most notably, financial crises have been associated with:
- substantial **changes in credit volume and asset prices**;
 - severe **disruptions to financial intermediation** and the supply of external finance to actors in the economy;

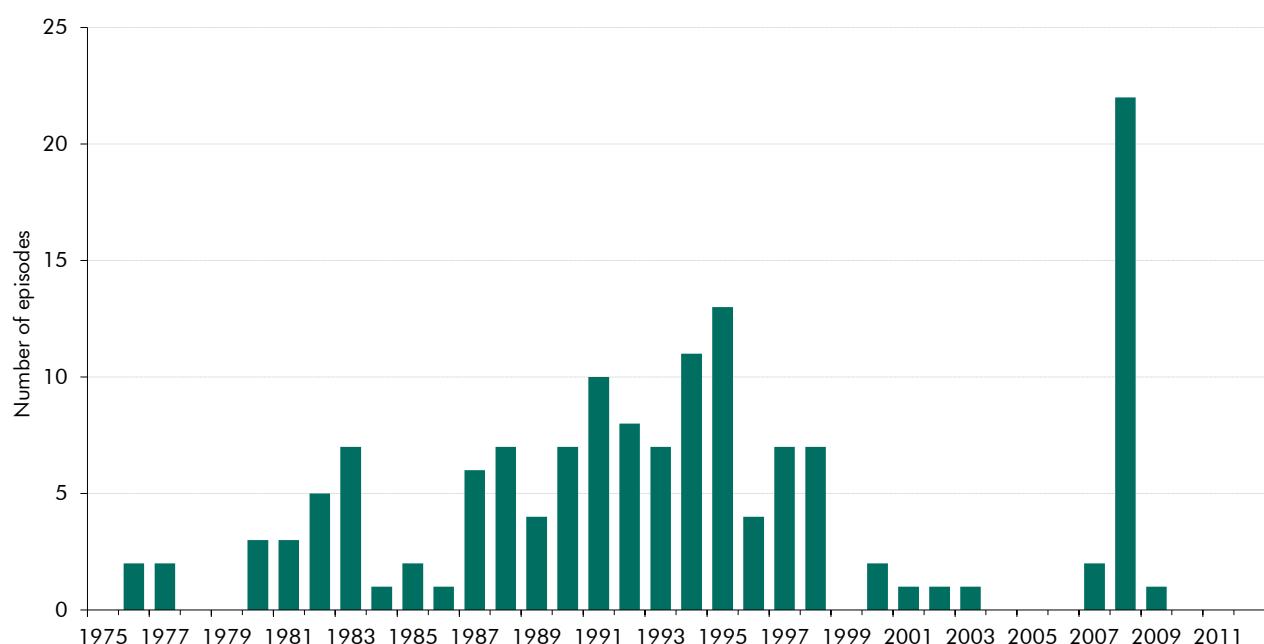
Risks from the financial sector

- large-scale **balance sheet problems** (of firms, households, financial intermediaries and sovereigns); and
- large-scale **government support** (in the form of liquidity support and recapitalisation).¹⁰

Studies distinguish between currency, banking and debt crises, but these often coincide.¹¹

- 4.14 Financial crises have been relatively frequent historically.¹² Based on a global dataset compiled by the IMF, Chart 4.3 shows that there were 147 systemic banking crises globally between 1975 and 2012, directly affecting 116 countries.¹³ As the chart suggests, the financial crisis of the late 2000s was unique in its global scope, reflecting the increased cross-border exposure of countries' financial systems.

Chart 4.3: Frequency of systemic banking crisis



Source: Laeven and Valencia, 2012

- 4.15 Based on a survey of academic studies of past financial crises compiled by the Basel Committee on Banking Supervision, the Independent Commission on Banking (ICB) estimated the probability of a crisis occurring in the UK in any given year at 4.5 per cent.¹⁴ On this basis, one might expect the UK to experience a financial crisis roughly every 20 years. Of course, financial crises need not be as large as the most recent one. In the UK, for example, the 'secondary banking crisis' of the early 1970s was managed with much less damage to the economy, although – following the cyclical pattern highlighted above – it did prompt a tightening of regulation in 1979 that was subsequently relaxed.

¹⁰ Claessens and Kose, *Financial Crises: Explanations, Types and Implications*, IMF Working paper 13/28, 2013.

¹¹ Reinhart and Rogoff, *This Time is Different: Eight Centuries of Financial Folly*, 2009.

¹² Kindleberger, Manias, *Panics and Crashes: A History of Financial Crises*, 2001.

¹³ Laeven and Valencia, *Systemic Banking crises Database: An Update*, IMF, 2012.

