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Basic statistics of United Kingdom, 2013

(Numbers in parentheses refer to the OECD average)*

LAND, PEOPLE AND ELECTORAL CYCLE					
Population (million)	62.6		Population density per km^2	256.9	(34.7)
Under 15 (%)	17.6	(18.2)	Life expectancy (years, 2012)	81.0	(80.2)
Over 65 (%)	17.0	(15.6)	Men	79.1	(77.5)
Foreign-born (%, 2012)	11.9		Women	82.8	(82.9)
Latest 5-year average growth (%)	0.7	(0.6)	Latest general election	May 2010	

ECONOMY					
Gross domestic product (GDP)			Value added shares (%)		
In current prices (billion USD)	2 679		Primary sector	0.7	(2.5)
In current prices (billion GBP)	1 713		Industry including construction	20.1	(26.8)
Latest 5-year average real growth (%)	0.3	(0.8)	Services	79.2	(70.5)
Per capita (000 USD PPP)	38.3	(39.2)			

GENERAL GOVERNMENT Per cent of GDP					
Expenditure	45.0	(43.1)	Gross financial debt	93.3	(110.2)
Revenue	39.5	(38.3)	Net financial debt	61.6	(69.9)

EXTERNAL ACCOUNTS					
Exchange rate (GBP per USD)	0.639		Main exports (% of total merchandise exports)		
PPP exchange rate (USA = 1)	0.699		Chemicals and related products, n.e.s.	28.1	
In per cent of GDP			Machinery and transport equipment	20.4	
Exports of goods and services	30.1	(53.4)	Manufactured goods	13.3	
Imports of goods and services	32.1	(49.4)	Main imports (% of total merchandise imports)		
Current account balance	-4.5	(-0.1)	Chemicals and related products, n.e.s.	30.9	
Net international investment position	-2.5		Machinery and transport equipment	14.7	
			Mineral fuels, lubricants and related materials	13.4	

LABOUR MARKET, SKILLS AND INNOVATION					
Employment rate for 15-64 year-olds (%)	70.5	(65.2)	Unemployment rate, Labour Force Survey (age 15 and over) (%)	7.5	(7.9)
Men	75.4	(73.1)	Youth (age 15-24, %)	20.7	(16.1)
Women	65.8	(57.4)	Long-term unemployed (1 year and over, %)	2.7	(2.7)
Participation rate for 15-64 year-olds (%)	77.4	(71.1)	Tertiary educational attainment 25-64 year-olds (%, 2012)	41.0	(32.2)
Average hours worked per year	1 669	(1 771)	Gross domestic expenditure on R&D (% of GDP, 2013)	1.6	(2.4)

ENVIRONMENT					
Total primary energy supply per capita (toe)	3.0	(4.2)	CO_2 emissions from fuel combustion per capita (tonnes, 2012)	7.2	(9.7)
Renewables (%)	5.1	(8.8)	Water abstractions per capita (1 000 m^3, 2009)	0.1	
Fine particulate matter concentration (urban, PM_{10}, µg/m^3, 2011)	19.6	(28.0)	Municipal waste per capita (tonnes, 2011)	0.5	(0.5)

SOCIETY					
Income inequality (Gini coefficient, 2011)	0.344	(0.308)	Education outcomes (PISA score, 2012)		
Relative poverty rate (%, 2011)	9.5	(11.1)	Reading	499	(496)
Median equivalised household income (000 USD PPP, 2010)	23.2	(20.4)	Mathematics	494	(494)
Public and private spending (% of GDP)			Science	514	(501)
Health care (2012)	9.3	(9.2)	Share of women in parliament (%, December 2014)	23.0	(26.7)
Pensions (2011)	6.8	(8.7)	Net official development assistance (% of GNI)	0.71	(0.37)
Education (primary, secondary, post-sec. non-tertiary, 2011)	4.7	(3.9)			

Better life index: *www.oecdbetterlifeindex.org*

* Where the OECD aggregate is not provided in the source database, a simple OECD average of latest available data is calculated where data exist for at least 29 member countries.

Source: Calculations based on data extracted from the databases of the following organisations: OECD, International Energy Agency, World Bank, International Monetary Fund and Inter-Parliamentary Union.

Abbreviations and acronyms

BoE	Bank of England
BT	British Telecom
CAA	Civil Aviation Authority
CfD	Contract for Difference
CMA	Competition and Markets Authority
CRA	Credit reference agency
DTI	Debt-to-income
EU	European Union
EUR	Euro
FCA	Financial Conduct Authority
FLS	Funding for Lending Scheme
FPC	Financial Policy Committee
GBP	British pound
GDP	Gross domestic product
GHG	Greenhouse gas
GIB	Green Investment Bank
GVA	Gross value added
LBG	Lloyds Banking Group
LTI	Loan-to-income
LTV	Loan-to-value
Mbps	Megabits per second
MFI	Monetary financial institution
MPC	Monetary Policy Committee
NFC	Non-financial corporation
NIP	National Infrastructure Plan
NPPF	National Planning Policy Framework
NSIPs	Nationally Significant Infrastructure Projects
OBR	Office for Budget Responsibility
Ofcom	Office of Communications
Ofgem	Office of Gas and Electricity Market
OFT	Office of Fair Trade
Ofwat	The Water Services Regulation Authority in England and Wales
ONS	Office for National Statistics
PF2	Private Finance 2
PFI	Private Finance Initiative
PIP	Pension Infrastructure Platform
PPI	Payment protection insurance
PPP	Public-private partnership
PRA	Prudential Regulatory Authority
QE	Quantitative easing
RBS	Royal Bank of Scotland
SME	Small and medium-sized enterprise
SPV	Special purpose vehicle
TFP	Total factor productivity
UK	United Kingdom
USD	United States dollar
VAT	Value-added tax

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Executive summary

- *Main findings*
- *Key recommendations*

Main findings

After a period of subdued growth in the aftermath of the global downturn, growth in the United Kingdom has picked up since early 2013 to 2.6% in 2014, the strongest performance among G7 countries that year. Against the background of subdued growth in the euro area, the recovery has benefitted from the cumulative impact of wide-ranging domestic policies. These included highly-accommodative monetary policy and measures to support lending and revive the housing market. For fiscal policy, while there have been some additional consolidation measures, the automatic stabilisers have continued to operate in full. Employment has recovered to its pre-crisis trend and is now at record levels. However, weak labour productivity since 2007 has been holding back real wages and well-being. The sustainability of economic expansion and further progress in living standards rest on boosting productivity growth, which is a key challenge for the coming years.

Securing a balanced recovery through macroeconomic policies. Monetary policy has remained highly expansionary for some time. Inflationary pressures have so far been low owing to ample spare capacity and, more recently, falling commodity prices and a rebound of the exchange rate. Credit constraints have been partly addressed by the Help to Buy and Funding for Lending programmes, which seem to have been effective at reviving lending to households and strengthened housing demand. However, housing supply has not risen to meet demand. In addition, house prices have increased rapidly and may create risks to financial stability in the case of a downward adjustment. The Funding for Lending programme was closed to mortgage lending in late 2013. Conversely, net lending to firms has continued to fall while the large share of loss-making companies could suggest that new loans could have been skewed to inefficient firms to the detriment of young and innovative ones, which could restrain productivity. The budget deficit has been significantly reduced since the peak of 2009, but at a slower pace recently notably as growth has been insufficiently tax-rich. Public debt as a share of GDP is projected to rise further.

Improving the provision of infrastructure. The quality of perceived infrastructure is close to the OECD average, leaving scope to improve productivity and the well-being of citizens. Historic underspending in infrastructure is being tackled by the authorities within tight budget constraints, but greater private infrastructure spending is still needed. Difficulties in attracting private investors can be partly attributed to insufficient long-term infrastructure planning and long decision-making processes that generate investment uncertainties, which the National Infrastructure Plan is starting to address. Although the regulatory framework is robust, the use of some infrastructure is sub-optimal owing to congestion and insufficient incentives for private operating companies. The financing framework for private infrastructure investment is also facing market failures, such as fragmented institutional investors. However, the authorities have been making progress in encouraging green infrastructure investment.

Ensuring sustainable bank lending. The UK banking sector was deeply affected by the crisis and important regulatory reforms have been implemented to address financial stability risks. Given short-term risks emerging in the housing market, regulatory authorities have taken significant precautionary measures to sustain underwriting standards and prevent significant increases in the number of highly indebted households. The Bank of England has also requested from the government additional powers to cap loan-to-value and debt-to-income ratios. Banks remain very large, however, and if they are not well capitalised they could pose a risk to the economy. In addition, banks have been cutting back net lending, making it more difficult for small and medium-sized enterprises to get financing. Part of this financing has been replaced by alternative credit providers, which are creating new regulatory challenges. To support sustainable bank lending, the authorities have taken steps to boost competition in the credit market.

Key recommendations

Securing a balanced recovery through macroeconomic policies

- As underlying inflationary pressures emerge, gradually start increasing the policy rate and, thereafter, begin reducing the size of the Bank of England's balance sheet.
- Continue to pursue the medium-term fiscal consolidation path while letting automatic stabilisers operate, and ensure consolidation efforts are fair.
- Seek further efficiency gains in health and education, and broaden the tax base, such as equalising income taxes and social security contributions between the self-employed and employees.

Improving the provision of infrastructure

- Continue to build on the progress made with the National Infrastructure Plan to further enhance long-term infrastructure strategy and planning.
- Develop further the use of public-private partnerships (PPP) and public guarantees for privately financed infrastructure projects, recording the associated assets and liabilities in the government fiscal accounts. Enhance the provision to investors and the public of comparable data about public guarantees and the financial and operational performance of PPP projects.
- Improve the use of roads by introducing user-paid tolls, and of railways by ensuring the arms-length responsibility for awarding rail franchises.
- Strengthen the Green Investment Bank and other targeted financial aids to further support the implementation of not yet commercially viable low-carbon technologies that have the prospect of becoming so in the foreseeable future.
- Evaluate the interaction between the Electricity Market Reform and existing policies to promote renewable energies.

Ensuring sustainable bank lending

- Consider higher leverage ratios for global systemic banks to complement risk-weighted capital ratios.
- Encourage the development of new credit providers and gradually extend regulatory instruments beyond the banking sector.
- Continue to uphold underwriting standards in mortgage lending. Further relax regulatory constraints to boost housing supply, in particular by thoroughly reviewing the boundaries of protected areas of the Green Belt.
- Collect and share credit information on businesses through credit reference agencies or directly through the regulator.

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Assessment and recommendations

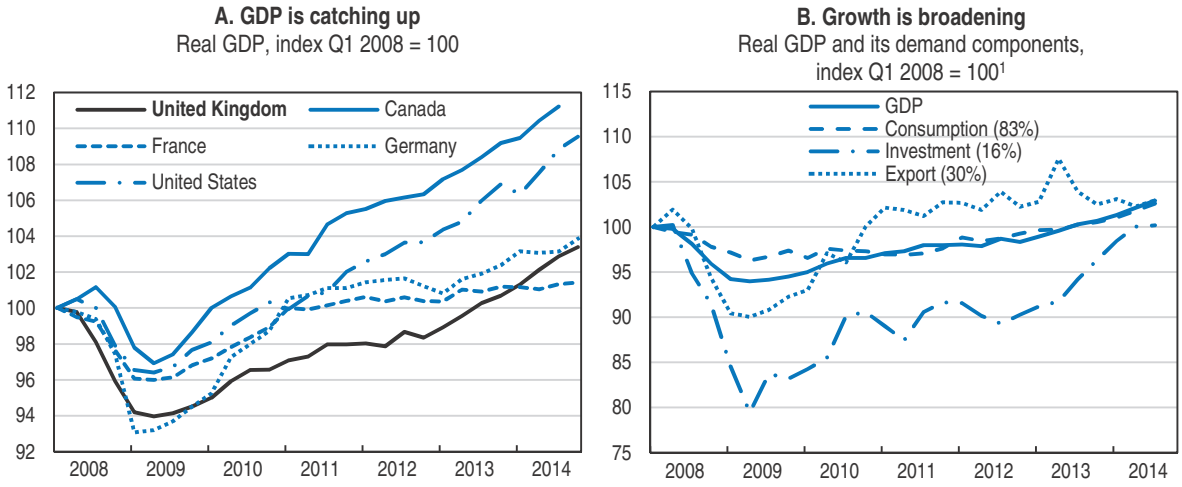
- *Making the recovery sustainable*
- *Normalising macroeconomic policies*
- *Rekindling productivity growth*

Making the recovery sustainable

Key challenges to unleash productivity

Following a deep recession and a subdued recovery, economic growth in the United Kingdom (UK) has bounced back strongly since 2013. Real gross domestic product (GDP) is back above the pre-crisis peak and growth has been broadening (Figure 1). Macroeconomic policies have played a key role. Monetary policy has been very accommodative, measures have been put in place to support the recovery in the housing market, and fiscal policy has contributed to some pick-up in growth. Structural reforms have strengthened work incentives and supported a business-friendly environment, thus sustaining one of the most flexible economies in the OECD.

Figure 1. **Growth is strong**



1. The figures in parentheses show 2010 weights in GDP.

Source: OECD (2015), *OECD Economic Outlook: Statistics and Projections* (database), February and ONS (2014), "Quarterly National Accounts, Q3 2014", Office for National Statistics, December.

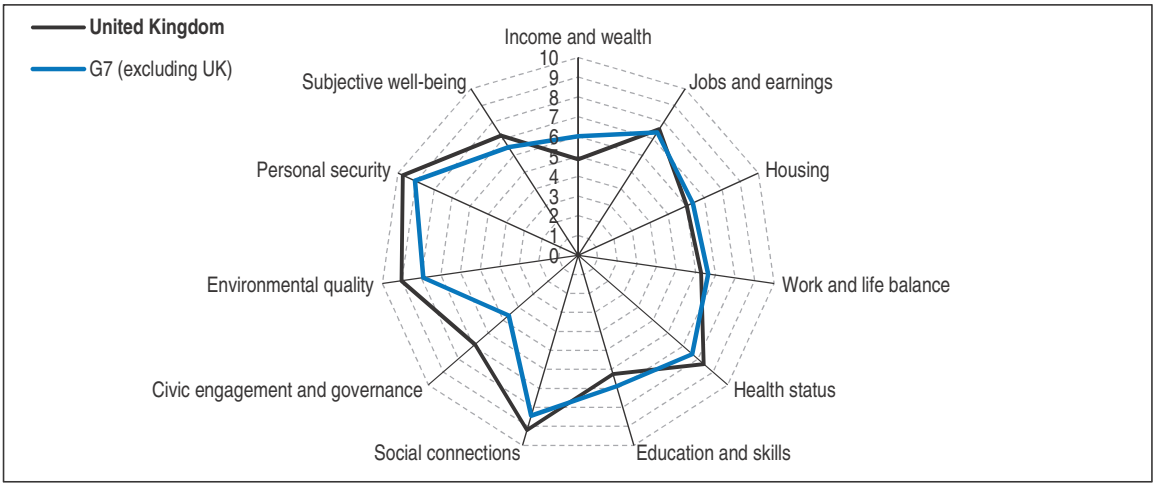
StatLink http://dx.doi.org/10.1787/888933188951

Well-being outcomes remain robust, although income and financial wealth, as well as education and skills, are somewhat weaker than the G7 average (Figure 2, Panel A). Income inequality is high (Figure 2, Panel B). However, relative income poverty is comparatively low and has been falling (Figure 2, Panel C). The average income of the richest 10% of the population is nearly ten times that of the poorest, but the gap shrunk between 2009 and 2011 to slightly below the OECD average. Moreover, the share of wealth held by the top 10% is among the lowest in the G7 (IMF, 2013; Davies et al., 2012).

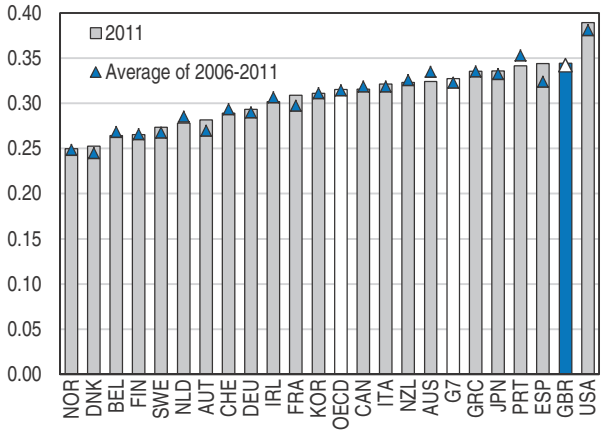
However, labour productivity has been exceptionally weak since the onset of the crisis, and as a result real wages and GDP per capita have been flat (Figure 3). Investment has rebounded and has recovered close to the pre-crisis peak. Exports have been subdued

Figure 2. **Social indicators are good overall**

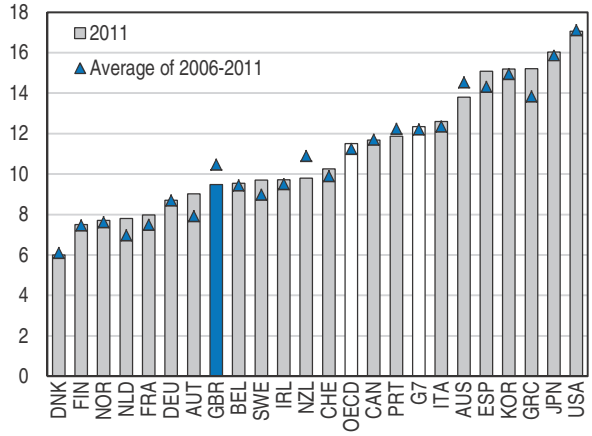
A. Average well-being outcomes are strong
Better Life Index, 2014[1]



B. Income inequality is relatively high
Gini coefficient[2]



C. Relative poverty is low
Per cent[2]



1. Each well-being dimension is measured by one to four indicators from the OECD Better Life Index set. Normalised indicators are averaged with equal weights. Indicators are normalised to range between 10 (best) and 0 (worst) according to the following formula: (indicator value – minimum value)/(maximum value – minimum value) x 10. The aggregate for G7 countries (excluding the United Kingdom) (i.e. Canada, France, Germany, Italy, Japan and United States) is calculated as an unweighted average.
2. The Gini coefficient is calculated for household disposable income after taxes and transfers, adjusted for differences in household size and it has a range from zero (when everybody has identical incomes) to one (when all income goes to only one person). Increasing values of the Gini coefficient thus indicate higher inequality in the distribution of income. The relative poverty rate is based on 50% of the median disposable income (adjusted for family size and after taxes and transfers) of the entire population. 2009 and average of 2006-09 for Japan. 2010 and average of 2006-10 for Belgium. 2012 and average of 2006-12 for Australia and Netherlands. The OECD aggregate is calculated as an unweighted average. The aggregate for G7 countries (excluding the United Kingdom) (i.e. Canada, France, Germany, Italy, Japan and United States) is calculated as an unweighted average.

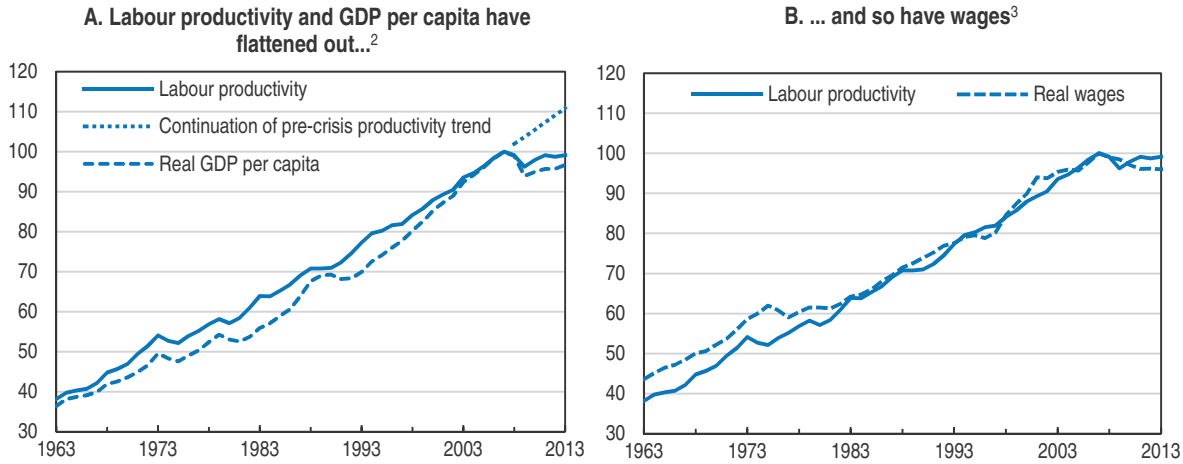
Source: OECD (2014), *OECD Better Life Index* and OECD (2014), "Income Distribution Database", *OECD Social and Welfare Statistics*, December.

StatLink http://dx.doi.org/10.1787/888933188968

despite exchange rate depreciation of about 20% in real effective terms between 2007 and 2008, notably because of sluggish demand in the euro area. Weak export performance and productivity could be driven by infrastructure weaknesses and difficult access to bank finance, especially for small and medium-sized enterprises (SMEs), holding back the emergence of new firms and high-skilled jobs.

Figure 3. **Subdued labour productivity is holding back living standards**

Index 2007 = 100[1]



1. Labour productivity is defined as output per worker (i.e. real gross value added (GVA) divided by total employment).
2. Pre-crisis linear labour productivity trend is calculated between 1997 and 2007, and is projected from 2008 onwards.
3. Real wages refer to nominal wages divided by dependent employment and deflated by GDP deflator.

Source: OECD (2015), *OECD Economic Outlook: Statistics and Projections* (database), January and ONS (2014), "Labour Productivity, Q3 2014", Office for National Statistics, December.

StatLink http://dx.doi.org/10.1787/888933188973

This *Survey* analyses ways to address these challenges and finds that:

- Improving productivity requires further structural reforms and is key to higher sustainable GDP and wage growth.
- Accelerated decision-making and activation of new financing channels would raise infrastructure investment needed to support productivity and living standards.
- Significant progress has been achieved to make the banking sector more resilient and further reforms should strengthen financial stability and ensure sustainable lending to support capital stock accumulation.

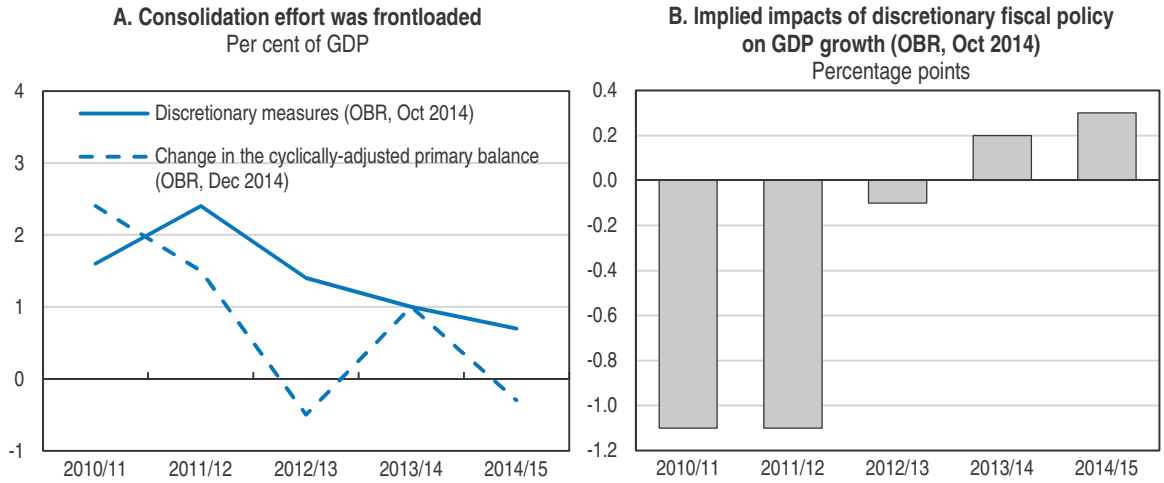
A strong recovery

Growth in the UK has picked up since the first quarter of 2013 to 2.6% in 2014, the strongest performance among G7 countries that year. Quantitative easing and measures to improve credit availability have magnified the transmission of the policy rate that was cut to 0.5% in March 2009. In parallel, automatic fiscal stabilisers have continued to operate and fiscal tightening has been less of a headwind since 2012, which is estimated to have supported growth since 2013 (Figure 4).

Private consumption growth has been supported by a remarkable pace of job creation, low borrowing costs and stronger confidence. The latter has played an instrumental role in reducing household saving ratio (Figure 5, Panel A). Since late 2013, growth momentum has been strengthened by a pick-up in gross fixed investment growth, driven by firming demand, a low cost of capital and a turnaround in business confidence, which has encouraged firms to run down their financial surplus (Figure 5, Panel B; Lewis et al., 2014).

Exports have contributed little to the recovery. The UK has been continuously losing market share, broadly in line with the G7, since late 1990s (Figure 6, Panel A). However,

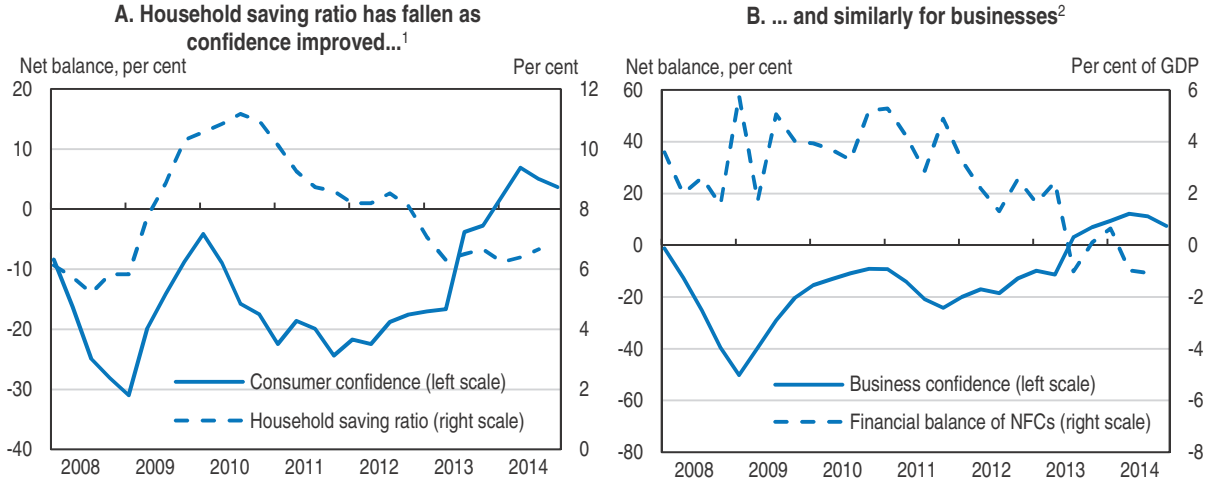
Figure 4. **Fiscal policy has contributed to some pick-up in growth**



Source: OBR (2014), "Forecast Evaluation Report – October 2014", Office for Budget Responsibility and OBR (2014), "Economic and Fiscal Outlook – December 2014", Office for Budget Responsibility.

StatLink http://dx.doi.org/10.1787/888933188984

Figure 5. **Growth is driven by domestic demand**



1. Three quarter moving average applied to household saving ratio. Household saving ratio is expressed as a percentage of total available households' resources. Quarterly data for consumer confidence are calculated as unweighted average of monthly figures.
2. Three month moving average applied to business confidence. Confidence indicator is calculated as the arithmetic average of the balances (in percentage points) of the answers to the questions on: production – future tendency; finished goods stocks-level; and order books-level. Net balance is used to summarise answers to multiple-choice questions related to business tendency surveys and it takes value between -100% (unfavourable) and +100% (favourable) with a midpoint of 0. Quarterly data for business confidence are calculated as unweighted average of monthly figures of confidence indicators in manufacturing, construction, retail trade and services (excluding retail trade). NFCs: non-financial corporations.

Source: OECD (2015), *Main Economic Indicators* (database), January and ONS (2014), "Quarterly National Accounts, Q3 2014", Office for National Statistics, December.

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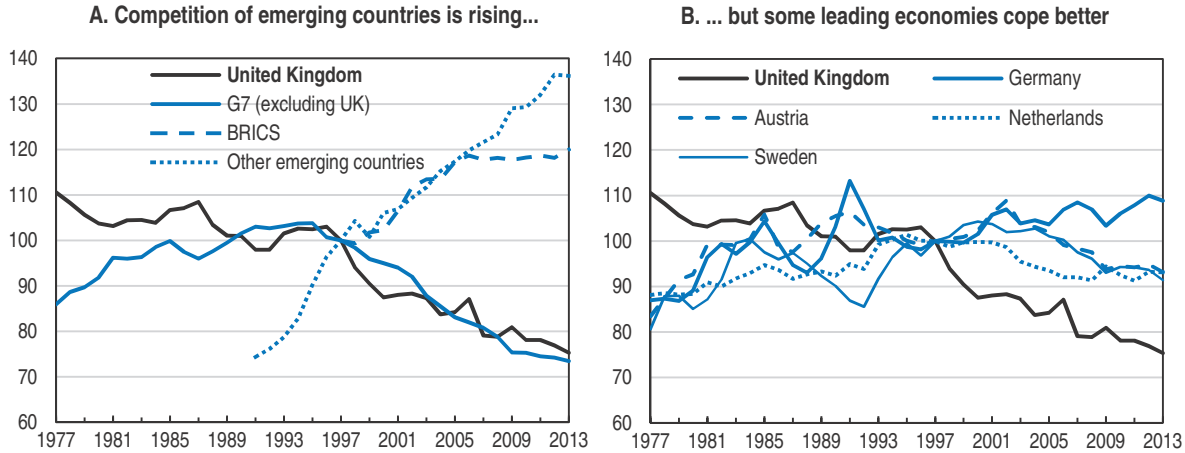
export performance of some affluent OECD countries has proved more resilient (Figure 6, Panel B). Declining market share could in part reflect the rise of China and other emerging market economies, but could also be driven by domestic supply factors as the share of tradable sectors in total gross value added has been falling (Figure 7, Panel A). This could help to explain why currency depreciation has not revived net exports from the manufacturing, oil and gas sectors (Figure 7, Panel B).

Figure 6. **Export performance has been deteriorating**

Index 1997 = 100[1]



1. Export performance is the ratio between export volumes and export markets. Unweighted average of G7 countries (excluding the United Kingdom) (i.e. Canada, France, Germany, Italy, Japan and United States), BRICS countries (i.e. Brazil, Russian Federation, India, China, South Africa) and Other emerging countries (i.e. Czech Republic, Hungary, Korea, Mexico, Poland and Turkey).

Source: OECD (2015), *OECD Economic Outlook: Statistics and Projections* (database), January.

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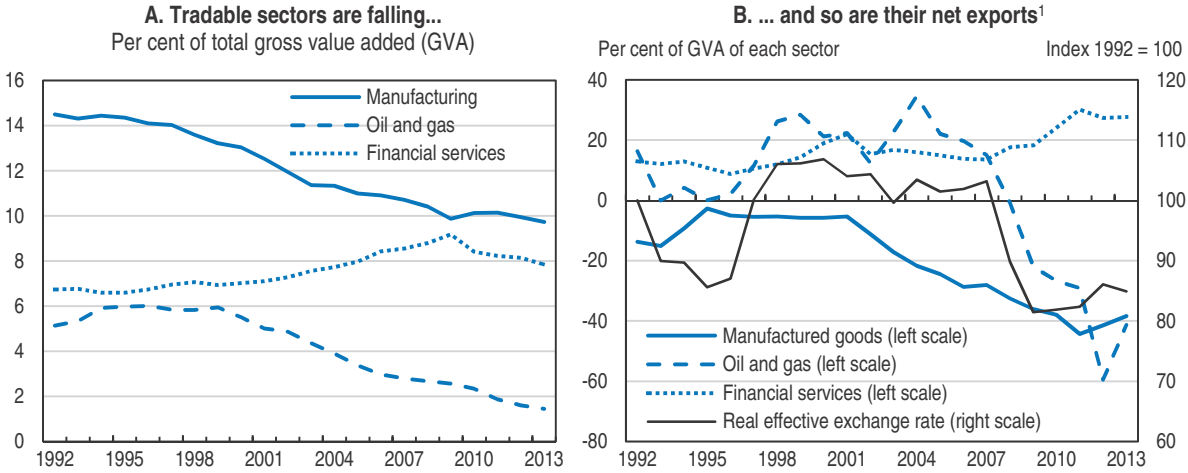
Figure 7. **Declining relative size of export sectors is contributing to weak net exports**



1. Manufactured goods refer to both semi and finished manufactured goods (i.e. Standard International Trade Classification (SITC), Rev. 3: 5-8). Oil and gas refer to SITC, Rev. 3: 32-35 and also include net exports of coal and electricity that are negligible. Competitiveness-weighted real effective exchange rate.

Source: ONS (2014), "Quarterly National Accounts, Q3 2014", Office for National Statistics, December, ONS (2014), "The Pink Book 2014", Office for National Statistics, October and OECD (2015), *OECD Economic Outlook: Statistics and Projections* (database), January.

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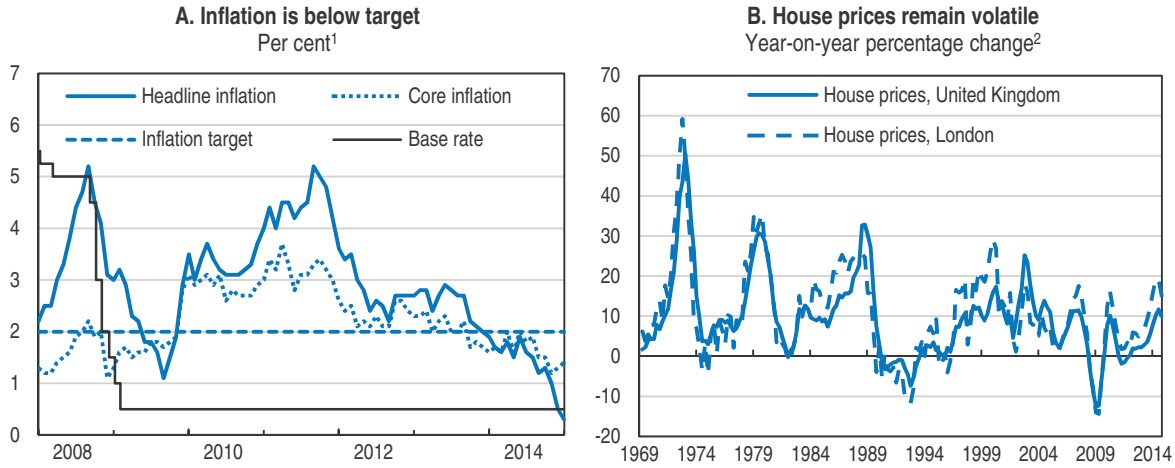
After four years of overshooting, consumer price inflation has fallen significantly below the Bank of England's (BoE) target of 2% to 0.3% in the year to January 2015, the lowest since the consumer price index series began (Figure 8, Panel A). The main driver of this sharp fall has been the reduction in energy prices reflecting plummeting global oil prices, and falling food prices and the appreciation of the exchange rate have also contributed. Low inflation has supported real incomes and provided additional boost to consumption. The recovery in

Figure 8. **Monetary conditions are supportive, but house prices have increased significantly**



1. Headline inflation refers to harmonised consumer prices index. Core inflation excludes energy, food, alcohol and tobacco.
2. Nominal house prices.

Source: Bank of England, ONS (2015), "Consumer Price Inflation, January 2015", Office for National Statistics, February and ONS (2015), "House Price Index, December 2014", Office for National Statistics, February.

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the housing market has been marked by large house price increases, particularly in London (Figure 8, Panel B), raising homeowners' wealth, but also reducing affordability for first-time buyers and contributing to higher household indebtedness. However, there was some moderation in annual house price growth in late 2014.

GDP growth is projected to continue to be driven by private consumption and private investment (Table 1). Capital accumulation should begin to push up labour productivity and real wages. The unemployment rate is projected to continue to fall. Exports will strengthen somewhat, but not enough for market share to rise. Interest rate increases should start as underlying inflation pressures emerge. The pace of interest rate increases will, however, depend on economic developments. Higher interest rates should encourage the selection of more profitable projects and the restructuring of loss-making companies, raising productivity.

Risks are broadly balanced. Regarding domestic risks, uncertainty about the recovery of productivity growth is a major, but to some extent symmetric, risk to the projection. On the downside, labour market pressures could result in real wages rising faster than productivity and lead to cost-push inflation. On the positive side, productivity growth could turn out to be stronger, especially if it is supported by stronger investment, making wage increases sustainable. Planned cumulative fiscal consolidation of almost 2.5% of GDP in 2015 and 2016 could reduce growth by more or by less than projected. House prices could fall, which may create risks for financial stability. The key external risk is the growth of the euro-area economy, which has faltered, but could also bounce more strongly than expected. On the upside, assuming it is sustained, the fall in oil price should boost activity. The UK current account deficit has widened to about 6% of GDP, notably as investment income has disappointed, which could make the economy more sensitive to shift in investor sentiment. Conversely, exports may pick up faster than projected if higher investment and productivity gains allow better export performance.

Table 1. **Macroeconomic indicators and projections**

Annual percentage change, volume (2011 prices)

	2011 current prices (billion GBP)	2011	2012	2013	2014[1]	2015[1]	2016[1]
Gross domestic product (GDP)	1 618	**1.6**	**0.7**	**1.7**	**2.6**	**2.6**	**2.5**
Private consumption	1 039	0.1	1.1	1.7	2.3	2.6	2.1
Government consumption	337	0.0	2.3	-0.3	1.5	-0.3	-1.2
Gross fixed capital formation	261	2.3	0.7	3.4	7.4	6.2	7.6
Housing	104	11.6	-2.9	12.5	7.9	6.1	7.1
Business	123	-1.3	3.9	-1.0	11.1	8.3	9.2
Government	33	-10.1	1.1	-8.9	-3.9	2.0	2.2
Final domestic demand	1 637	0.4	1.3	1.6	3.0	2.6	2.5
Stockbuilding[2]	4	-0.1	0.1	0.2	0.3	-0.1	0.0
Total domestic demand	1 642	0.4	1.5	1.8	3.3	2.5	2.5
Exports of goods and services	499	5.6	0.7	1.5	-1.2	1.4	2.4
Imports of goods and services	523	1.0	3.1	1.4	0.7	1.6	2.2
Net exports[2]	-24	1.3	-0.8	0.0	-0.6	-0.1	0.0
Other indicators (growth rates, unless specified)							
Potential GDP	. .	1.2	1.3	1.4	1.9	2.3	2.6
Output gap[3]	. .	-2.0	-2.4	-2.0	-1.1	-0.6	-0.4
Employment	. .	0.5	1.1	1.2	2.3	1.4	1.1
Unemployment rate	. .	8.1	8.0	7.6	6.2	5.6	5.4
GDP deflator	. .	2.1	1.7	1.8	1.8	1.4	1.7
Consumer price index (harmonised)	. .	4.5	2.8	2.6	1.5	1.3	2.1
Core consumer prices (harmonised)	. .	3.0	2.2	2.0	1.6	1.6	2.1
Household saving ratio, net[4]	. .	2.9	2.3	0.3	0.3	1.0	1.3
Current account balance[5]	. .	-1.7	-3.7	-4.5	-5.6	-5.8	-5.6
General government fiscal balance[5]	. .	-7.6	-8.3	-5.5	-5.7	-4.4	-3.1
Underlying general government fiscal balance[3]		-7.2	-7.3	-6.5	-5.5	-4.6	-3.1
Underlying government primary fiscal balance[3]	. .	-4.3	-4.8	-4.0	-3.0	-2.1	-0.6
General government gross debt (Maastricht)[5]	. .	80.1	83.8	85.3	88.4	90.3	90.6
General government net debt[5]	. .	63.1	62.2	61.6	65.0	66.8	67.2
Three-month money market rate, average	. .	0.9	0.8	0.5	0.5	1.0	2.3
Ten-year government bond yield, average	. .	3.1	1.9	2.5	2.6	2.7	3.5

1. Projections based on OECD (2014), "OECD Economic Outlook No. 96", *OECD Economic Outlook: Statistics and Projections* (database), from November 2014, updated with the latest data available.
2. Contribution to changes in real GDP.
3. As a percentage of potential GDP.
4. As a percentage of household disposable income.
5. As a percentage of GDP.