¹⁴ HM Treasury and the Department of Business Innovation and Skills, *The Government response to the Independent Commission on Banking*, 2011.

Fiscal costs of financial crises

4.16 Financial crises can have severe fiscal implications. One study estimates that banking crises in advanced economies since 1975 have led to an average increase in public debt of more than 20 per cent of GDP.¹⁵ The fiscal impact of financial crises has two elements:

- **Direct costs:** these include the issuance of debt to finance capital injections into financial institutions ('bailing out') plus the impact of bringing institutions onto the public sector balance sheet (nationalisations).
- **Indirect costs:** these reflect the fiscal consequences of the damage that financial crises do to the economy. For example, a decline in tax revenues from weakness in nominal GDP and an increase in public spending due to higher unemployment.

Direct costs

4.17 Table 4.1 is drawn from our March 2017 *Economic and fiscal outlook (EFO)*. It shows the cash flows associated with the financial sector interventions undertaken in the UK during the late-2000s crisis, plus the sums subsequently recovered, those outstanding and the market value of the Government's remaining stakes at the end of January. Finally, it includes an estimate of the financing costs associated with these interventions.

4.18 The Government's cash outlays during the crisis reached £137 billion (9.8 per cent of annual GDP at the time). The snapshot estimate of the eventual net cost is much smaller at £23.5 billion (1.7 per cent of GDP then), including the financing costs. But this figure is only a snapshot. The estimate has ranged from £10.3 billion to £38.4 billion since we started reporting on it in our November 2011 *EFO*, as share prices have fluctuated and financing costs have risen with the passage of time. The final figure will not be known until the Government has sold all its remaining holdings (notably its 73 per cent stake in RBS).

4.19 The gross outlay attracts considerable public and political attention, but it overstates the direct cost of the interventions because it does not take account of the (admittedly uncertain) long-term value of the assets purchased. Most of the gross outlay raises public sector net debt, at least initially, as few of the assets purchased are liquid. The impact on a broader balance sheet measure like public sector net financial liabilities – which was not published at the time of the latest crisis – would be smaller as it nets off illiquid assets (like mortgages).

¹⁵ Laeven and Valencia, *Systemic Banking crises Database: An Update*, IMF, 2012.

Table 4.1: Gross and net cash flows of financial sector interventions

	£ billion							
	Lloyds	RBS	UKAR ¹	FSCS ²	CGS ³	SLS ⁴	Other	Total
Cash outlays	-20.5	-45.8	-44.1	-20.9	0.0	0.0	-5.3	-136.6
Principal repayments	18.8	3.8	33.7	5.2	0.0	0.0	5.2	66.8
Other fees received ⁵	3.2	4.2	4.3	2.7	4.3	2.3	0.2	21.1
Net cash position	1.4	-37.8	-6.1	-12.9	4.3	2.3	0.2	-48.8
Outstanding payments	0.0	0.0	10.0	15.7	0.0	0.0	0.1	25.7
Market value ⁶	2.3	19.7	8.3	0.0	0.0	0.0	0.0	30.2
Implied balance	3.7	-18.2	12.1	2.7	4.3	2.3	0.3	7.2
Exchequer financing	-3.6	-11.0	-10.2	-6.5	0.9	0.2	-0.5	-30.7
Overall balance	0.1	-29.2	1.9	-3.7	5.1	2.5	-0.2	-23.5

¹ Holdings in Bradford & Bingley and Northern Rock Asset Management plc are now managed by UK Asset Resolution.

² Financial Services Compensation Scheme.

³ Credit Guarantee Scheme.

⁴ Special Liquidity Scheme.

⁵ Fees relating to the asset protection scheme and contingent capital facility are included within the Lloyds and RBS figures.

⁶ Lloyds and RBS figures are based on average share prices in the 10 working days to 16 February 2017. UKAR is book value of equity derived from its accounts published 8 November 2016 (value up to date to 30 September 2016).

4.20 International evidence on the direct costs from financial crises have found that:

- the average cost of interventions in the late 2000s crisis in the euro area has been estimated at 4.8 per cent of GDP, though the final cost will not be known for years;¹⁶
- the median direct fiscal cost over 65 banking crises from 1980 to 2011 was about 6 per cent of GDP, though this does not account for any recouping of the interventions;¹⁷
- the gross fiscal cost of financial sector bailouts during crises in advanced economies averaged 4.2 per cent of GDP, again without accounting for any recouping;¹⁸ and
- governments sometimes profit from their interventions – the Norwegian government is estimated to have made a small gain (0.4 per cent of GDP) from its interventions during the 1990s Scandinavian banking crisis, excluding their financing cost.¹⁹

4.21 Interventions that involve cash financing are often dwarfed by the use of the public sector balance sheet more broadly. In the recent UK interventions, the direct cash outlay of £137 billion noted above was accompanied by (at their peak) a much larger £1,029 billion of government guarantees,²⁰ none of which was subsequently called upon and all of which have since been withdrawn. More importantly, any ultimate direct cost (or gain) from interventions will be small relative to the economic and fiscal cost that would have followed a decision not to intervene and to let the crisis damage the economy unimpeded.

¹⁶ Millaruelo and Del Rio, *The cost of interventions in the financial sector since 2008 in the EU countries*, Banco de Espana, 2017.

¹⁷ Amaglobeli, End, Jarmuzek, & Palombal, *From Systemic Banking Crises to Fiscal Costs: Risk Factors*, IMF Working paper 15/166, 2015.

¹⁸ Laeven and Valencia, *Systemic Banking crises Database: An Update*, IMF, 2012.

¹⁹ Honkapohja, *The 1990's financial crises in Nordic countries*, Bank of Finland, 2008.

²⁰ NAO, *Financial institutions landscape*, 2015

Indirect costs

- 4.22 The indirect fiscal costs of financial crises are those that reflect their impact on the economy. In September 2014, we published a working paper that looked in detail at the differences between the March 2008 Budget forecast produced by the Treasury just before the worst of the financial crisis and recession took hold and what actually transpired.²¹ This provides a useful benchmark for the effect on the public finances of a large multi-dimensional shock, as the economy fell into a deep recession, house prices fell sharply and the government stepped in to restore stability to the financial system.²²
- 4.23 We summarise these indirect costs in Chapter 9, where we compare them to the results of our fiscal stress test. But the main elements were:
- Public sector net debt was around £450 billion or 35 per cent of GDP higher than expected by 2012-13, the final year of the Budget 2008 forecast horizon; and
 - There was a substantial deterioration in the underlying budget deficit during the recession of around 7 per cent of GDP, which was subsequently offset by the fiscal consolidation programme. Fiscal stimulus measures and direct support for the financial sector accounted for only a small share of the initial deterioration.

Risks in the UK financial sector today

Reform of the regulatory framework

- 4.24 Since the financial crisis, successive governments have taken steps to reduce the level of risk from the financial sector. Thanks to regulation and firms' own actions, including efforts to increase capital buffers, the probability of a systematically important institution collapsing has diminished in the eyes of the Bank of England's Financial Policy Committee and other expert observers, while the likely impact is also seen to be smaller if one did. Box 4.1 sets out the new regulatory regime and the government's stated policy.

²¹ Riley and Chote, *Crisis and consolidation in the public finances*, OBR Working Paper No.7, 2014.

²² For a summary of the GDP effect of financial crises see also Brooke, Bush, Edwards, Ellis, Francis, Harimohan, Neiss and Siegert, *Measuring the macroeconomic costs and benefits of higher UK bank capital requirements*, Financial Stability Paper No. 35, 2015.

Box 4.1: The Government's regulatory response to the financial crisis

Since the financial crisis, the UK has reformed its regulation of the financial system. One aspect has been the creation of the Financial Policy Committee (FPC). This has primary responsibility for identifying, monitoring and mitigating risks to financial stability, with the aim of ensuring that regulators take a holistic approach to safeguarding financial stability. UK banks have continued to build up capital resources since the financial crisis, more than doubling their risk-weighted capital ratios. At an aggregate level, these are now in line with the levels judged appropriate by the FPC for the UK banking system to withstand potential losses.

The Bank of England also conducts annual stress tests of the banking system to ensure that banks can withstand periods of severe stress. In 2016, the FPC judged that "*the banking system is in aggregate capitalised to support the real economy in a severe, broad and synchronised stress scenario*".^a This scenario included a severe, synchronised UK and global recession with associated shocks to financial market prices and an independent stress of misconduct costs. This year will be the first that the Bank also runs an 'exploratory' scenario to complement the annual cyclical scenario. The aim of the biennial exploratory scenario will be to probe the resilience of the system to risks that may not be neatly linked to the financial cycle.