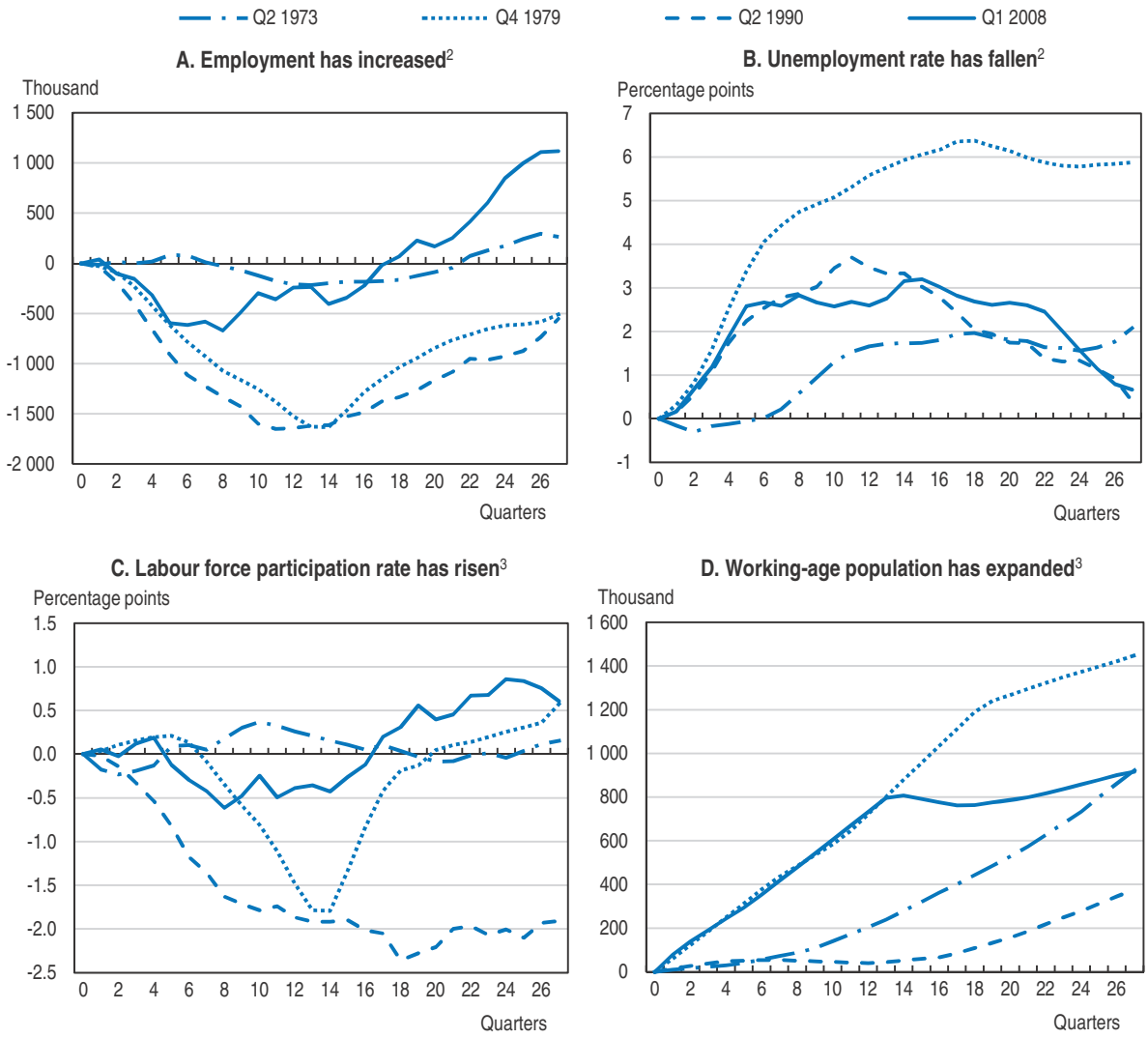
Source: OECD (2015), *OECD Economic Outlook: Statistics and Projections* (database), January.

Employment has been strong, but productivity and real wages have been flat

The labour market has been resilient, with employment rising significantly compared to past recessions (Figure 9, Panel A). Rises in the unemployment rate were contained, compared to output losses, early in the crisis and, more recently, the unemployment rate has declined rapidly (Figure 9, Panel B). However, youth (15-24) unemployment rate remains elevated as it was at nearly 16.5% in the third quarter of 2014 but it fell by about 4.5 percentage points over the year. Activation policies have helped to limit the increase in unemployment (OECD, 2014a). Equally importantly, the labour market has absorbed unusual increases in labour supply (Figure 9, Panels C and D). The participation rate of older workers has risen following pension reforms (Figure 10, Panel A; BoE, 2014a). Welfare

Figure 9. **Labour market developments compared to previous recessions and recoveries**

Deviation from start of recession[1]



1. Change in level for employment and working age population. Change in percentage points for unemployment rate and labour force participation rate. Data for Q4 2014 refer to the period between September and November 2014.
2. Refers to population aged 16 and over.
3. Refers to population aged between 16 and 64.

Source: ONS (2015), "Labour Market Statistics, January 2015", Office for National Statistics.

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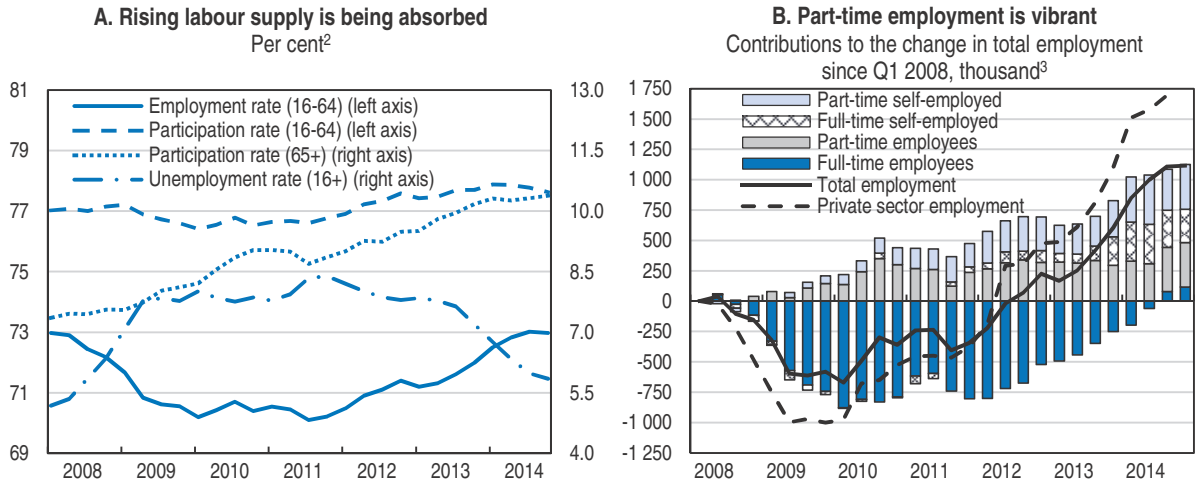
reforms have also lifted the overall participation rate (Figure 10, Panel A) as they sharpened work incentives (Blundell et al., 2014). Sustained inflows of well-educated immigrants have boosted the working-age population (Wadsworth and Vaitilingam, 2014).

Against the background of strong increases in the labour force, private-sector employment has risen by almost three million people since 2010 (Figure 10, Panel B). Employment gains since early 2008 have mainly resulted from part-time workers, many of them self-employed, but more recent increases have been in full-time employment, the number of which slightly exceeds the pre-crisis level. The system of tax credits may have

Figure 10. **Employment performance since the last recession has been strong**[1]



1. Data for Q4 2014 refer to the period between September and November 2014.
2. Employment (16-64) and participation (16-64) rates refer to population aged between 16 and 64. Participation rate (65+) refers to population aged 65 and over. Unemployment rate (16+) refers to population aged 16 and over.
3. Total employment also comprises unpaid family workers and those on government-supported training and employment programmes.

Source: ONS (2015), "Labour Market Statistics, January 2015", Office for National Statistics.

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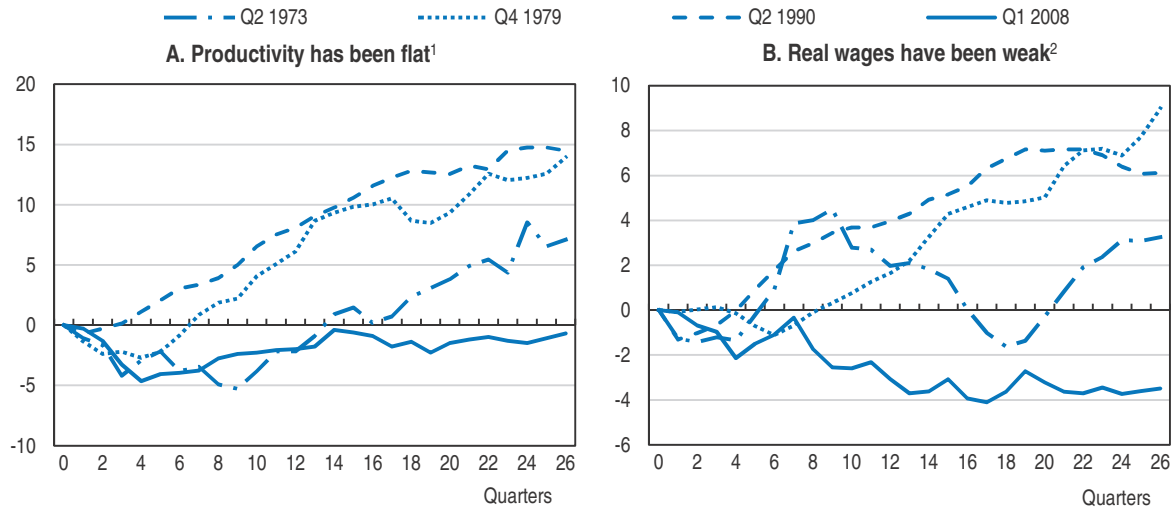
Figure 11. **Productivity and wages have not recovered compared to previous recessions and recoveries**

Deviation from start of recession, percentage points



1. Labour productivity is defined as output per worker (i.e. real gross value added (GVA) divided by total employment).
2. Real wages refer to nominal wages divided by dependent employment and deflated by GDP deflator. Three quarter moving average applied.

Source: ONS (2014), "Labour Productivity, Q3 2014", Office for National Statistics, December and OECD (2015), *OECD Economic Outlook: Statistics and Projections* (database), January.

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encouraged stronger prevalence of part-time work and self-employment (OECD, 2014a). The rise in self-employment could also be traced to structural determinants linked to population ageing and more self-employment among older people (BoE, 2014b). Other important drivers include government programmes and tax incentives, and possibly a higher potential for tax evasion (Ashworth et al., 2014; Goodhart and Ashworth, 2014).

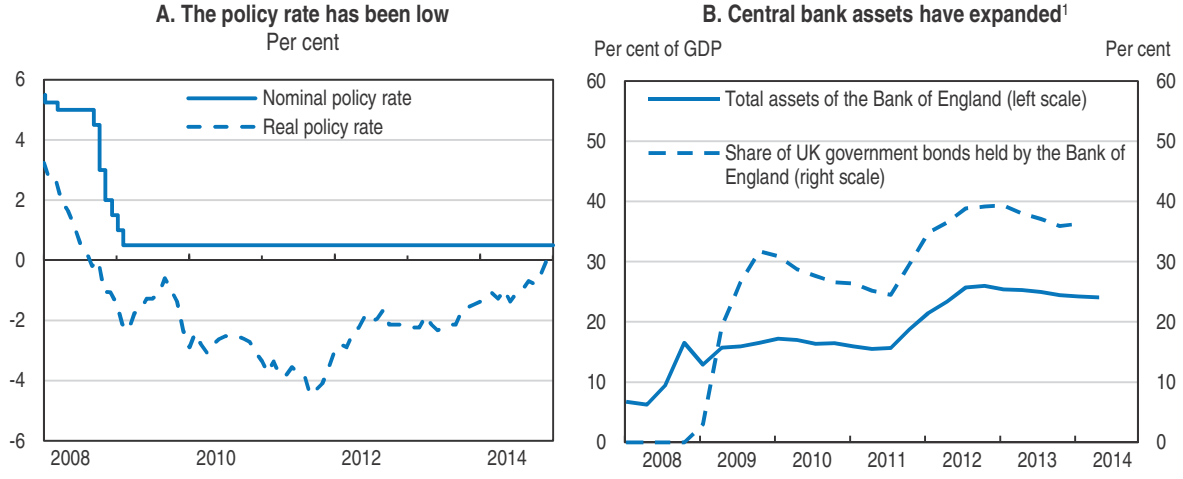
However, labour productivity per employee (and labour productivity per hour) has failed to rise since the global downturn, in contrast to previous recessions and recoveries (Figure 11, Panel A). Income and wealth are below the G7 average (Figure 2, Panel A) and real earnings have been exceptionally weak as they have continued to reflect poor productivity (Figure 11, Panel B). In 2013, real GDP per capita was slightly more than 10% lower than in the upper half of OECD countries, with the gap being essentially explained by lower labour productivity (OECD, 2015). Developing a knowledge-based economy, strengthening infrastructure investment and improving the financing of the economy are all critical in this regard (see below).

Normalising macroeconomic policies

Gradually reducing the size of monetary stimulus

In response to the global crisis, the policy rate was cut to 0.5% in March 2009, and has been negative in real terms until recently (Figure 12, Panel A). Between March 2009 and October 2012, the BoE implemented quantitative easing (QE) by purchasing GBP 375 billion (nearly 25% of GDP) of long-term securities, essentially government bonds (Figure 12, Panel B). Empirical studies suggest that the QE programme may have lowered 10-year gilt yields by 90 basis points, corresponding to a cut in the policy rate by around 350 basis points, and providing temporary boost to real GDP estimated at about 2% (Rawdanowicz et al., 2014). The overall short-term stimulus of QE on GDP is likely to have been higher, as the programme also weakened the exchange rate and improved household financial wealth.

Figure 12. **Monetary policy has been highly expansionary**



1. Government bonds refer to conventional gilts.

Source: Bank of England, ONS (2015), "Consumer Price Inflation, January 2015", Office for National Statistics, February and UK Debt Management Office.

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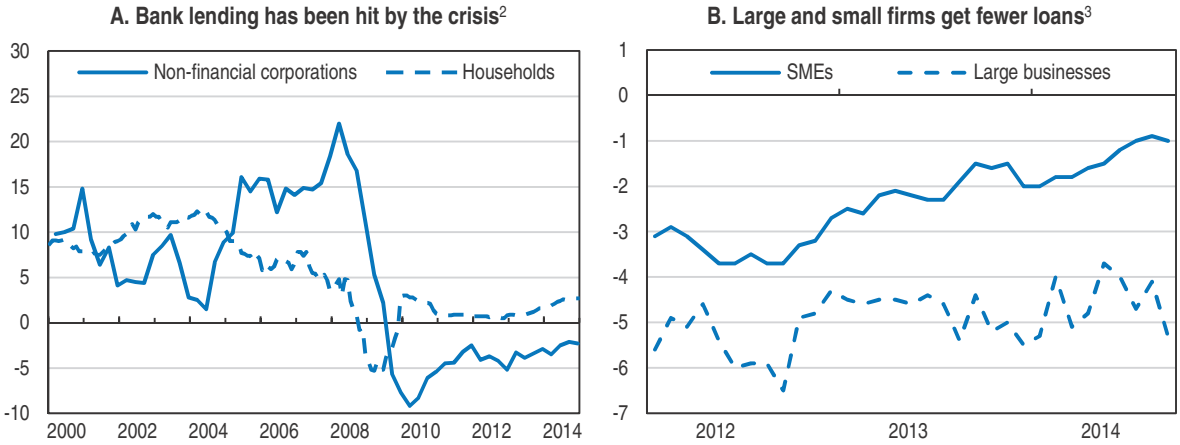
In July 2012, the Treasury and the BoE launched the Funding for Lending Scheme (FLS) to provide funding to banks and building societies on attractive conditions linked to their lending performance. Since then, the programme was modified by further increasing incentives to lend to SMEs in April 2013, but was terminated for mortgages in November 2013. The FLS has contributed to a reduction in bank funding costs, helping to unblock access to bank lending. Survey evidence suggests that broader credit conditions

have improved for businesses of all size, including SMEs. Although bank lending to businesses has continued to fall (Figure 13), the programme may have prevented steeper declines (BoE, 2014b). Yet, empirical evidence has not found an impact on the loan supply to SMEs from the expansion of the scheme between April and December 2013, at the time declining market funding costs were reducing banks' incentives to use the programme (Havrylchyk, 2015). To insure against an increase in banks' funding costs, in December 2014 the Treasury and the BoE extended the scheme to January 2016. The UK government has also established the British Business Bank to unlock lending to smaller businesses, bringing together existing and new support programmes.

Figure 13. **Net loan growth of monetary financial institutions has been weak**

Per cent[1]



1. 12-month growth rates. Data are not seasonally adjusted.
2. Lending to non-financial corporations (NFCs) refers to UK resident monetary financial institutions' sterling and all foreign currency net lending to NFCs. Lending to households refers to monetary financial institutions' sterling net lending (M4) to the household sector.
3. These data relate to loans and advances in all currencies made by UK monetary financial institutions (MFIs) to non-financial businesses, including to small and medium-sized enterprises (SMEs). SMEs are defined as those with an annual debit account turnover on the main business account of up to GBP 25 million. Those with an annual debit account turnover on the main business account above GBP 25 million are termed "large businesses".

Source: Bank of England (2015), "Monetary and Financial Statistics", *Statistical Interactive Database*, January.

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In March 2013, the government announced the Help to Buy programme to stimulate loan demand for high loan-to-value mortgages (a deposit of only 5% is required) and to encourage housing supply. Help to Buy has so far supported a total of close to 70 000 transactions, broadly in line the authorities' expectations, compared to transactions of about 100 000 per month that were executed in 2014. The programme has been used predominantly by first-time buyers outside London, with average transaction prices being significantly below the national average.

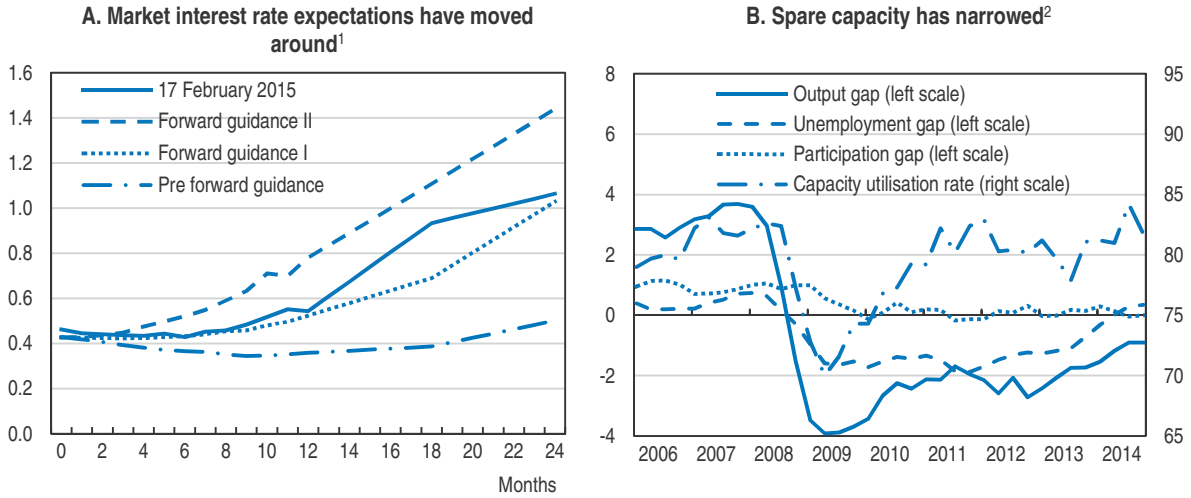
In August 2013, the BoE adopted forward guidance, emphasising the importance of communicating the factors that would frame the monetary policy stance, in particular the unemployment rate. Survey evidence suggests that greater certainty about interest rates may have supported confidence, particularly of businesses, contributing to higher investment and hiring decisions of some firms (BoE, 2014c). As the unemployment rate rapidly plunged toward the threshold of 7%, forward guidance was refined in February 2014 with the BoE starting the publication of a wide range of variables since then. Moreover, the

Monetary Policy Committee indicated that there remained scope to further absorb spare capacity before lifting the policy rate, and that future interest rate normalisation would be limited and gradual, to a level materially below the pre-crisis average of 5%.

Monetary accommodation has so far proved sustainable in the sense that inflation has fallen below the inflation target of 2% (Figure 8, Panel A) and wage pressures have been non-existent, although real wage growth has become positive more recently. The timing and pace of the withdrawal of monetary support will depend on economic developments, notably, and in accordance with the BoE's symmetric inflation target to ensure that inflation expectations remain anchored. Market participants' expectations of interest rate normalisation have moved around (Figure 14, Panel A). Slack has been closing, although such measures are uncertain and there is evidence that some workers would like to work longer hours (Blanchflower and Machin, 2014) (Figure 14, Panel B). The number of vacancies has been rising steeply in the main sectors and the number of unemployed per vacancy has been falling (Figure 15). Policymakers should look through temporary effects on inflation of weaker commodity prices and a stronger exchange rate.

Figure 14. **Normalisation of policy rates should start soon**

Per cent



1. Future interest rates derived from zero yield curves. Horizontal axis refers to the number of months into the future. Pre forward guidance refers to the average of interest expectations for the period between 2 Jan. 2013 and 6 Aug. 2013. Forward guidance I refers to the average of interest expectations for the period between 7 Aug. 2013 and 11 Feb. 2014. Forward guidance II refers to the average of interest expectations for the period between 12 Feb. 2014 and 17 Feb. 2015.
2. Capacity utilisation rate in the manufacturing sector. Output gap is defined as the difference of actual and trend output as a percentage of trend. Unemployment gap is defined as the difference between non-accelerating inflation rate of unemployment (NAIRU) and unemployment rate. Participation gap is defined as the difference of actual and trend participation rate as a percentage of trend.

Source: OECD calculations based on Datastream and OECD (2015), *OECD Economic Outlook: Statistics and Projections* and *Main Economic Indicators* (databases), January.

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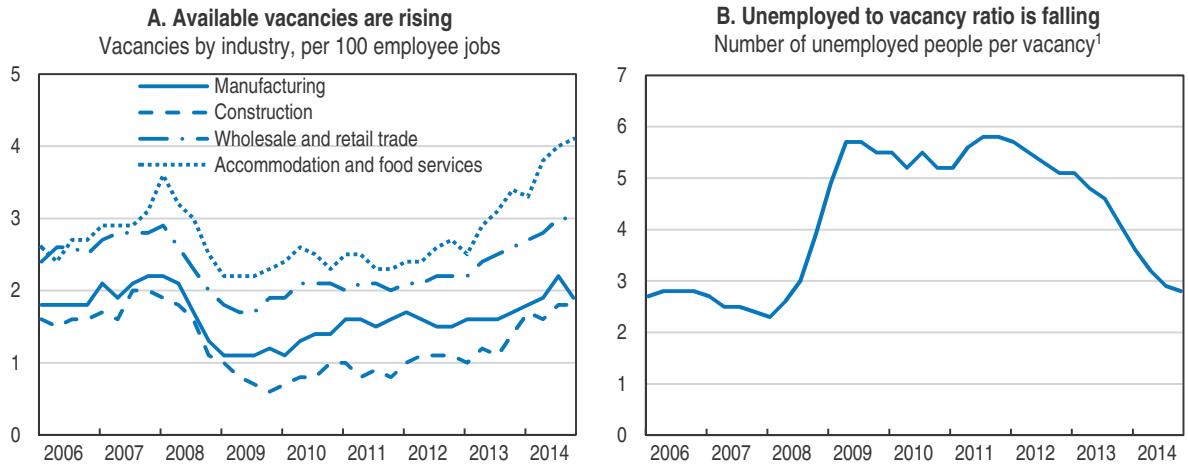
The BoE does not plan to reduce the stock of purchased assets until after the first interest rate hike (BoE, 2014c). This sequencing would give it some room for manœuvre to use the policy rate as an active tool in response to adverse shocks to activity. In any case, transparent communication will be needed during the exit from years of a highly-accommodative policy stance.

Figure 15. **Tensions are emerging in the labour market**



1. Unemployment data refer to the population aged 16 and over. Data for Q4 2014 refer to the period between September and November 2014.

Source: ONS (2015), "Labour Market Statistics, January 2015", Office for National Statistics.

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Continuing fiscal consolidation

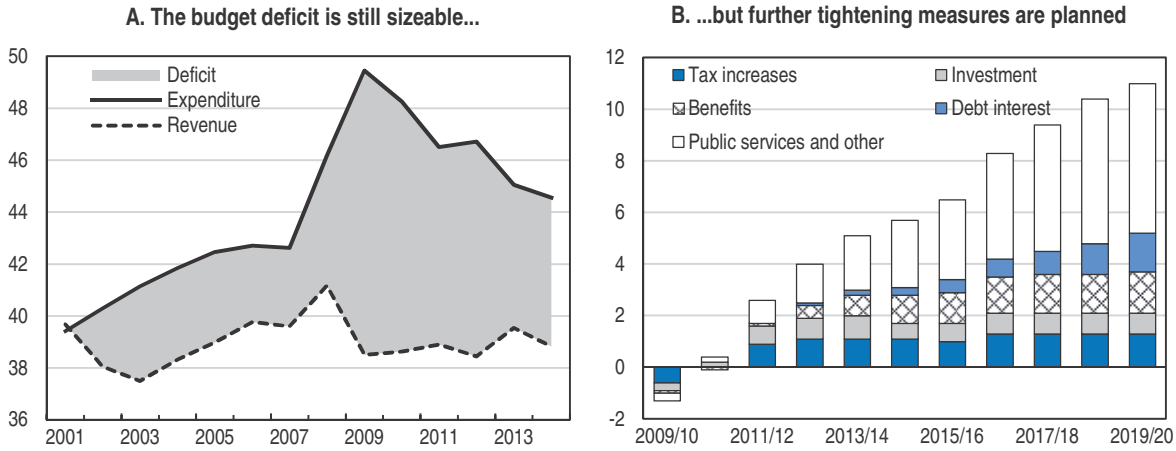
Public finances were hit hard by the crisis and the budget deficit reached nearly 11% of GDP in 2009 (Figure 16, Panel A). From 2010 to the end of 2014, the government had been pursuing two fiscal targets: i) to balance the current budget (which is overall budget net of investment spending) in cyclically-adjusted terms by the end of a rolling five-year period; and ii) to begin to reduce public sector net debt (which is gross debt excluding liquid assets) as a share of GDP in 2015-16. To reach both targets, the authorities have been implementing a medium-term fiscal consolidation plan (Figure 16, Panel B). The budget, net of investment spending, is projected to reach a cyclically-adjusted surplus of 0.7% in 2017-18 and public sector net debt is projected to peak in 2015-16 and start falling the year after (OBR, 2014). From Budget 2015, the updated fiscal mandate will aim to achieve cyclically-adjusted current balance by the end of a rolling three-year period and a falling public sector net debt as a share of GDP in 2016-17. Implementation of fiscal consolidation has been monitored by the Office for Budget Responsibility (OBR), a high-profile fiscal watchdog created in 2010, whose stability and independence could be consolidated if it were funded by a multiannual commitment under Parliament's scrutiny. OBR's independence could also be strengthened by defining the term span of the chair independently of the electoral cycle (OECD, 2014b).

Between budgets 2009-10 and 2014-15, discretionary measures amounted to 7% of GDP, with three-quarters of the adjustment on the spending side, including cuts in public services, investment and benefits. More recently, some revenues have disappointed owing to weaker wage growth, lower residential property transactions and lower oil and gas revenues. This will require further offsetting measures to stick to the medium-term consolidation plan.

Fiscal consolidation has had important distributional effects, as it mainly fell on the top 20% of earners essentially because of tax increases, and the bottom 20% of earners because of cuts in tax credits and benefits, partly offset by successive above-inflation increases in the tax-free allowance (Figure 17, Panel A). However, the net position of the

Figure 16. **Fiscal consolidation is underway**

Per cent of GDP



Source: OECD (2015), *OECD Economic Outlook: Statistics and Projections* (database), January and Institute for Fiscal Studies.

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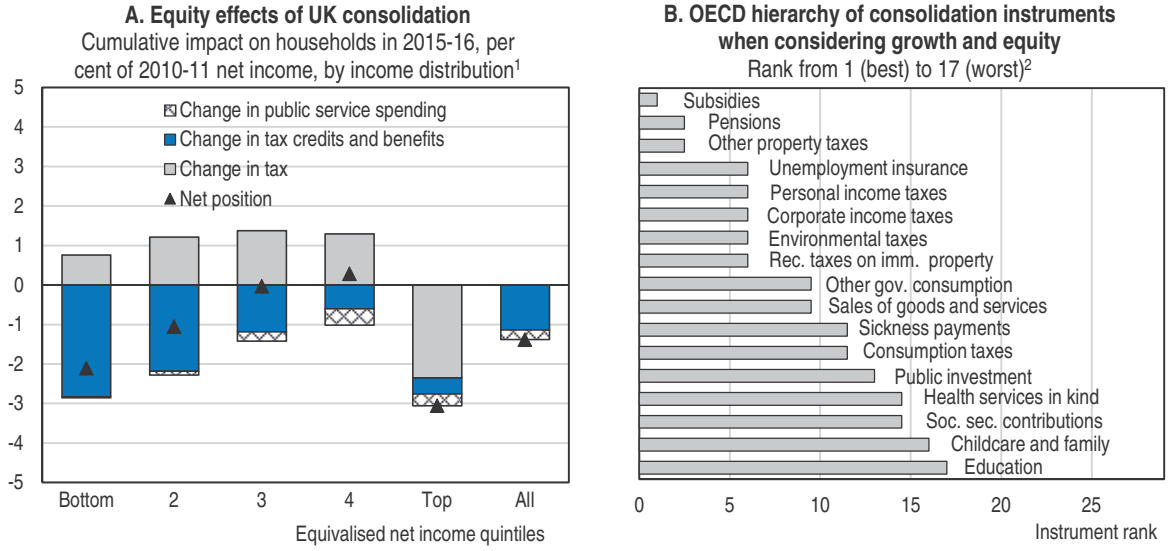
Figure 17. **Distributional impact of fiscal consolidation**



1. Cumulative impact of public service spending, tax and welfare changes on households in 2015-16 as a percentage of 2010-11 net income (including households' benefits in kind from public services). Net income quintiles adjusted for household size.
2. The ranking of instruments is determined based on their short-term and long-term effects on growth, short-term and long-term effects on equity, with equal weights and scores of +1 (positive influence) or -1 (negative influence) attributed in each case.

Source: HM Treasury (2014), "Impact on Households: Distributional Analysis to Accompany Autumn Statement 2014", December and Cournède, B., A. Goujard and Á. Pina (2013), "How to Achieve Growth- and Equity-friendly Fiscal Consolidation?: A Proposed Methodology for Instrument Choice with an Illustrative Application to OECD Countries", *OECD Economics Department Working Papers*, No. 1088, OECD Publishing.

StatLink http://dx.doi.org/10.1787/888933189117

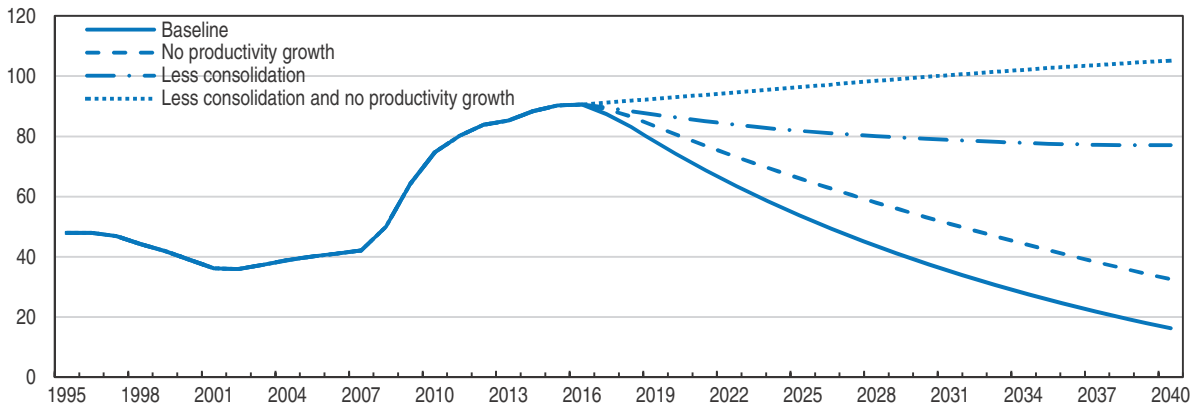
third and fourth income quintiles has so far been little affected. Once real wage increases start to be sustained, a stronger contribution from average-income earners to additional fiscal consolidation efforts would help to reduce pressure on low-income earners. The authorities' assessment of distributional impacts of fiscal consolidation is welcome and

should be continued. Performing such analysis as policy proposals evolve would further support sound decision-making.

If the latest medium-term projection of the OBR to reach a budget surplus of 1% of GDP in 2019 is achieved (OBR, 2014) and assuming nominal GDP growth is about 4.5%, debt will fall sharply relative to GDP (Figure 18, baseline scenario). Structural reforms would make it easier to maintain such a surplus, though. In particular, raising the state pension age for men and women to 66 in 2020 and to 67 between 2026 and 2028, as already legislated, and linking the pension age to life expectancy, as the government has announced, would mitigate spending pressures. On the other hand, a recent decision to allow higher lump-sum withdrawals of pension assets, designed to give people flexibility and to make an informed choice, could however result in people having too little saving for retirement, ultimately resulting in political pressure to raise state pensions (OECD, 2014c). Public debt would only stabilise at nearly 80% of GDP if fiscal consolidation were to stop in 2016 and the budget deficit remained at close to 3% of GDP thereafter (the "less consolidation" scenario). Should productivity be flat and the deficit maintained at 3% of GDP, the public debt would rise steadily (the "less consolidation and no productivity growth" scenario).

Figure 18. **Simulations show that reducing public debt will require further efforts**

General government gross debt, Maastricht definition, per cent of GDP[1]



1. The baseline scenario shows projections based on the *OECD Economic Outlook: Statistics and Projections* database until 2016, prolonged with the growth scenario used in the OECD (2014), "Long-term Baseline Model" (GDP growth in the period 2017-40 averaging 2.6% in real terms and 4.6% in nominal terms). It excludes financial transactions and assumes achieving budget balance in 2018 and a surplus of 1% of GDP from 2019 onwards. The "no productivity growth" scenario assumes only employment growth (averaging 0.5% in real terms) over 2017-40. The "less consolidation" scenario assumes that the budget deficit stabilises over 2017-40 at 3.1% of GDP. The "less consolidation and no productivity growth" scenario is a combination of constant budget deficit at 3.1% of GDP and only employment growth over the period 2017-40.

Source: Calculations based on OECD (2015), *OECD Economic Outlook: Statistics and Projections* (database), January and Office for Budget Responsibility (2014), "Fiscal Sustainability Report", July.

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Fiscal consolidation needed to fulfil the authorities' medium-term plan amounts to an estimated reduction in the primary structural budget balance of nearly 2.5% of GDP from 2014 to 2016 (Table 1). From 2015-16, the authorities plan to cap welfare spending (apart from pension and unemployment benefits) while public services are expected to bear the major part of the adjustment (Figure 16, Panel B). This would imply reducing government consumption of goods and services by around 6.5% of GDP between 2010-11 and 2019-20, to the lowest level at least since 1948 (OBR, 2014). However, the exact composition of fiscal

adjustment will need to be set out by the next government. Continuing the current policy of protecting (i.e. maintaining or slightly raising real spending) some departments (health, education and international development) would imply average cuts in real terms on the others of close to 40% between 2010-11 and 2019-20 (Crawford, 2014). The current government is aiming to achieve further efficiency gains in public administration, but there is evidence suggesting the potential scope for this is rather low (Hribernik and Kierzenkowski, 2013). Hence, the composition of fiscal adjustment should be reviewed to ease pressure on public services that have already contributed to consolidation.

There is scope to boost further efficiency in the health sector and education (OECD, 2011a; OECD, 2011b). In the former, by addressing excessive remuneration for general practitioners and by further increasing competition in health care provision. In the latter, efficiency can be strengthened by supporting higher and more equal autonomy across school types, and focusing investment and policies on disadvantaged children could generate more long-term savings. Yet, reforms should be carefully calibrated to preserve high health status (Figure 2, Panel A), growth and equity (Figure 17, Panel B).

There is room to increase revenue while making the tax system more efficient. Income tax expenditures are large and reducing them in certain areas could also improve resource allocation and productivity (Cournède et al., 2013). In particular, the self-employed could be subject to the same income taxes as employees, as recommended by the *Mirrlees Review* (Mirrlees et al., 2011), which would support the quality of entrepreneurship and hence productivity. Moreover, higher social security contributions could be levied on the self-employed. Updating property valuations of the council tax, as discussed below, would further support public finances and improve equity, and would not hurt growth much (Figure 17, Panel B). Removing preferential and zero value-added tax (VAT) rates could generate substantial revenue (Cournède et al., 2013; OECD, 2011a). Only reduced VAT rates on food, energy and water supply have major progressive effects and therefore removing them could require adjustments to welfare programmes to protect the poor (Thomas, 2014).

Key macroeconomic policy recommendations

- As underlying inflationary pressures emerge, gradually start increasing the policy rate and, thereafter, begin reducing the size of the Bank of England's balance sheet.
- Continue to pursue the medium-term fiscal consolidation path while letting automatic stabilisers operate, and ensure consolidation efforts are fair.
- Seek further efficiency gains in health and education, and broaden the tax base, such as equalising income taxes and social security contributions between the self-employed and employees.