The UK has carried out reforms aiming to ensure that, in the event that a bank does fail, it can be managed in a way that protects the wider economy and financial sector. Resolution is the process by which the authorities can intervene to manage the failure of a firm in a manner other than allowing it to fall into a disorderly insolvency. In particular, the UK has:

- **Implemented a comprehensive bank resolution regime:** The UK's 'special resolution regime' provides the authorities with tools to manage the failure of financial sector firms. This includes powers for the Bank of England to 'bail-in' shareholders and creditors of failed banks. The bail-in tool can be used to absorb the losses of a failed firm and to recapitalise the firm using the firm's own resources. In recent years, UK banks have issued substantial amounts of loss-absorbing debt instruments suitable for this purpose.
- **Passed the Financial Services (Banking Reform) Act 2013:** this requires the largest UK banks to separate core retail banking services from their investment banking activities by 2019 (known as ring-fencing). These reforms enable the resolution authority to resolve retail and investment banking activities separately if required, ensuring that core retail banking services can be treated separately from the large balance sheets that support investment banking activities.

^a Bank of England, *Stress testing the UK banking system: 2016 results*, 2016.

Evidence of financial system related fiscal risk

4.25 Despite regulatory developments and better capitalised institutions, the UK financial sector remains an important potential source of fiscal risk because it is still large. For example:

- **The banking system is highly concentrated** in a relatively small number of banks, commonly referred to as the ‘big 4’ (RBS, Lloyds, HSBC and Barclays), which account for more than 85 per cent of business current accounts and 90 per cent of business loans.²³ The higher the degree of concentration, the greater the proportion of assets that are in institutions that are systemically significant, and the greater the risk that the government will need to step in if one or more of them were to get into trouble. Firm-level analysis published by the Bank of England suggests that the probability of a bank receiving public assistance increases with its size relative to the banking system.²⁴
- **The size of the financial sector** (as measured by total assets relative to GDP) is, as would be expected, a factor that increases the direct fiscal costs of financial crises. This also applies when looking at leverage ratios in the financial and non-financial sectors.²⁵ That said, one study has suggested that it was not banking system size *per se* that would have helped to predict which countries suffered a crisis, but other factors including credit booms and capital resilience.²⁶

4.26 There is also evidence that the financial sector has become more important in determining the markets’ perception of a country’s vulnerability to *fiscal* crises:

- countries with **large banking systems**, especially those with low capital ratios, tend to experience a greater widening in government bond yields relative to those of the safest governments when aggregate risk increases;²⁷ and
- the **vulnerability of domestic banks**, measured by the relative size of the financial sector equity index, is an important driver of government bond spreads and this relationship tends to be stronger for countries with high debt-to-GDP ratios.²⁸

Indicators of financial crisis vulnerability

4.27 The Bank of England has argued that the vulnerability of the UK financial sector has declined since the financial crisis and that the sector has become less risky. The Governor of the Bank, in a statement following the EU referendum, said that: “*The capital requirements of our largest banks are now ten times higher than before the crisis...This substantial capital and huge liquidity gives banks the flexibility they need to continue to lend to UK businesses and households, even during challenging times.*”

²³ Financial Conduct Authority, *Competition report 2013-16*, 2016.

²⁴ Rose and Wieladek, *Too big to fail: some empirical evidence on the causes and consequences of public banking interventions in the United Kingdom*, Bank of England Working paper No.460, 2012.

²⁵ Amaglobeli, End, Jarmuzek & Palomba, *From Systemic Banking Crises to Fiscal Costs: Risk Factors*, IMF Working Paper 15/166, 2015.

²⁶ Bush, Knott and Peacock, *Why is the UK banking system so big and is that a problem?*, Bank of England Quarterly Bulletin Q4, 2014.

²⁷ Gerlach, Schulz and Wolff, *Banking and Sovereign Risk in the euro area*, Session: Macroeconomics of Banking, No. G12-V3, 2010.

²⁸ Mody and Sandri, *The Eurozone Crisis: how banks and sovereigns came to be joined at the hip*, IMF Working Paper 11/269, 2011.

- 4.28 The FPC remains cautious, stating in its June 2017 *Financial Stability Report* that it assessed “*the overall risks from the domestic environment to be at a standard level: most financial stability indicators are neither particularly elevated nor subdued.*”
- 4.29 The FPC’s judgement is consistent with a variety of indicators that are commonly used to assess the degree of vulnerability to a financial crisis over the medium term, including:
- the suite of **economic and financial indicators of financial stability** used by the FPC itself that track the level of risk to the financial system over time and compare it with historical peaks and troughs;
 - a measure of the **implied probability of default** for the UK sovereign and major banks, based on credit default swap (CDS) premia; and
 - a measure of **implied government contingent liability** that reflects the presence or otherwise of the too-big-to-fail problem.