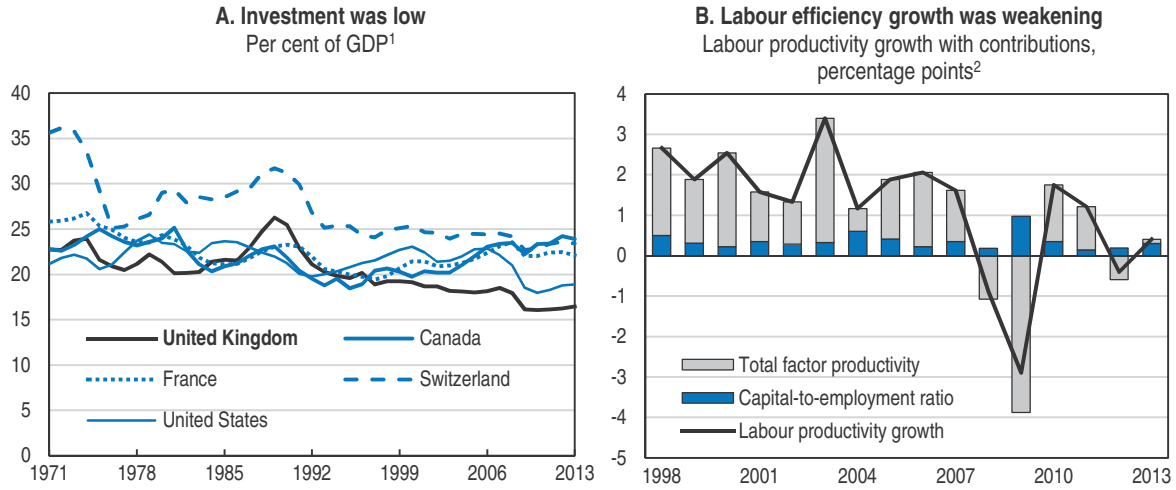
Rekindling productivity growth

Drivers of the productivity puzzle

Subdued productivity since the crisis may reflect a combination of shocks that have lowered capital stock accumulation, reduced labour efficiency and boosted labour supply. These shocks have compounded productivity developments that were losing momentum in the run-up to the crisis.

The investment ratio was trending downward and was low in international comparison prior to the crisis (Figure 19, Panel A). It has been further hit by the global downturn, which led to weak demand, large uncertainty and depressed business confidence (Figure 5, Panel B). Impaired credit availability (Figure 13) and higher bank lending spreads, particularly for SMEs (Figure 20), have held back business investment. Tighter financial regulation needed to enhance financial stability and the reassessment of risk could have long-lasting effects (Cournède, 2010; Slovik and Cournède, 2011; Broadbent, 2012; McCafferty, 2014; Daly, 2014; Lewis et al., 2014). Fiscal consolidation has contributed to lower accumulation of the capital stock by the public sector (Figure 16, Panel B). At the same time, high wage flexibility may have encouraged substitution of labour for capital.

Figure 19. **Productivity growth was losing momentum before the crisis**



1. Investment refers to gross fixed capital formation.
2. Labour productivity is defined as output per worker (i.e. real gross value added (GVA) divided by total employment). Contributions to growth are calculated using a weight of 0.67 for employment and 0.33 for productive capital; total factor productivity is calculated as a residual. Productive capital excludes investment in housing.

Source: OECD (2015), *OECD Economic Outlook: Statistics and Projections* (database), January, ONS (2014), "Labour Productivity, Q3 2014", Office for National Statistics, December, ONS (2014), "Capital Stocks and Consumption of Fixed Capital, 2014", Office for National Statistics, November and ONS (2015), "Labour Market Statistics, January 2015", Office for National Statistics.

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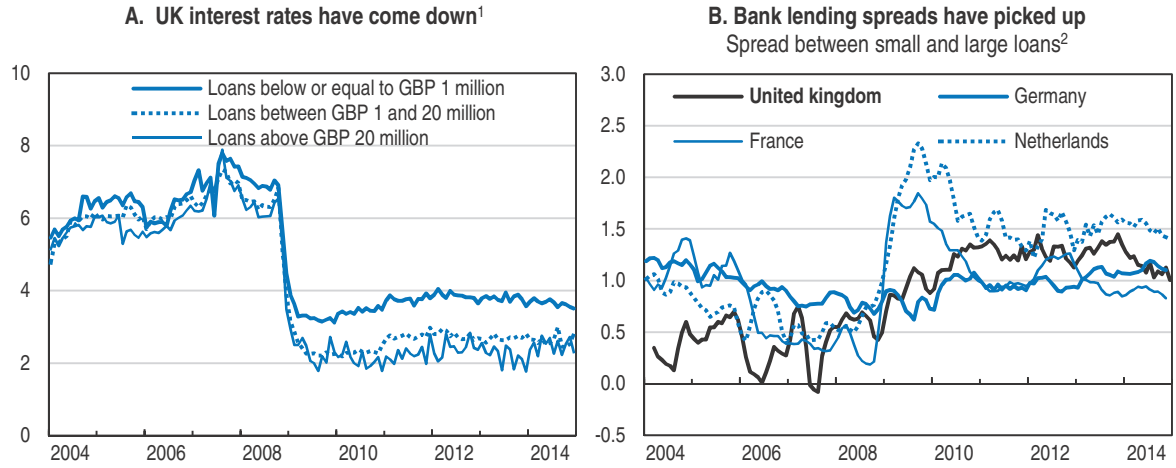
Total factor productivity (TFP) growth was weakening before the crisis (Figure 19, Panel B). Since the crisis, the build-up of intangible capital has fallen as the proportion of companies reporting product and process innovation has dropped (Barnett et al., 2014a). Moreover, capital and labour reallocation has weakened, holding back TFP. Churn in the labour market tumbled, although it has been rising more recently (Figure 21, Panel A), and there is evidence of less worker reallocation from low to high productivity firms (Barnett et al., 2014b). The movement of capital across and within sectors has been particularly low despite a significant increase in the dispersion of rates of returns, which should have increased incentives to reallocate (Barnett et al., 2014c). Pressure for corporate restructuring may have been lower than in the previous recession as reflected by a high share of loss-making firms, one reason being weak lending efficiency and possibly a crowding out of lending to new firms (Figure 21, Panel B). Also, business liquidations have been low compared to the size of the output shock and relative to the previous recession of the early 1990s. Poor resource reallocation may have resulted from bank forbearance and

Figure 20. **Businesses face lower bank lending rates, but higher risk premiums**

Percentage points



1. Monthly average of weighted average interest rates of UK resident monetary financial institutions' (excluding Central Bank) new sterling loans to private non-financial corporations. Not seasonally adjusted.
2. Three month moving average applied. In the United Kingdom, small loans are defined as loans below GBP 1 million, while in France, Germany and Netherlands small loans are defined as loans below EUR 1 million.

Source: Bank of England (2015), "Interest and Exchange Rates Data", *Statistical Interactive Database*, January and ECB (2015), "MFI Interest Rates", *Statistical Data Warehouse*, European Central Bank, January.

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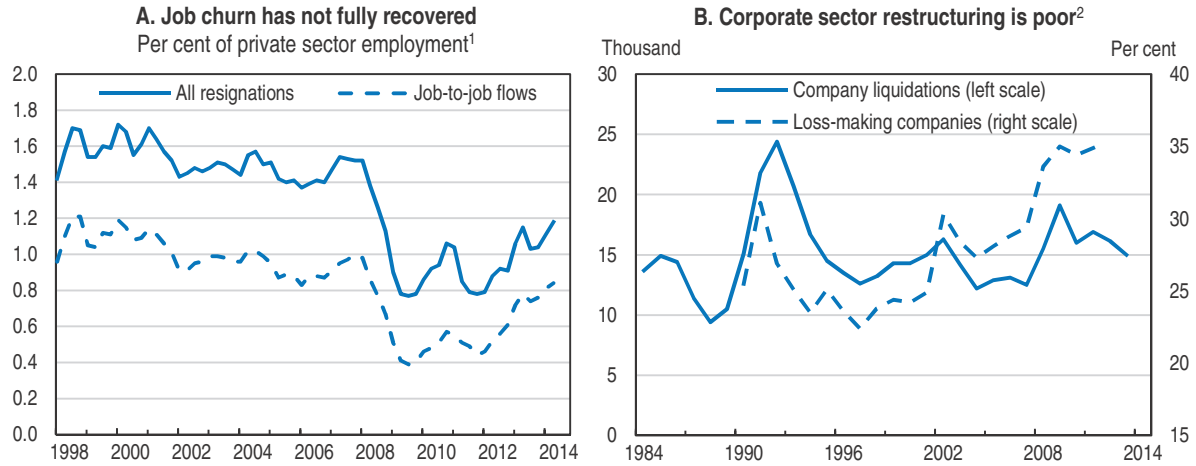
low interest rates (Arrowsmith et al., 2013), and some tax reliefs for firms (Barnett et al., 2014a).

Structural reforms have strengthened labour supply. Welfare, pension and immigration reforms have lowered reservation wages, and declines in labour unionisation have reduced labour's bargaining power (Blundell et al., 2014; Pessoa and Van Reenen, 2014; OECD, 2014a). These reforms have lifted the participation rate (Figure 9, Panel C; Figure 10, Panel A), which otherwise would have been falling if only accounted for by population ageing (BoE, 2014d). Increased labour supply has put downward pressure on productivity and it may take time for the capital stock to adjust to the higher level of labour (Carney, 2014). Moreover, recent job growth has partly been concentrated among individuals who may have lower-than-average productivity, moving into employment with generally lower skills and/or remaining self-employed.

Subdued productivity since 2007 is reflected in a persistent gap between actual and trend output, while employment has essentially converged to its pre-crisis trend (Figure 22) and total hours worked are already slightly above pre-crisis trend. However, this masks important heterogeneity across sectors (Figure 23; Kierzenkowski et al., 2015).

In non-financial services (explaining about a third of the overall productivity shortfall), employment and output have been recovering since 2010 but productivity growth has weakened, notably as the sector has absorbed increased labour supply (Figure 23, Panels A and B). In fact, this sector has been a high recipient of self-employed. In manufacturing (accounting for almost 30% of the overall productivity shortfall), employment was steadily falling prior to the crisis but it has been remarkably stable since 2010, suggesting weaker corporate restructuring and substitution of labour for capital (Figure 23, Panels C and D). In parallel, weak output may have reduced incentives for business investment. In the finance and insurance sector (contributing nearly 25% to the total productivity gap), output has

Figure 21. **The reallocation of labour and capital resources has been weak**



1. All resignations refer to the number of people who report resigning three months ago, and report being employed, unemployed or inactive. Job-to-job flows refer to the number of people who report resigning three months ago, and report being in employment for less than three months. Two quarter averages.
2. Loss-making firms refer to the number of companies that reported negative pre-tax profits in each year as a percentage of the total number of private non-financial corporations in the Bureau van Dijk data set that report data on pre-tax profits. Companies in the mining and quarrying, electricity and gas supply, and water supply sectors and extra-territorial organisations are excluded from the calculations. For company liquidations changes to legislation, data sources and methods of compilation mean the statistics should not be treated as a continuous and consistent time series. Since the Enterprise Act 2002, a number of administrations have subsequently converted to creditors' voluntary liquidations.

Source: Bank of England (2014), "Inflation Report, November 2014" and "Inflation Report, August 2013", and Bank of England (2014), "The UK Productivity Puzzle", *Quarterly Bulletin 2014 Q2*, June.

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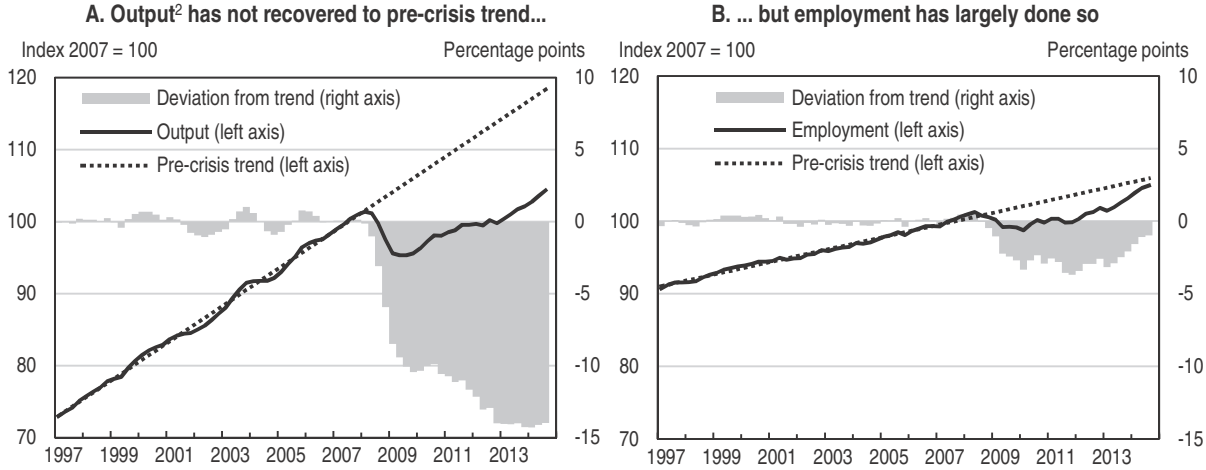
Figure 22. **Weak output is the main drag on productivity at the aggregate level**[1]



1. Pre-crisis linear output and employment trends are calculated between 1997 and 2007, and are projected from 2008 onwards.
2. Real gross value added (GVA).

Source: ONS (2014), "Quarterly National Accounts, Q3 2014", Office for National Statistics, December and ONS (2014), "Labour Productivity, Q3 2014", Office for National Statistics, December.

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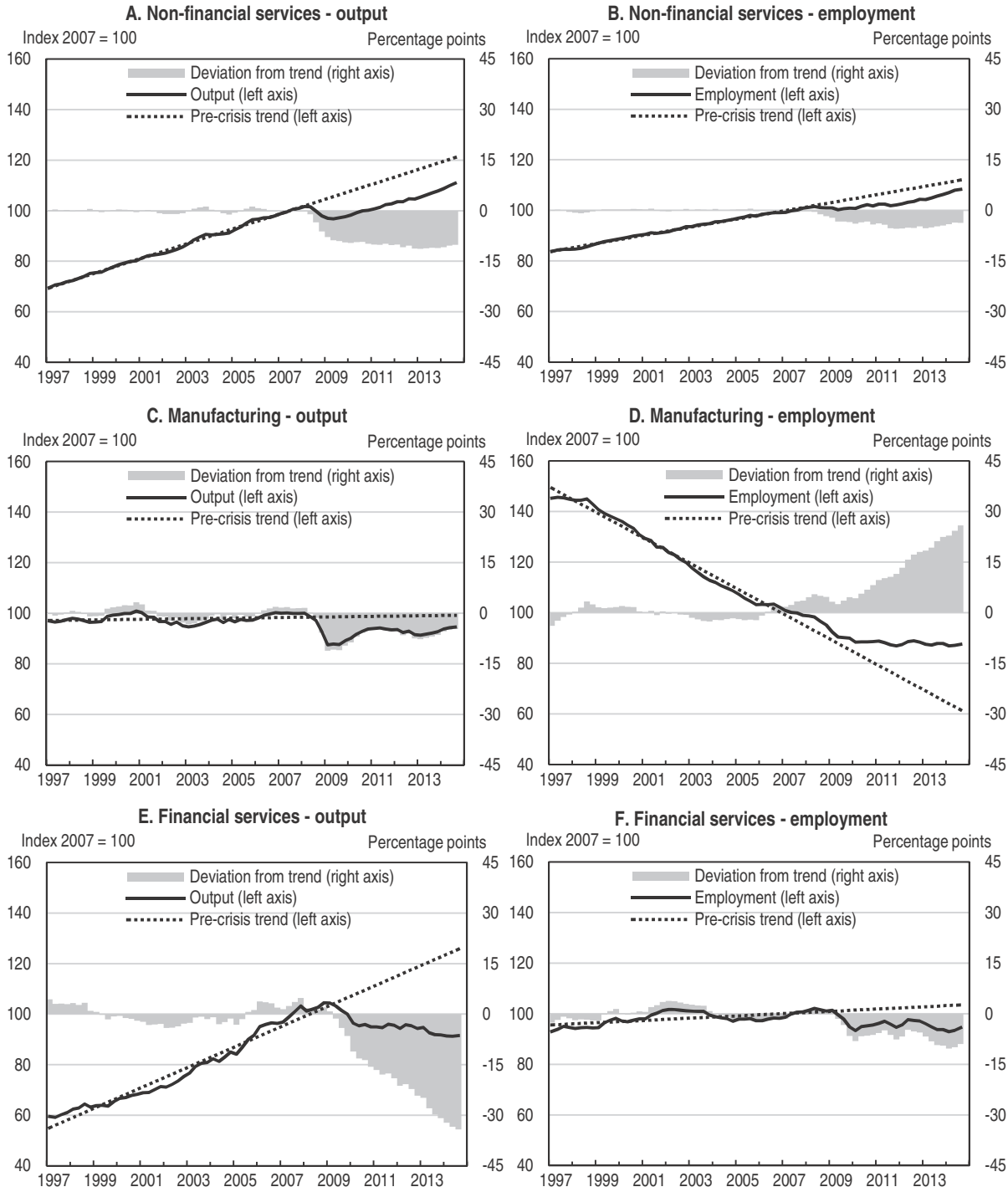
been falling in the wake of the financial crisis, but employment has been fairly steady perhaps owing to redeployment of staff to address higher compliance costs of tighter financial regulation (Figure 23, Panels E and F). With shrinking mining and quarrying

Figure 23. **There is significant heterogeneity in output and employment developments across sectors**[1]



1. Output refers to real gross value added (GVA). Pre-crisis linear output and employment trends are calculated between 1997 and 2007, and are projected from 2008 onwards.

Source: ONS (2014), "Quarterly National Accounts, Q3 2014", Office for National Statistics, December and ONS (2014), "Labour Productivity, Q3 2014", Office for National Statistics, December.

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sector (Figure 7, Panel A) (driving around 3% of the aggregate productivity shortfall) employment and output were on a secular decline before the crisis, but rising maintenance costs and willingness to improve production may explain an expansion in labour between 2009 and 2012. Indeed, output of the sector has stabilised since late 2012.

Enhancing a knowledge-based economy

Reforms are needed to strengthen the supply side of the economy and to unleash productivity. The UK has long-standing challenges related to education and skills (Figure 2, Panel A), take-up of research, infrastructure and land-use planning, and access to finance for young and innovative firms. Policies to favour a knowledge-based economy could include encouraging highly qualified immigrants to work and live in the UK, which would help to address skill shortages and to boost labour productivity. To that end, the government should ease quotas on company-sponsored visas, which were introduced between 2008 and 2010 at a time of low labour demand, but are too restrictive for the tightening labour market.

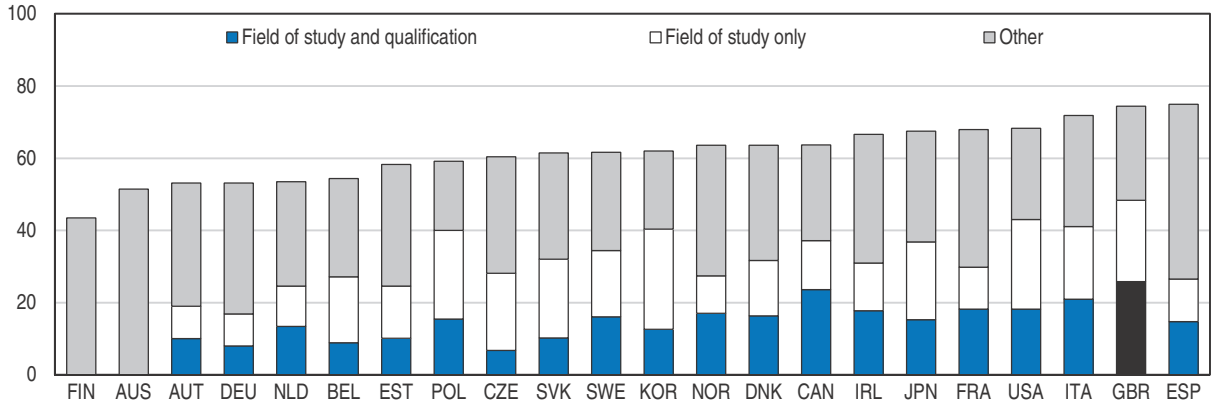
The youth employment rate is close to 50% and exceeds the OECD average by nearly 10 percentage points, but the UK slightly lags behind the rest of the G7 in terms of education and skills (Figure 2, Panel A). Reducing the incidence of labour market mismatches of youth in employment – which is high in terms of field of study and qualification, and field of study only (Figure 24) – would also improve labour efficiency. This could be achieved by requalification and lifelong learning. Improving career guidance and encouraging the combination of work and study would be additional steps to reduce mismatches of labour market entrants (OECD, 2014d), and the government has put strong emphasis on developing apprenticeships. Reforms of vocational education in England (OECD, 2013a) – including the expansion of high quality post-secondary programmes, employer engagement in the development of qualifications, and improvements in teacher qualification requirements – would be additional steps forward to enhance skills and productivity.