The FPC’s vulnerability indicators

- 4.30 The FPC has put forward a scorecard of economic and financial indicators to help assess the vulnerability of the UK financial sector. Table 4.2 shows the capital ratio (a measure of a banks’ core capital measured against their risk-weighted assets) and the leverage ratio (a measure of banks’ capital against their total unweighted assets). In the lead-up to the financial crisis, both fell significantly. Since then, policy has focused on raising them – the capital ratio has risen from 6.2 per cent in 2006 to 13.9 per cent as of June 2017. While higher capital ratios are not a failsafe signal of a banking system’s health, the improvement does suggest that the financial sector has become more resilient and, in the event of a failure, higher capital ratios elsewhere should reduce the potential fallout.
- 4.31 Despite significant improvements in capital and leverage positions, there remain important sources of vulnerability in the financial system. For example, the household debt to income ratio, which peaked at around 150 per cent in the run-up to the crisis before falling back, remains above its historical average at 135 per cent and has recently started to increase again (as discussed in Chapter 3).

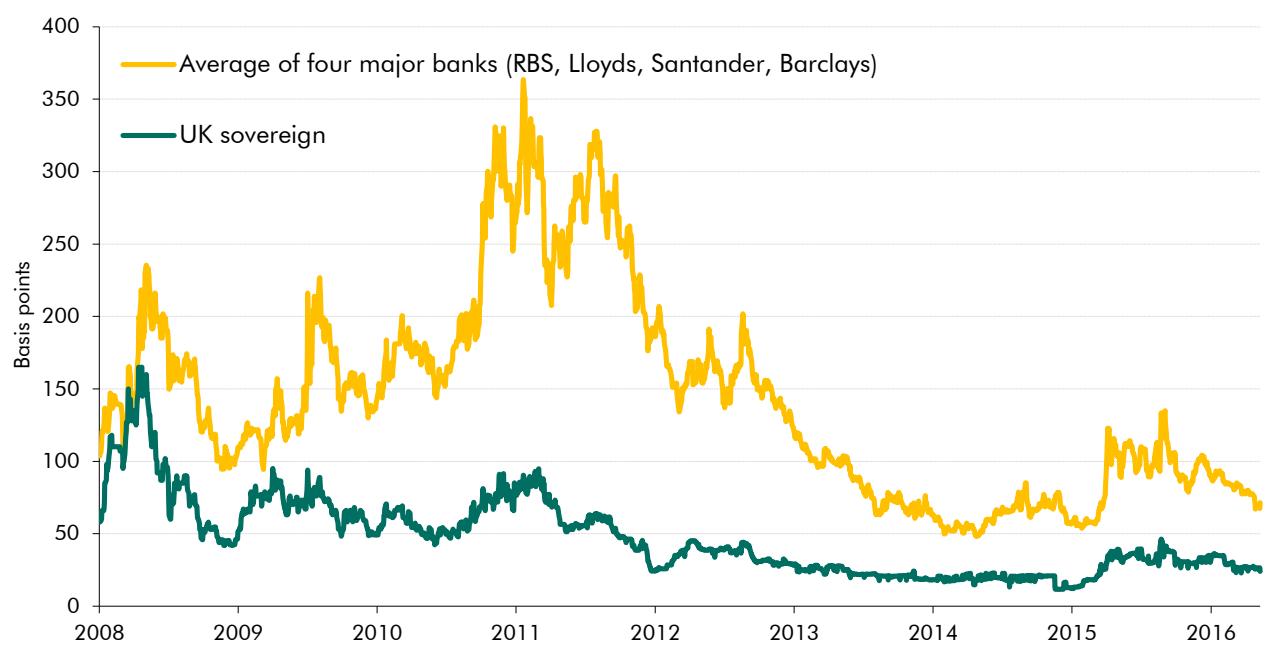
Table 4.2: FPC indicators of financial system vulnerability

	Per cent					
	Average (2000-07)	Average (2011-16)	Minimum since 1987	Maximum since 1987	Value (one year ago)	Latest value (16 June)
Bank balance sheet stretch						
Capital ratio						
Basel II core Tier 1	6.5	-	6.1	12.3	-	-
Basel III common equity Tier 1	-	11.2	-	-	12.3	13.9
Leverage ratio						
Simple	4.6	5.8	2.9	6.6	6.6	6.6
Basel III (2014 proposal)	-	-	-	-	4.9	4.9
Non-bank balance sheet stretch						
Household debt to income ratio	122.5	133.5	78.2	150.5	132.2	135.0

Sovereign CDS premia

- 4.32 CDS premia provide a measure of the probability of banks defaulting. Chart 4.4 tracks premia for the UK sovereign and four major UK banks (Lloyds, RBS, Santander and Barclays). There was a notable increase at the height of the European debt crises in 2011 and 2012, but premia have subsequently declined. This has been accompanied by a gradual reduction in the correlation between the sovereign and the banks, suggesting that the new regulatory regime has helped to reduce perceptions that bank failures would increase the risk of sovereign default. That said, given the very low probability that the UK – which borrows primarily in its own currency – would default on its debt, the strength of the signal to be taken from these indicators is limited.

Chart 4.4: Sovereign and UK banks CDS premia



Source: Datastream

Implicit government contingent liability

- 4.33 The fiscal risk from a systemic banking crisis can be illustrated by estimating the size of the implicit contingent liability created by the expectation of government support for institutions whose failure would have systemic implications. Economists have tried to quantify this by estimating how much more cheaply banks that are assumed to enjoy implicit government backing can borrow than other banks that do not enjoy such backing. This requires assumptions about which group a bank falls in, which can be based on size or on the judgements of credit rating agencies. The resulting estimates are naturally subject to considerable uncertainty. That said, recent studies do suggest that, whatever the scale of the liability, it appears to have fallen since the crisis. This may reflect the introduction of resolution tools that have reduced creditors' expectations of being bailed out in bad times.

4.34 A recent paper by the Bank of England provides an overview of the various methodologies used to estimate the funding advantage, and their limitations. Previous estimates of the perceived subsidy in the UK suggested a potential peak of around £100 billion in 2009,²⁹ while more recent estimates put the figure at less than £5 billion in 2016.³⁰ These estimates do not tell us how much money the government might have to find in the event of a systemic crisis, but they do suggest that the extent of fiscal risk has reduced. That said, the estimated level of subsidy has returned only to levels comparable to those seen in the pre-crisis period, which of course did not prove a good indicator of what was to follow.

Indicators of sovereign-banking sector feedback

4.35 The global financial crisis highlighted the potential for adverse feedback between the sovereign and the banking sector – the so-called ‘doom loop’ – that could be of particular concern for the UK given the large size of its financial sector:³¹

- **From the sovereign to banks:** An increase in sovereign risk could raise bank funding costs and even see funds become impossible to raise. There are several possible transmission channels, including a fall in the market value of banks’ holdings of sovereign debt and a deterioration in the perceived ability or willingness of the sovereign to support the banking sector. There is strong empirical evidence in support of this relationship in periods of financial stress and when domestic banks exhibit strong ‘home bias’, with large exposures to their own sovereign.³²
- **From banks to the sovereign:** The state of the banking system can influence sovereign credit risk via the direct and indirect impact of a banking crisis on the sustainability of the fiscal position. Banking crises can prompt sovereign debt crises by contributing to a sharp decline in tax revenues and large increases in government spending.³³ As recent European experience shows, a vicious circle can emerge between the sovereign and the banking sector. This is likely to be particularly dangerous for countries with large and more fragile banking sectors and with high debt-to-GDP ratios, especially during periods of financial stress when investors discriminate more than in ‘normal’ times.

Other risks from the financial sector

4.36 The measures of risk discussed above assume that the build-up to future financial crises will look like the build-up to past ones. But factors other than those leading to conventional financial crises can also generate risk in the financial sector.

Brexit

4.37 Brexit could have significant effects on the risks emanating from the financial sector, quite possibly in both directions. The size and concentration of the financial sector could be

²⁹ Noss and Sowerbutts, *The implicit subsidy of banks*, Bank of England Financial stability paper No.15, 2012.

³⁰ Written evidence submitted by the Bank of England in response to the Treasury committee’s inquiry into capital, April 2017.

³¹ For further discussion of these channels, see also BIS, *The impact of sovereign credit risk on bank funding conditions*, CGFS 43, 2011.

³² See Acharya, Drechsler and Schnabl, *A tale of two overhangs: the nexus of financial sector and sovereign credit risks*, Banque de France Financial Stability Review, No. 16, April 2012.

³³ See Reinhart and Rogoff, *The Aftermath of Financial Crises*, NBER working paper No. 14656, 2009.

reduced if greater barriers emerge between the EU and UK financial systems, reducing risk in the sector. In addition, less cross-border connectivity could reduce the scope for contagion. Conversely, greater barriers and a smaller financial sector would increase other types of fiscal risk, as future tax receipts from the financial sector would be lower than would otherwise have been the case. Since the referendum, a number of financial institutions have announced plans to move parts of their operations to the EU because of Brexit. Estimates have suggested that, depending on the form that Brexit takes, UK job losses could range from around 3,000 to over 60,000.³⁴