Vibrant competition in product markets is also an effective spur to productivity. The UK product market regulation is among the least restrictive in the OECD, although there is scope to reduce barriers in services sectors and relax the licence and permits system (Figure 25). In particular, a "silence is consent rule" is not a standard procedure, there are no single contact points for all licences and at the local level (at least in the three largest cities), and access to some commercial activities is subject to entry requirements (road freight business, retail outlets, accountancy, architecture). According to 2015 *Doing Business* survey of the World Bank, the UK overall ranks 8th out of 189 countries, but only 45th for starting a business, 68th for registering property, 70th for getting electricity, and 36th for enforcing contracts. More generally, continued efforts to develop knowledge-based capital, maintaining market dynamism and sustaining the diffusion of new technologies are key to raise productivity growth.

Tax measures continue to be implemented to encourage innovation and business investment (OECD, 2013b). The government has increased tax incentives for research and development and has announced a temporary business rates relief for small businesses. Business investment will also benefit from a more generous annual investment allowance until the end of 2015. The corporate income tax rate was cut in steps from 30% in 2007 to 20% in 2015, the lowest single rate for businesses of all sizes in the G20. Also, in 2013 the authorities introduced a "Patent Box", a tax rate of 10% on profits derived from patents. Such attractive tax conditions need to be coupled with requirements for substantial

Figure 24. **Youth job mismatch is high**

Total mismatch among youth (16-29) by type of mismatch, per cent of all youth in employment[1]



1. Data for Belgium and United Kingdom refer to Flanders and England and Northern Ireland respectively. Workers are classified as mismatched by qualification if they have higher or lower qualifications than required by their job and by field of study if they are working in an occupation that is not related to their field of study. The category of other includes mismatches by qualification only and by the combination of literacy, qualification and field of study. Occupation is only available at the 2-digit level in the ISCO-08 classification for Australia and Finland. Hence it is not possible to assess the extent of field of study mismatch in these two countries using the same definition used for the other countries.

Source: OECD (2014), *OECD Employment Outlook 2014*.

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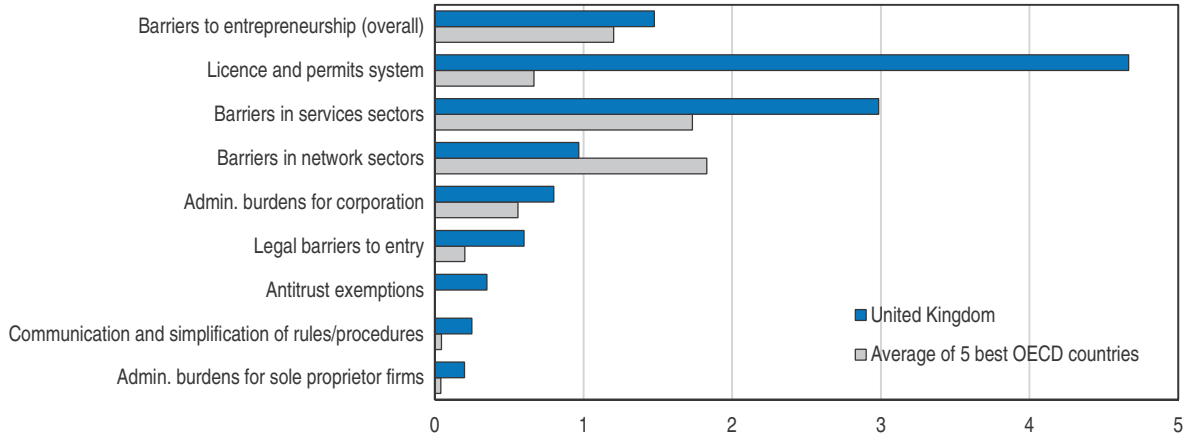
Figure 25. **There is scope to reduce barriers to entrepreneurship**

Product market regulation (PMR) score, index scale from 0 (least restrictive) to 6 (most restrictive)[1]



1. For antitrust exemptions the PMR score of the average of 5 best OECD countries is zero (i.e. least restrictive).

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

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activity to encourage productivity spillovers. The measures unveiled in the Autumn Statement 2014 demonstrate the willingness of the UK to put an end to double non-taxation. Also, international co-ordination is needed to avoid potential efficiency losses stemming from excessive tax competition, as well as to ensure a predictable and fair environment for business taxation.

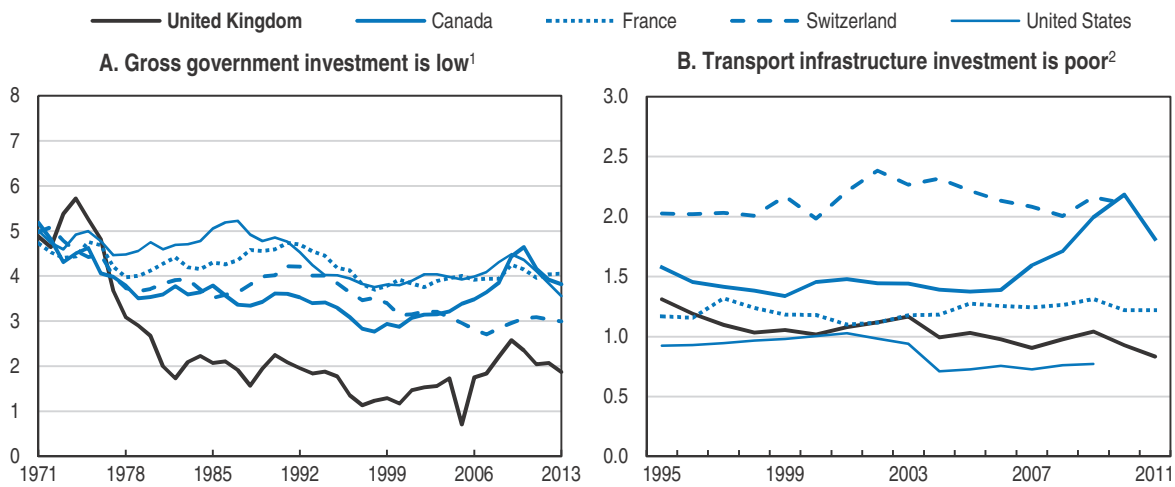
Improving infrastructure

Physical infrastructure is a key driver of productivity as it facilitates activity in other sectors via logistics, information and so forth. There are important complementarities

between public and private infrastructure spending. Gross government investment is only a fraction of total infrastructure investment, and is lower as a share of GDP in the UK than in other countries (Figure 26, Panel A), but it has started to rise in nominal terms since 2010. Overall spending on transport as a share of GDP is low (Figure 26, Panel B). Although there is no objective comparable data on the quality of infrastructure, surveys indicate that the perceived quality of UK overall infrastructure is lower than in a number of other advanced OECD economies (Figure 27).

Figure 26. **The United Kingdom has spent less on infrastructure compared to peers**

Per cent of GDP



1. Gross government fixed capital formation.
2. Also includes maintenance expenditure.

Source: OECD (2015), *OECD Economic Outlook: Statistics and Projections* (database), January and ITF (2013), "Spending on Transport Infrastructure 1995-2011", International Transport Forum, May.

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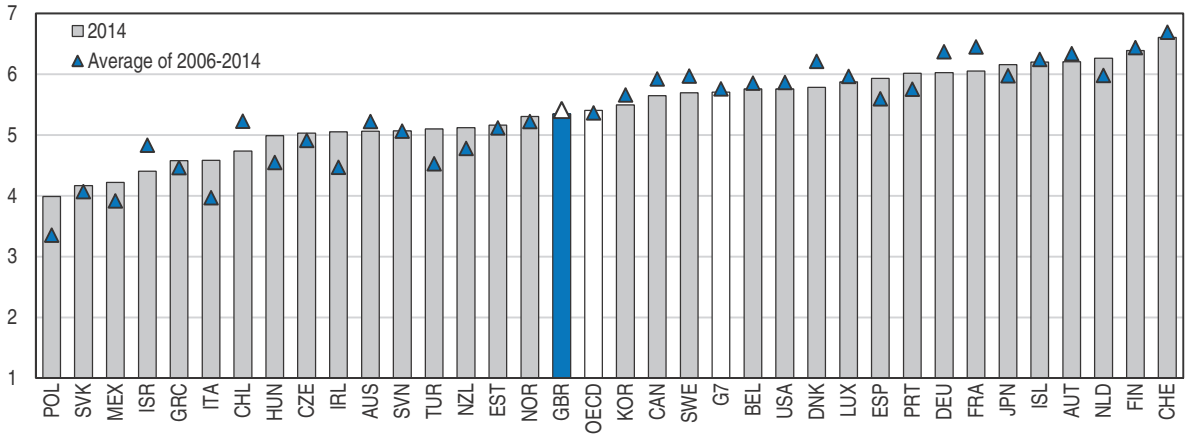
Upgrading road and railway infrastructure

Roads and railways are perceived of low quality (Figure 28, Panels A and B). Roads, which carry most of the freight, are congested. The government plans to expand the road network in the North of England, which would contribute to the development of the so-called Northern Powerhouse, thereby reducing regional disparities. The introduction of a user-paid toll system for the busiest parts of the road network, ideally with charges varying over time, would contribute to a more rational use of infrastructure by pricing congestion and therefore smoothing peaks in road traffic. The government could allocate the responsibility of managing the user toll system to the Highways Agency.

Following severe train accidents in the late 1990s and early 2000s, the quality of rail infrastructure has improved noticeably because of increased investment and maintenance spending. The UK railways system is now among the safest in Europe (ORR, 2013). However, OECD estimates point to cumulative investment needs of 3.5% of GDP between now and 2030 (OECD, 2012). Also, the UK railways system has in recent years been 20% to 40% less efficient than in Europe (McNulty, 2011). The government is attempting to reduce costs of operating trains and has garnered some success.

Figure 27. **There is scope to improve the perceived quality of overall infrastructure**

Value from 1 (worst) to 7 (best)[1]



1. Figures refer to the following question: How would you assess general infrastructure (e.g., transport, telephony, and energy) in your country (from 1 = extremely underdeveloped – among the worst in the world to 7 = extensive and efficient – among the best in the world)? The United Kingdom ranks 27th out of 144 countries in terms of perceived quality of infrastructure in 2014. The OECD aggregate is calculated as an unweighted average. The aggregate for G7 countries (excluding the United Kingdom) (i.e. Canada, France, Germany, Italy, Japan and United States) is calculated as an unweighted average.

Source: World Economic Forum (2014), *The Global Competitiveness Report 2014-2015*, Geneva.

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Railway infrastructure and trains operation are unbundled. This arrangement represents the best practice for attracting private investment and it promotes competition, but it is more complex to manage than a vertically integrated sector. The government should attempt to promote more co-operation between train operating companies and Network Rail, which manages the railway infrastructure assets, and to pursue efforts to reduce railway operation costs, which are higher than in other European countries.

There is scope to reform railway franchises and granting the responsibility of awarding them to an independent or quasi-independent agency could be beneficial. The government is studying the opportunity of extending the high-speed railways network. It should make sure that developing the high-speed network will not divert the resources for maintaining and improving the traditional one.

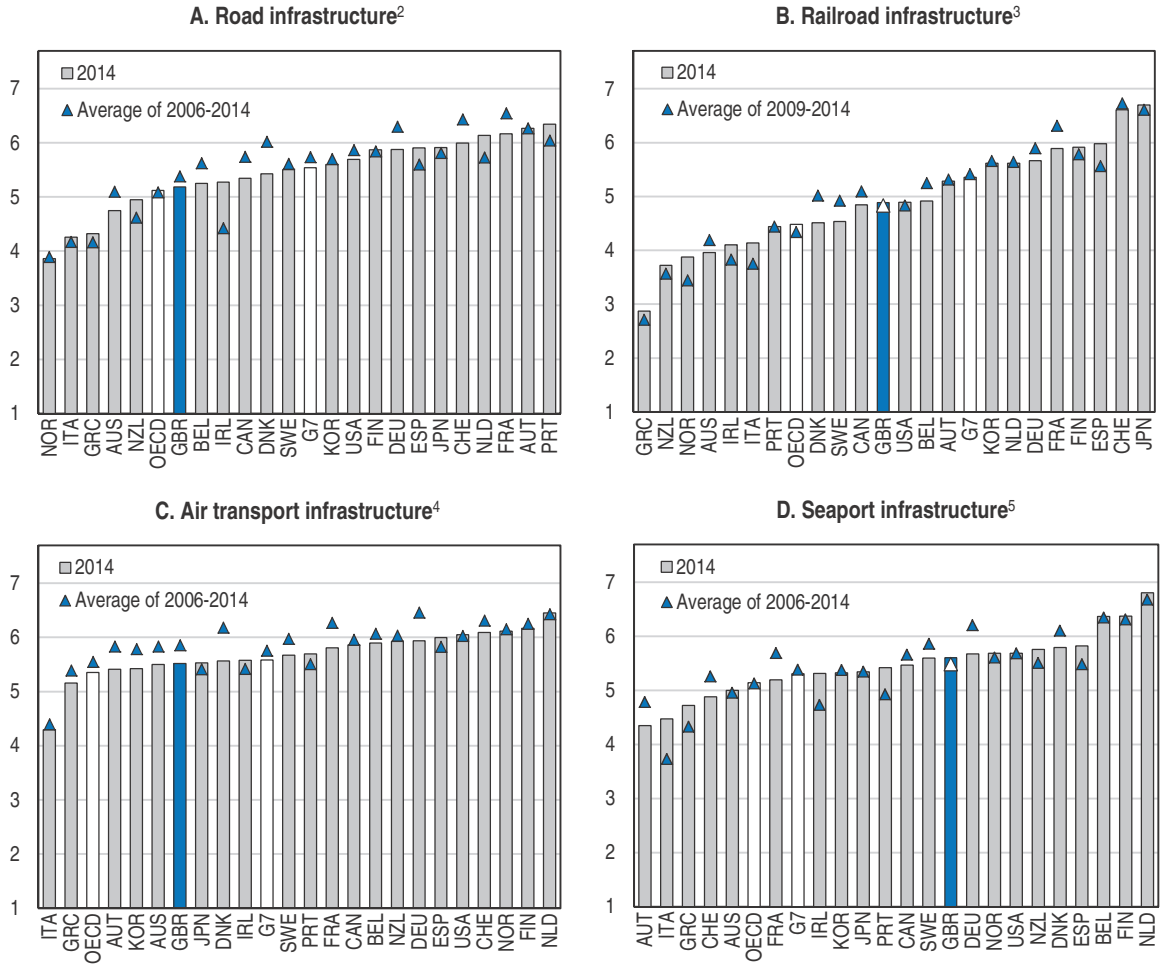
Infrastructure connecting the UK to the outside world

Being an island, airports and seaports are keys to connect the UK to the rest of the world. Airports are used efficiently but tight capacity hampers the air transport sector, especially in the South, where only one runway was built over the last two decades (Airports Commission, 2013). Moreover, the perceived quality of air transport infrastructure is weak and has been falling (Figure 28, Panel C). In 2012, the government set up an independent Airports Commission to analyse options for expanding airport capacity in the South. A final recommendation is expected in the summer of 2015, after the general election. It is very important that the government then takes a final decision to effectively tackle airport congestion while ensuring strong competitive pressures among airports.

Port infrastructure has been supported by steady investment, but greater capacity is needed to accommodate future increases in freight traffic and further improve quality (Figure 28, Panel D). Moreover, the operation and maintenance of electricity generation based on offshore renewable sources will require the use of port services, such as container

Figure 28. **Perceived quality of infrastructure is lagging behind compared to other affluent countries**

By sector, value from 1 (worst) to 7 (best)[1]



1. Figures refer to the following question: In your country, how would you assess the road, railroad system, air transport infrastructure and seaport facilities (For landlocked countries: How accessible are seaport facilities?) (from 1 = extremely underdeveloped – among the worst in the world to 7 = extensive and efficient – among the best in the world)? The OECD aggregate is calculated as an unweighted average. The aggregate for G7 countries (excluding the United Kingdom) (i.e. Canada, France, Germany, Italy, Japan and United States) is calculated as an unweighted average.
2. The United Kingdom ranks 30th out of 144 countries in terms of perceived road infrastructure quality in 2014.
3. The United Kingdom ranks 16th out of 104 countries in terms of perceived railroad infrastructure quality in 2014.
4. The United Kingdom ranks 28th out of 144 countries in terms of perceived air transport infrastructure quality in 2014.
5. The United Kingdom ranks 16th out of 144 countries in terms of perceived seaport infrastructure quality in 2014.

Source: World Economic Forum (2014), *The Global Competitiveness Report 2014-2015*, Geneva.

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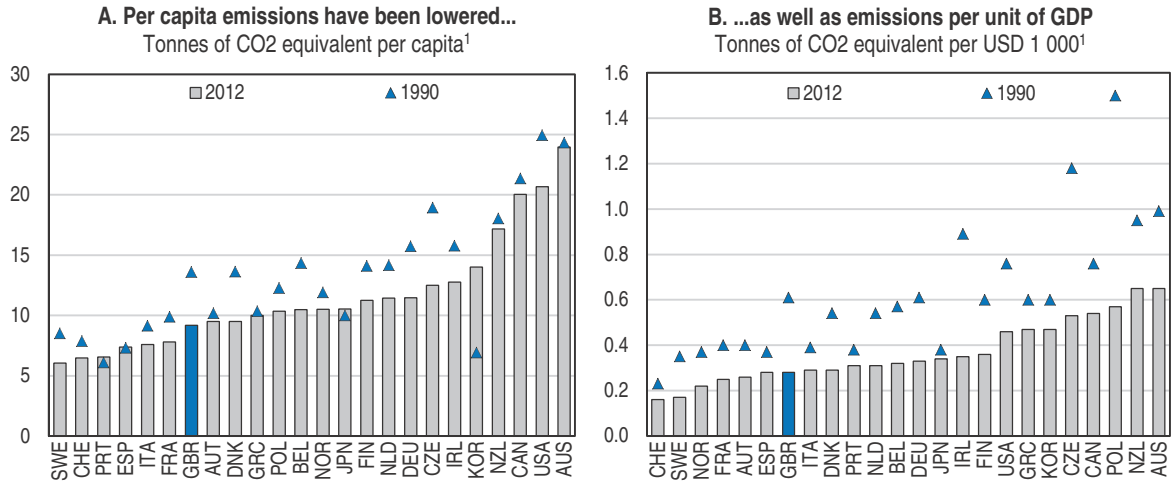
terminals. Because of the government's targets for renewables, ports' infrastructure plans should explicitly integrate impacts on offshore energy sources. This would support investor confidence and help to pay for ports' investments.

Greening the infrastructure

Infrastructure will also be key to achieving emission reduction targets and transitioning towards green growth and therefore contribute to well-being. Greenhouse gas (GHG) emissions have been significantly lowered over the last twenty years or so (Figure 29) and the UK scores high on environmental quality indicators (Figure 2, Panel A). For the

Figure 29. **Greenhouse gas emissions have been reduced**



1. Excluding emissions or removals from land-use, land-use change and forestry (LULUCF). 2011 instead of 2012 for Korea. CO_2: carbon dioxide.

Source: OECD (2014), "Greenhouse Gas Emissions", *OECD Environment Statistics* (database), December.