- 4.38 The FPC has judged that there are several implications for the resilience of the financial system from Brexit. For example, it highlighted that “*there are a range of possible outcomes for, and paths to, the United Kingdom’s withdrawal from the European Union*”, noting a number of possible financial stability implications, namely “*the flow of new banking and insurance services could be disrupted...there could also be material dislocation of some services supplied from the United Kingdom to the European Union...fragmentation of market-based finance could result in higher costs and greater risks for both EU and UK.*” This fragmentation could “*increase the reliance of both the UK and EU economies on their banking systems and reduce the diversification and resilience of finance.*” And Brexit “*has the potential to affect the economy through supply, demand and exchange rate channels... economic shocks like these would probably depress the exchange rate, putting upward pressure on inflation. The combination of shocks could therefore possibly create a more challenging trade-off for monetary policy.*”³⁵

Cyber security

- 4.39 One growing source of risk to the financial sector comes from threats to cyber security. Cyber-attacks could lead to instability by disrupting the financial system’s key functions as an intermediary in the economy and its role in the payments system. There is also scope for a major cyber theft to hit banks and/or their customers with implications for confidence. This risk is amplified by the growing digitalisation of financial services.
- 4.40 The Government has taken a number of steps to improve resilience, including creation of the National Cyber Security Centre to provide advice and support to the public and private sectors. The FPC noted in June 2017 that “*Cyber-attacks pose a serious threat to the resilience of the UK financial system...Progress has been made in building resilience to cyber-attack, but the risk continues to build and evolve.*”

³⁴ Oliver Wyman, *The impact of the UK’s exit from the EU on the UK-based financial services sector*, 2016.

³⁵ Bank of England, *Financial Stability Report*, June 2017, Issue No. 41, 2017.

Other risks

4.41 There are many other potential sources of fiscal risk that relate in some way to the financial sector. For example:

- **legal costs** faced by financial institutions for past misconduct;³⁶
- the risk that **regulators may be 'captured'** by those they supervise;³⁷
- **technological change**, which, as in all sectors, creates opportunities and threats;³⁸ and
- **threats from the global economy**, such as exposure to a slowdown in China.³⁹

Risks to our medium-term forecast

4.42 Our March 2017 EFO forecasts assumed that there would be little change in credit conditions given the orientation of macro-prudential policy, and that the financial system would continue on a path of gradual normalisation. We assumed no financial crises over the next five years. But we did note several related vulnerabilities:

- Despite a recent narrowing, the **current account deficit remains large** by historical standards. This poses a risk if overseas investors' confidence in the UK economy were to falter for any reason. That could lead to a sharper fall in sterling, forcing the Bank of England to increase interest rates to prevent inflation getting out of control and in the process generating an economic downturn. This would be a similar set of circumstances to those in the stress test scenario that we explore in Chapter 9.
- The **persistence of the household deficit**, as a result of private consumption growth outpacing income growth in recent years. This could pose a risk if consumption continues to grow faster than incomes, reducing the saving ratio further and thereby further increasing the household debt to income ratio, a key vulnerability indicator.
- Leading up to and following the **UK's exit from the EU**, policies will evolve to replace those associated with EU membership. These policies, and the response of households and businesses to them, are subject to great uncertainty and there is little by way of precedent on which to base any forecast assumptions. This is of particular importance for the financial sector, with crucial policies around the sector's interaction with the EU remaining uncertain.

4.43 In its June 2017 *Financial Stability Report*, the Bank highlighted the rapid increase in consumer credit and easing of lending conditions in the mortgage market, uncertainty associated with the possible outcomes of Brexit negotiations, financial vulnerabilities in China and the downside risks that are implied by very low long-term interest rates.

³⁶ Bank of England, *Stress testing the UK banking system: 2016 results*, 2016.

³⁷ Warwick commission on international financial reform, Chapter 5: regulatory capture, 2009.

³⁸ Starks, *Disruptive innovation in financial markets*, Financial Conduct Authority speech, 2015.

³⁹ Bank of England, *Financial Stability Report*, November 2016, Issue No. 40, 2016.

- 4.44** While financial stability risks appear low, there remain important revenue risks associated with the taxation of financial sector companies and their employees. Reliance on the financial sector for revenues remains significant (see paragraph 4.7). Our medium-term forecast takes some account of the prospect for weaker earnings growth at the top of the earnings distribution, lower bonus growth and weaker financial sector profits due to Brexit. But clearly these broad-brush adjustments are subject to significant uncertainty. A more severe Brexit impact or ‘no deal’ scenario could have bigger negative effects. Leaving aside the additional uncertainty created by Brexit, forecasts of financial sector bonuses, profits and the effects of sector-specific policy measures are always subject to great uncertainty.
- 4.45** On the basis of the FPC’s judgement, we see a low, but not very low, risk of the financial sector experiencing another crisis in the medium term. We see a medium risk of a more gradual loss of receipts due to the sector faring worse than is implicit in our latest forecast.