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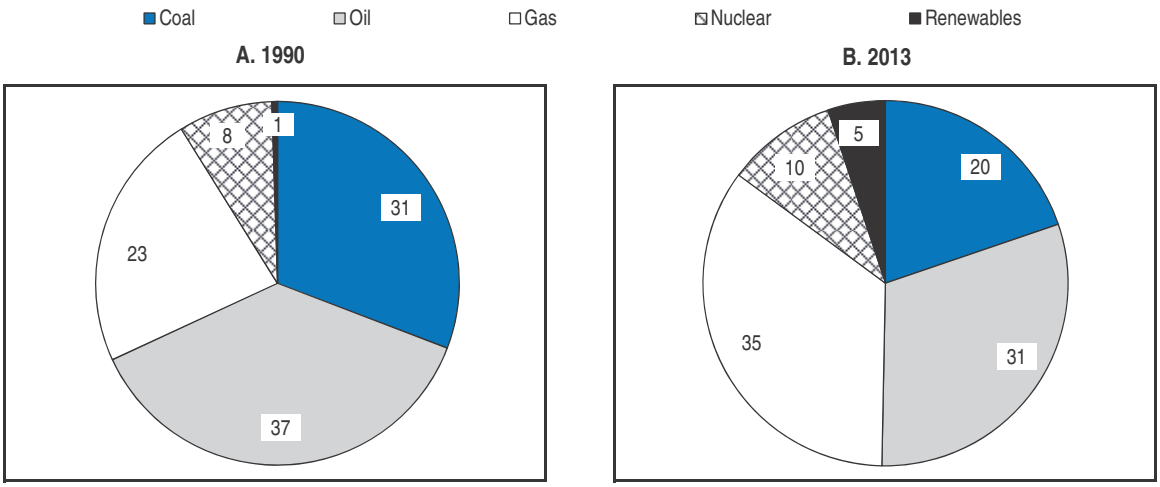
second Kyoto Protocol's commitment period, and as defined in the European Union (EU) Effort Sharing Decision, the UK needs to cut emissions not covered by the EU Emissions Trading System by 16% by 2020, relative to 2005. Additionally, the UK unilaterally committed in the 2008 Climate Change Act to reducing its GHG emissions by 34% by 2020 and by 80% by 2050, based on 1990 levels.

The share of renewables in the energy mix has increased rapidly, but remains low as the UK started from a lower base than other OECD countries (Figure 30). Ageing energy infrastructure poses investment challenges but also offers the opportunity to decarbonise the energy sector. Electricity plants accounting for about a fifth of the country's electricity generating capacity exiting in the early 2010s are scheduled to close and to be replaced by the end of the decade (IEA, 2012). The government should address non-financial barriers to increase the share of renewables in electricity generation. Supply chains for renewables should be reinforced, particularly in the offshore wind sector, and clarity on planning issues improved, so as to maintain investors' confidence. The Green Investment Bank (GIB) can play an important role in supporting this shift towards renewable energy sources. The GIB is the world's first investment bank focusing on accelerating the transition towards green economy by financing commercially viable projects. The government should further support through grants and guarantees low-carbon technologies that are not yet commercially viable but have the prospect of becoming so, such as carbon capture and storage, marine energy, and biofuels for transport. Although energy use per unit of GDP is already low in the UK, given the small share of energy-intensive industry, there is potential for further energy efficiency improvements, especially in the building sector.

The government has passed an ambitious Electricity Market Reform. Its aim is to raise competition, support investment and promote the use of low-carbon energy sources for electricity generation, which is commendable. The mechanisms to achieve these objectives are: i) the Contract for Difference (CfD), which will guarantee a price for electricity generated from low-carbon energy sources for at least 15 years; and ii) the Capacity Market, where the first auction was successfully held in December 2014, which will provide

Figure 30. **Share of renewables in the energy mix has improved but remains low**

Per cent of total primary energy supply



Source: IEA (2013), "World Energy Balances", *IEA World Energy Statistics and Balances* (database), International Energy Agency.

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regular payments to generators for ensuring a certain degree of spare capacity is available to use when needed. The government should carefully implement this reform, transparently quantify the risks that the support for low-carbon energy sources in electricity generation entails for the exchequer, and evaluate its interaction with already existing policies to support renewable energies.

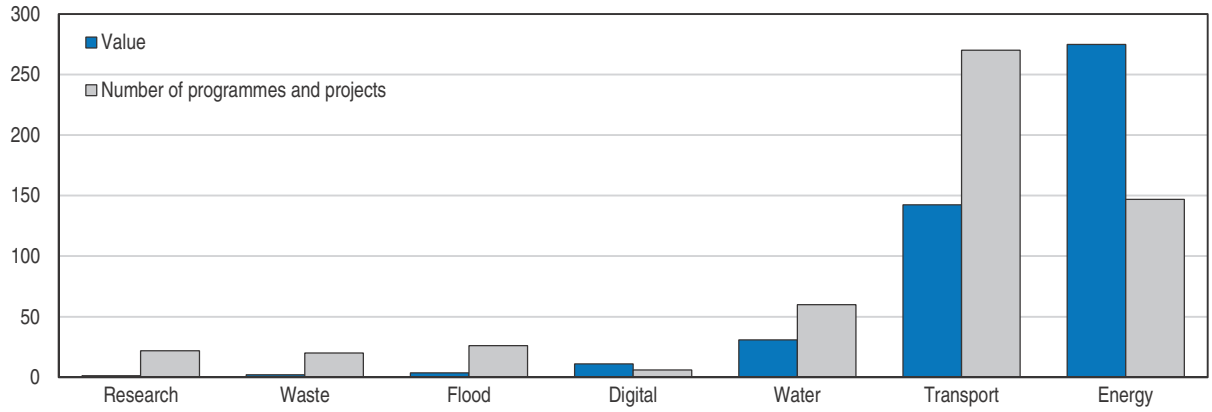
Improving long-term planning

As infrastructure is highly interconnected, the government launched the National Infrastructure Plan (NIP) in 2010 and has been updating it with a list of strategically important projects for which private investment is sought (the so-called National Infrastructure Pipeline) (Government, 2014). The NIP lists major planned and potential infrastructure investments in the UK to 2020 and beyond (Figure 31), which amount to about GBP 460 billion (around 25% of GDP) and is in line with independent estimates (Helm et al., 2009). The UK infrastructure-project appraisal framework is sound, comprehensive and uses fairly low and declining discount rates to properly take into account benefits accruing to future generations. The key challenge for the NIP is to encourage private infrastructure investment, which up to now has been held back by unclear signals regarding the country's long-term infrastructure needs and strategy.

The regulatory framework of infrastructure sectors is sound and supported by independent regulators. Investment plans of private sector operators in regulated sectors are agreed with regulators within the framework of price-cap regulation. Since 2010, the NIP has been regularly updated and now includes more on the long-term infrastructure strategy. However, the UK's infrastructure strategy could be further enhanced, as suggested by analyses such as the WEF (2014) blueprint and the LSE Growth commission (2013). This would contribute to lower uncertainty concerning the broad direction of infrastructure policies and plans and therefore stimulate private investment, helping to achieve the long-term objectives of the strategy.

Figure 31. **Infrastructure pipeline 2014 focuses on energy and transport reflecting major investment needs**

GBP billion and number of programmes and projects[1]



1. Value of infrastructure projects is in constant 2013/14 prices. Includes public and private investment. UK-wide projects may impact on several regions. The total value of infrastructure projects is GBP 466 billion while the total number of programmes and projects is 551.

Source: HM Treasury (2014), "National Infrastructure Pipeline 2014", December.

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Improving infrastructure financing

Long-term private investment, which has been a priority for successive UK governments, has been insufficient especially for greenfield infrastructure. This could be seen as an opportunity to increase public infrastructure spending as the current economic environment is favorable with low government borrowing costs and low inflation. Unfortunately, the UK fiscal position and the government's consolidation plans leave little space to significantly increase public infrastructure spending. In this context, the government should reprioritise public spending towards infrastructure whenever possible and do more to attract private finance into infrastructure. In this respect, the UK is well placed to benefit from the Juncker plan at the European Union level, which notably aims to leverage public resources with private infrastructure investment.

In 2012, the government launched the Private Finance 2 (PF2) scheme to improve the value for money and transparency of public-private partnership (PPP) projects, including those for infrastructure. To improve the management of liabilities, the government has introduced a cap on off-balance sheet PPP commitments funded by the central government of GBP 70 billion (about 4% of GDP) between 2015-16 and 2019-20. The government has made progress in transparently recording the future and contingent liabilities arising from PPPs in the Whole Government Accounts. The OECD Principles for Public Governance of PPPs define a set of framework conditions to increment a transparent and well-informed use of PPPs for infrastructure projects. In particular, the government should make sure to devote sufficient resources to collect comparable data about the financial and operational performance of PPP projects and make it available to investors and the public so as to impartially assess their value for money. Also, recent G20-OECD work on long-term investments in infrastructure suggests the need to find a balance between public support to private investors and ensuing moral hazard from the private sector (OECD, 2014e).

Another promising financial instrument is project bonds. These are corporate bonds created specifically for a given infrastructure project, allowing more clear risk

identification. The government should work in partnership with national and European financial institutions to increase the issuance of infrastructure project bonds by developing an insurance market for them.

There is also a need to promote a long-term investment culture and improve skills and knowledge of institutional investors on infrastructure issues. A good example is the Pensions Infrastructure Platform (PIP) established in 2012, which includes the National Association of Pension Funds, the Pension Protection Fund and a group of smaller funds. The government should support the PIP and scale it up by attracting other potential institutional investors so as to build expertise in assessing infrastructure investment opportunities and overcoming the problems for infrastructure investment caused by the fragmentation of the UK pension system.

Infrastructure investment could be supported by mobilising public guarantee schemes more extensively. In 2012, the government introduced sovereign-backed guarantees (UK Guarantee Scheme) to help projects that may have stalled because of adverse credit conditions. The government could consider extending these guarantees further, currently worth GBP 40 billion (nearly 2.5% of GDP). However, it will be important to limit taxpayer risks and to transparently record the associated contingent liabilities. The use of guarantees could be confined to projects which have attracted little private investment thus far, such as greenfield projects.

Capital recycling is another enticing option to finance greenfield infrastructure projects. It involves reinvesting the revenues from the privatisation of brownfield assets (which are already existing), alongside private sector funds, into new greenfield projects. The government should explore in depth the opportunity of using capital recycling to finance greenfield projects and clarify its strategy in this respect.

Key infrastructure policy recommendations

- Continue to build on the progress made with the National Infrastructure Plan to further enhance long-term infrastructure strategy and planning.
- Develop further the use of public-private partnerships (PPP) and public guarantees for privately financed infrastructure projects, recording the associated assets and liabilities in the government fiscal accounts. Enhance the provision to investors and the public of comparable data about public guarantees and the financial and operational performance of PPP projects.
- Improve the use of roads by introducing user-paid tolls, and of railways by ensuring the arms-length responsibility for awarding rail franchises.
- Strengthen the Green Investment Bank and other targeted financial aids to further support the implementation of not yet commercially viable low-carbon technologies that have the prospect of becoming so in the foreseeable future.
- Evaluate the interaction between the Electricity Market Reform and existing policies to promote renewable energies.

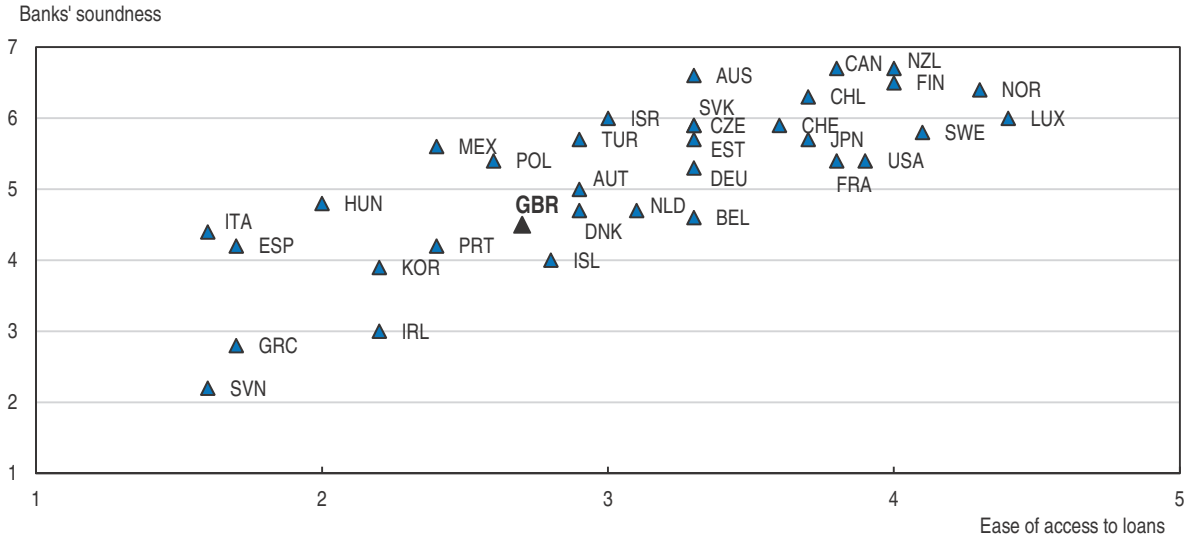
Ensuring sustainable bank lending

Financing of the economy requires sound banks and stronger competition

Continued efforts to restore the banking sector to health should boost productivity by encouraging infrastructure financing and eventually more efficient allocation of lending to healthy, growing businesses (Figure 32). However, the ratio of loans to GDP is significantly below the OECD average for businesses (Figure 33), but non-bank finance (including new credit providers, see below) is also more developed. Moreover, lending to non-financial corporations is still contracting reflecting both weak demand and tighter supply, although the Funding for Lending Scheme may have reduced the rate of decline of credit (Figure 13).

Figure 32. **Banks' soundness and access to loans**

Index scale from 1 (worst) to 7 (best), first half of 2014[1]



1. Figures for soundness of banks refer to the following question: In your country, how would you assess the soundness of banks (from 1 = extremely low – banks may require recapitalisation; to 7 = extremely high – banks are generally healthy with sound balance sheets)? Figures for ease of access to loans refer to the following question: In your country, how easy is it to obtain a bank loan with only a good business plan and no collateral (from 1 = extremely difficult; to 7 = extremely easy)?

Source: World Economic Forum (2014), *The Global Competitiveness Report 2014-2015*, Geneva.

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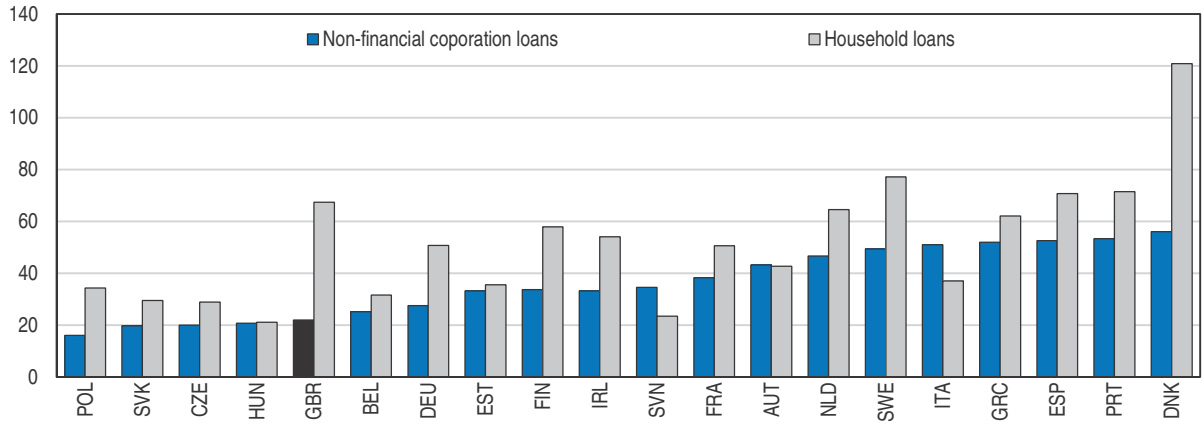
The global downturn triggered an unprecedented policy response to rescue and stabilise the UK banking sector in 2008-09. This included large increases in public guarantees, liquidity and capital injections, and bank closures (OECD, 2009). Since then, banks' situation has been improving, but risks remain. Their capital position has strengthened as a result of public recapitalisation and asset divestment (Figure 34). However, as risk weights have also diminished, the leverage ratio (capital to unweighted assets) has increased less than risk-weighted capital measures. Liquidity risks have fallen significantly since the crisis, but banks still have a significant amount of short-term external debt and may face higher and more volatile risk premiums than before the crisis (Figure 35).

After the crisis, the UK embarked on a number of regulatory reforms to strengthen the banking sector. The responsibilities of the BoE have been expanded and, since April 2013, it has been in charge of financial regulation and supervision (Prudential Regulation Authority), the prevention of systemic risks (Financial Policy Committee), and resolution of failed banks

Figure 33. **Loans to non-financial corporations are low and are high for households**

Per cent of GDP, September 2014[1]



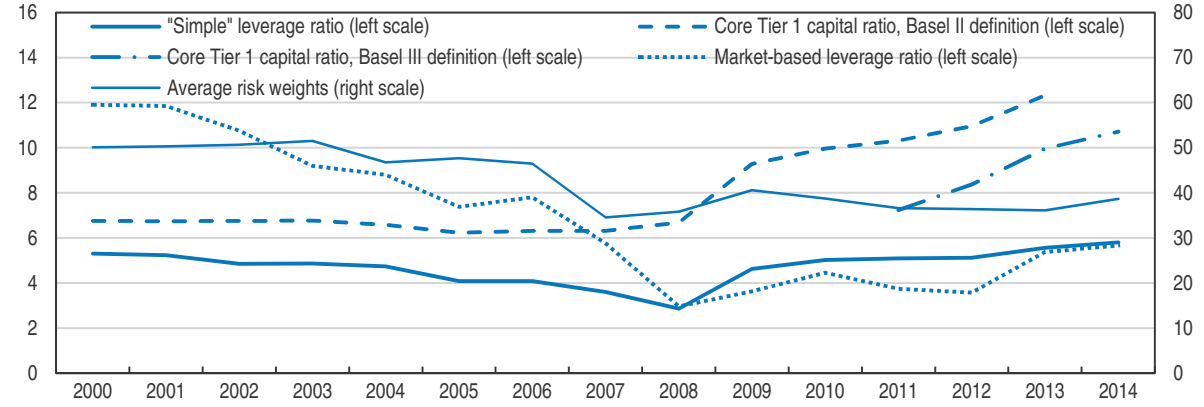
1. Outstanding stock of domestic loans from monetary financial institutions excluding European System of Central Banks (ESCB). Households include non-profit institutions serving households.

Source: ECB (2015), "MFI Balance Sheets", *Statistical Data Warehouse*, European Central Bank, January and OECD (2015), *OECD Economic Outlook: Statistics and Projections* (database), January.