Risks to fiscal sustainability

- 4.46** In our *Fiscal sustainability reports (FSR)*, our fiscal projections do not incorporate any effects from future recessions or financial crises. In Chapter 3 we noted the near certainty of one or more recessions occurring sometime in the next 50 years. Financial crises are less frequent than recessions – and ones like the 2007-09 crisis are rarer still – but history suggests that the likelihood of another significant crisis in the next 50 years is still fairly high.
- 4.47** Based on the ICB’s estimated probabilities (paragraph 4.15), we might expect the UK to suffer a financial crisis around once in every 20 years. One crisis per generation would be consistent with the regulatory ebbs and flows described in paragraph 4.12 and the fact that suppressing risk in one part of the system often simply displaces it to some other part where regulation is less stringent. Tighter regulation and the actions taken by financial institutions have reduced the risk of further crises, but not eliminated it. But a future crisis need not be as large as the last one: the IMF database of crises suggests that the fiscal costs can vary considerably – from less than 5 to more than 50 per cent of GDP.
- 4.48** In our *FSRs*, we estimate the decade-by-decade fiscal tightening needed to achieve a chosen debt-to-GDP ratio in a given year, a measure known as a ‘fiscal gap’. In our 2017 *FSR*, we estimated that to achieve a 40 per cent debt-to-GDP ratio in 2066-67, the Government would require a series of tax increases or spending cuts worth an additional 1.5 per cent of GDP each decade. If, in addition, we assume that a financial crisis hits the economy every 20 years, adding the median cost of an advanced economy crisis of 21.4 per cent of GDP to debt each time (smaller than the most recent crisis),⁴⁰ the required decade-by-decade tightening would rise to 1.9 per cent of GDP.
- 4.49** Given the size of the UK financial sector, the crystallisation of associated contingent liabilities is an important fiscal risk over the long term. History suggests there is a very high probability of at least one crisis in the next 50 years. What is far more difficult to assess is

⁴⁰ This includes estimates of direct and indirect costs and is based on the median increase in debt (as a per cent of GDP) resulting from a banking crisis in advanced economies as reported in Laeven and Valencia, *Systemic Banking crises Database: An Update*, IMF, 2012.

the likely impact of any crises. That will depend on how regulation and the other risks discussed in this chapter evolve. As with the medium term, we consider there to be a medium risk of a gradual loss of revenue from the tax-rich financial sector over the longer term.

Conclusions

- 4.50 The financial sector is a source of fiscal risk in all economies, and a relatively large one in the UK. Financial crises are fiscally costly. Regulation has been tightened since the crisis, but credit-related vulnerabilities remain. And Brexit and cyber-security represent new sources of risk. The risk of a crisis is not the only fiscal risk emanating from the financial sector: its firms are relatively highly taxed (thanks to restrictions on the use of losses and a surcharge on profits) and its employees are too (thanks to their high average pay and bonuses) so that reliance on the financial sector for tax receipts remains significant.
- 4.51 In terms of the characteristics set out in Chapter 1, financial crises are a prime example of sudden shocks that are closely correlated with many other sources of fiscal risk. This can be because the crisis causes other risks to crystallise (e.g. the associated shock to confidence and credit availability pushing the economy into recession) or because the ultimate cause of the crisis is the cause of other problems (e.g. if subnational layers of government get involved in pre-crisis property or financial market speculation and those investments turn bad). These shocks can be endogenous or exogenous to government action, and are typically a combination of the two, for example with government bearing responsibility for pre-crisis regulation that establishes the incentive structure within which investors, lenders and borrowers act, but not for every action that is taken by banks and their customers. The risks that come from the financial sector being tax-rich are likely to take hold more slowly. They could again be the result of government action or other factors.

For the Government response

- 4.52 In this chapter we have highlighted a number of issues that the Government is likely to wish to consider when managing its fiscal risks. Among them:
- Cross-country evidence on the frequency of crises and their fiscal cost;
 - The tendency for post-crisis tightening of regulation to be loosened over time;
 - The comparatively large and highly concentrated UK banking system;
 - Potential effects of Brexit on the financial sector and the tax receipts it generates; and
 - The growing risk posed by threats to cyber security.
- 4.53 When assessing financial stability and its interaction with fiscal risk over the medium and long term, does the Government regard these or other issues as important for its risk management strategy and, if so, how does it intend to address them?