StatLink http://dx.doi.org/10.1787/888933189276

Figure 34. **UK banks' capitalisation has improved**

Per cent[1]



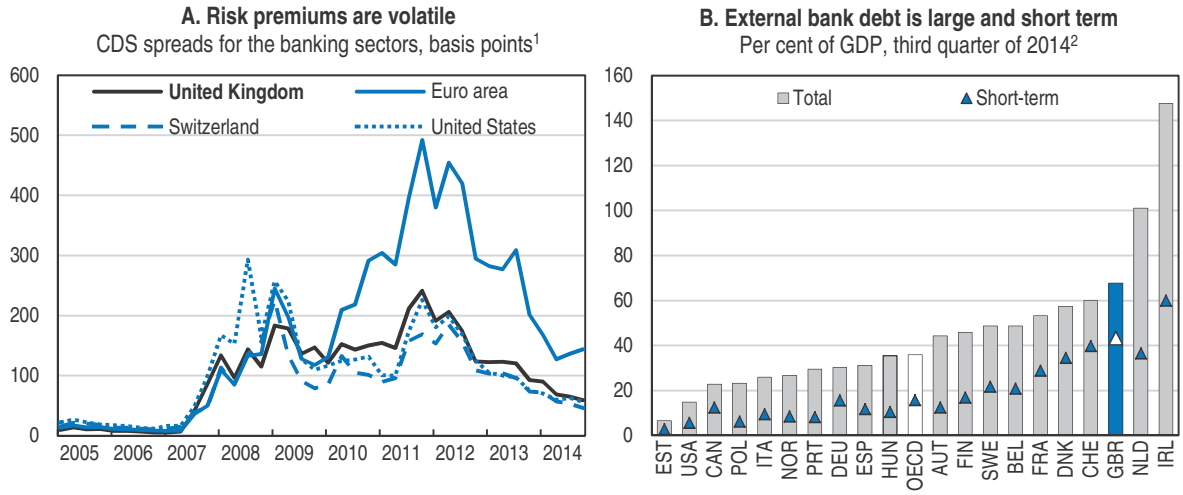
1. Figures for "simple" leverage ratio, Core Tier 1 capital ratio (Basel III definition) and average risk weights for 2014 refer to first half of 2014. "Simple" leverage ratio is calculated as aggregate peer group equity (shareholders' claims) over aggregate peer group assets. Core Tier 1 capital ratio (Basel II definition) refers to major UK banks' aggregate core Tier 1 capital as a percentage of their aggregate risk-weighted assets. The Basel II series was discontinued on 1 January 2014. Core Tier 1 capital ratio (Basel III definition) is calculated as aggregate peer group common equity Tier 1 levels over aggregate risk-weighted assets. Market-based leverage ratio is calculated as total peer group market capitalisation divided by total peer group assets (note a discontinuity due to introduction of International Financial Reporting Standards (IFRS) accounting standards in 2005, which tends to reduce leverage ratios thereafter). Average risk weights are calculated by dividing aggregate peer group risk-weighted assets by aggregate peer group assets.

Source: Bank of England (2014), "Financial Stability Report, December 2014", Issue No. 36, December.

StatLink http://dx.doi.org/10.1787/888933189285

and building societies (Resolution Directorate). In turn, the Financial Conduct Authority has been mandated to ensure conduct supervision of all regulated financial firms and the prudential supervision of those not supervised by the Prudential Regulation Authority.

Figure 35. **Exposure to liquidity shocks remains high**



1. Five-year senior debt, mid-rate credit default swap (CDS) spreads for the banking sectors. Quarterly data calculated as the unweighted average of end-of-month figures.
2. Total international debt liabilities and international debt liabilities with residual maturity below one year towards BIS reporting banks. The OECD aggregate is calculated as an unweighted average and excludes Luxembourg.

Source: Datastream and BIS (2015), "Consolidated Banking Statistics", *BIS Statistics*, Bank for International Settlements, January.

StatLink http://dx.doi.org/10.1787/888933189294

The market for bank lending to SMEs suffers from insufficient competition (CMA and FCA, 2014), which could have increased credit constraints facing SMEs. The government is legislating to increase the sharing of credit information about SMEs and to require banks to indicate other providers of finance for rejected loan applications. These are welcome steps, but it is important that credit information is shared widely across different bank and non-bank credit providers through existing credit reference agencies (including trade credit providers and investors in securitised credit). Alternatively, a central credit registry could be created by the regulator. The BoE is currently consulting on the benefits of such a registry.

Addressing future challenges to sustainable access to finance

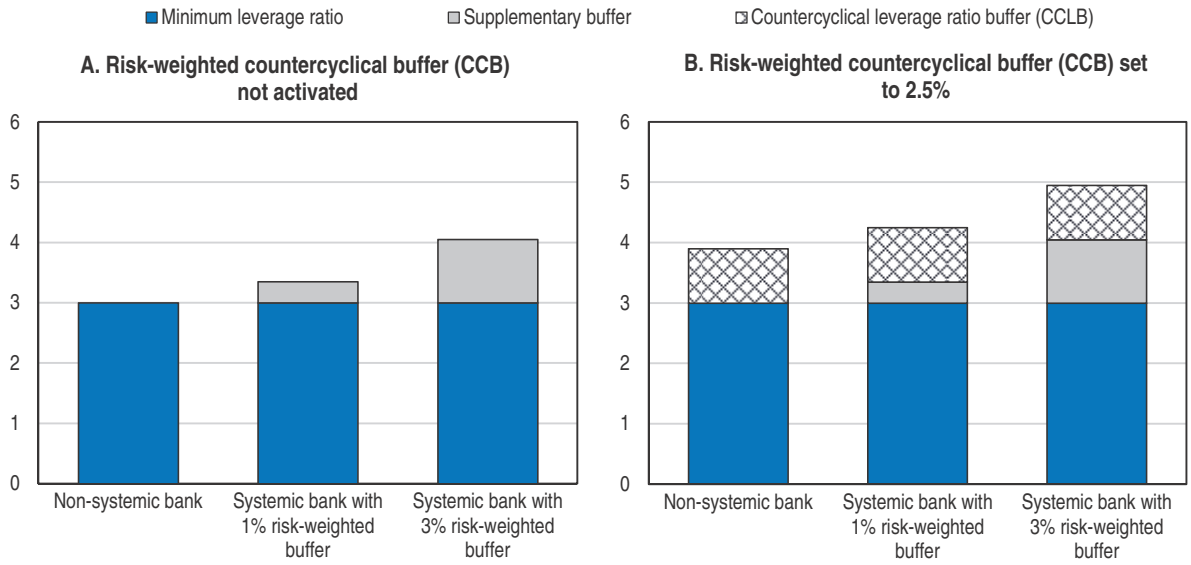
The UK banking sector remains one of the largest in the world, with total assets of around 400% of GDP in late 2014, and could roughly double its current size by 2050 (Bush et al., 2014). This implies a large exposure of the economy to shocks and, as shown by the recent financial crisis, such shocks can create huge economic damage. Robust prudential regulation and supervision should continue to minimise the size of the implicit government subsidy to limit risks to the taxpayer and financial stability. Improving banks' resolvability and capitalisation are key.

The BoE has bail-in and other resolution powers, although the new framework has yet to be put to the test. A major structural reform is being implemented to ring-fence retail activities of large banks, to increase bank resolvability and protect the taxpayer in the event of bank failure. Lowering banks' complexity and raising transparency about their structures would also ease resolvability, since the four largest UK banks have altogether more than 5 000 subsidiaries, a third located in offshore financial centres.

To strengthen capital requirements of UK banks, the Financial Policy Committee concluded in October 2014 that it should have powers to set a leverage ratio, ranging from 3% for non-systemic banks to 4.05% for global systemic banks (Figure 36). The Financial

Figure 36. **The leverage ratio framework in the United Kingdom**

Per cent[1]



1. Countercyclical leverage ratio buffer (CCLB) show an example of the size of the CCLB for a bank with UK exposures only.

Source: Bank of England (2014), "The Financial Policy Committee's Review of the Leverage Ratio", October.

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Policy Committee has also requested from the government the ability to impose a counter-cyclical leverage buffer, which would bring the overall leverage ratio for global systemic banks to almost 5% in a boom when applying Basel III standards. The introduced leverage ratio will be a useful complement to risk-weighted capital ratios. While the latter help reduce risks taken by banks, risks can also be mispriced, as illustrated by the recent financial crisis. This reform would further protect the banks and the taxpayer in the event of turmoil. OECD estimates show that a leverage ratio of 5% would ensure that banks are at a more prudent distance from default (Blundell-Wignall and Roulet, 2013). However, this level of ratio is conditional on a credible reform of ring-fencing retail banking and withdrawing all implicit government subsidies for investment banking (Blundell-Wignall et al. 2014). Hence, a higher leverage ratio would be a useful backstop to reduce excessive leverage, especially of the biggest banks, and the Financial Policy Committee will review the proposed leverage framework in 2017.

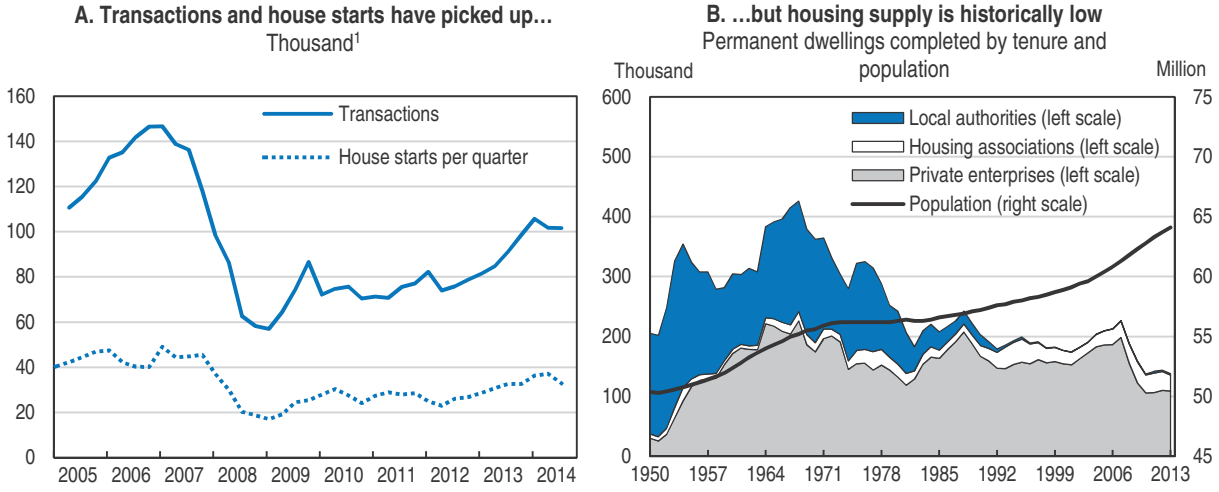
Macro-prudential regulation should act to prevent financial crises, notably by trying to head off the build-up of imbalances linked to credit cycles, which last longer and have higher amplitude than business cycles (Haldane, 2014). It is important that decision-making about the size of the counter-cyclical capital buffer and the timing of its implementation be supported by a range of indicators, and such multifaceted approach is currently being developed.

Although net lending growth to households has remained moderate (Figure 13, Panel A), precautionary measures have been taken to contain risks associated with recent housing market developments. In April 2014, the Financial Conduct Authority took action to insure against the risk of a marked loosening of underwriting standards. In June 2014, the Financial Policy Committee capped loans carrying loan-to-income ratio of above 4.5 to

15% of banks' new residential mortgages, which should ward off risks of significant rise in the number of highly indebted households. The Committee also asked the government for new powers to cap loan-to-value ratios and debt-to-income ratios for mortgages. The share of interest-only mortgages (principal repayment is postponed to the maturity of the mortgage) in new loans has been falling steadily since the crisis, and is now about 20% of new mortgages, which is welcome. Raising risk-weights would reinforce this trend and prevent a weakening of underwriting standards should the risk appetite for such loans increase.

In addition to macro-prudential measures, which are aimed at addressing demand side developments, the key ongoing challenge is to make the supply side of housing more responsive to prices. The housing market has been recovering as reflected by higher transactions and house starts (Figure 37, Panel A), but housing supply remains historically low as resident population continues to expand (Figure 37, Panel B). As discussed in the previous Surveys, some protected lands should be made available for building houses and skyline restrictions relaxed in some cases (OECD, 2011a, 2013b). In particular, thoroughly reviewing the boundaries of the Green Belt – introduced in 1955 to prevent urban sprawl around historical towns and cities covering close to 12.5% of England – would free up land for development. Additional structural reforms would balance the housing market (OECD, 2011a; André, 2011). Greater provision of social housing could enhance housing supply where private sector activity is insufficient, while regularly updating the property valuations (unchanged since 1991 in England and Scotland) that determine the rate of the council tax would dampen large swings in house prices. The government has announced a reform of the residential stamp duty land tax, which should lower transactions costs on most properties and hence favour labour mobility in the medium term. However, the reform may create upward pressure on house prices in the short term (OBR, 2014).

Figure 37. **Housing market activity has been recovering against the background of tight housing supply**



1. Transactions refer to the number of residential property transactions in the United Kingdom with a value of GBP 40 000 or above per month. Quarterly figures for transactions are calculated as an average of monthly data.

Source: Bank of England (2014), "Financial Stability Report, December 2014", Issue No. 36, December, Department for Communities and Local Government, ONS (2014), "Annual Mid-year Population Estimates, 2013", Office for National Statistics, June and Datastream.

StatLink http://dx.doi.org/10.1787/888933189316

A number of new sources of credit (peer-to-peer lending, crowd funding), and so-called shadow banks (broker dealers, investment and hedge funds, etc.) but also pension funds, insurance companies, and so forth, have been starting or expanding direct and indirect lending. This should broaden financing options available to households and businesses, but there is a risk that these new sources of credit are not subject to the same level of regulation and scrutiny, and that they will prove to be a source of instability themselves. Potential risks to financial stability from the new sources of credit and the shadow banking sector in particular should continue to be closely monitored to prevent excessive risks migrating from, or spilling over to banks. The BoE has recently made available its liquidity facilities to some investment firms, in return for collateral requirements and direct supervision, but consideration should also be given to subject them to macro-prudential tools of the Financial Policy Committee.

Key recommendations to ensure sustainable bank lending

- Consider higher leverage ratios for global systemic banks to complement risk-weighted capital ratios.
- Encourage the development of new credit providers and gradually extend regulatory instruments beyond the banking sector.
- Continue to uphold underwriting standards in mortgage lending. Further relax regulatory constraints to boost housing supply, in particular by thoroughly reviewing the boundaries of protected areas of the Green Belt.
- Collect and share credit information on businesses through credit reference agencies or directly through the regulator.

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ANNEX

Progress in main structural reforms

This annex reviews action taken on recommendations from previous Surveys *since the February 2013* Survey. *Recommendations that are new in this* Surveys *are listed in the relevant chapter.*

Labour market and social policies

Recommendations in previous *Surveys*	Actions taken
Enhance workforce skills. Central and local government should enhance co-operation with employers on vocational education and training, and apprenticeship programmes. Simplify the training and apprenticeship systems, and enhance co-operation between different stakeholders (local authorities, schools and enterprises) to strengthen the labour market integration of graduates.	Since October 2013, the government has started the preparation of more employed-led apprenticeships standards in England. The 2014 Budget announced an extension of the Apprenticeship Grant for Employers (AGE) to fund over 100 000 additional incentive payments for employers to take on young apprentices (16-24). Small employers can receive a GBP 1 500 grant for up to ten new apprentices they employ in their business. The government has setup a competitive GBP 340 million fund to co-design and co-invest along with employers in new skills provision needed to grow their business. New eligibility criteria for public funding are being adopted for adult vocational qualification. In July 2013, the Skills Funding Agency removed 1 800 qualifications from public funding which had low or no enrolments and at the end of January 2014 a further 1 000 were removed. In April 2014, schools received new guidance to co-operate with local authorities so as to support youth education and training.
Improve work incentives for lone parents and second earners under the Universal Credit welfare reform. Increase the refund rate for childcare, and/or reduce the taper rate for those with childcare support, and/or introduce a dedicated disregard for second earners in couples. Increase the value of free childcare by increasing flexibility for users and reduce the cost by increasing flexibility of provision.	The government is investing GBP 350 million to increase support for childcare within Universal Credit, raising eligible costs from 70% to 85% from April 2016. Greater flexibility has been introduced for users by extending working hours in early education places.
Improve the Work Capability Assessment (WCA) and support for return to work for those who are fit. Ensure earlier intervention for people suffering from mental health problems. Monitor homelessness trends and ensure prevention and early intervention.	The government has implemented over 60 of the 83 recommendations made from the first four annual independent reviews of the WCA, with the remainder in progress. In October 2014, the government launched a new 5-year plan for mental health, Achieving Better Access to Mental Health Services by 2020. The plan has led to additional spending on mental health of GBP 40 million in 2014-15 and GBP 80 million for 2015-16. In February 2014, the Crisis Care Concordat was launched to improve emergency support for people in mental health crisis. Since February 2013, funding available to prevent and tackle homelessness has reached around GBP 190 million.
Monitor efficiency gains in public services. To avoid an increase in inequality, efficiency gains should be exploited in implementing fiscal consolidation.	Slightly more than GBP 5 billion of efficiency savings will be made between 2013-14 and 2014-15, bringing overall savings to GBP 20 billion since 2009-10.
Take steps to tackle fuel and water poverty through better targeted financial support, and measures to improve energy efficiency and resource management.	The Energy Companies Obligation (ECO) was introduced in January 2013 to reduce the UK's energy consumption and support people living in fuel poverty. The programme does this by funding energy efficiency improvements in households across the country. By May 2014, eight of the eighteen companies in England and Wales providing water and/or sewerage services had introduced new social tariffs that reduce bills for customers who have difficulties to pay, with many more expected to have done so by April 2015. This is in addition to the national Watersure scheme, which caps bills for vulnerable customers. From April 2013, the government has provided GBP 40 million per year to reduce every customer bill by GBP 50 in the South West Water area, which has the highest bills in the country due to historic underinvestment.

Innovation

Recommendations in previous *Surveys*	Actions taken
Continue to improve the business environment and promote exports. Avoid excessively restrictive limitations on student visas.	The UK Trade & Investment (UKTI) has continued to expand the number of companies that are helped to trade oversees, which is on course to double since 2009. The government will triple the number of Chevening Scholarships from 2015-16.
Reform some tax rules to encourage research and development (R&D). Review fiscal rules which may hamper firm growth, such as preferential tax treatment for small firms and debt finance relative to equity.	In April 2013, the government introduced a 10% Above the Line (ATL) credit for large company R&D investment, which will increase to 11% from April 2015. In April 2014, the government raised the rate of the tax credit payable to loss-making small and medium-sized enterprises (SMEs) to 14.5%. From April 2015, the deduction for SME research and development will increase from 225% to 230% of taxable profit. Since February 2013, the government has cut the main rate of corporation tax to 21%. In April 2015, the main rate will be reduced to 20% and applied to companies of all sizes. Reductions in the corporate income tax have decreased the bias in the tax regime towards debt over equity financing.

Housing

Recommendations in previous *Surveys*	Actions taken
Ensure access to decent affordable housing through a mix of means-tested housing benefits and subsidies for affordable housing construction, paying attention to the diversity of local needs.	Spending on housing benefits amounted to GBP 24 billion in 2013-14. The 2011-15 Affordable Homes Programme is on track to deliver 170 000 new affordable homes, with public funding of GBP 4.5 billion. Spending Round 2013 announced over GBP 3.3 billion of new funding for affordable housing to support total delivery of another 165 000 affordable homes in England over 2015-18.
Enhance competition between developers by facilitating even access to land.	Local authorities have made further progress in the adoption of up-to-date local plans, which reached 80%.
Provide high quality apprenticeships in construction-related trades to ensure no shortage of skilled workforce hinders construction growth when demand picks up.	The government is supporting competitive funds to increase apprenticeships alongside investment in a National Colleges programme, to develop skills capacity in construction and infrastructure delivery. The National Infrastructure Pipeline is being used to map potential peaks in labour demand for infrastructure construction.

Productivity

Recommendations in previous *Surveys*	Actions taken
Facilitate the entry of new businesses by reforming planning regulations, especially in the area of retail trade.	The government has introduced new permitted development rights, to enable certain businesses to change use to other business uses without the need for full planning permission.
Free-up land for development by reconsidering the boundaries of the "green belts" in fast-growing areas.	The National Planning Policy sets out that when local authorities draw up green belt boundaries as part of their local developments plans, they should consider the consequences for sustainable development. The government has also taken steps to support more widespread and effective use of brownfield land, including measures to remove planning obstacles on brownfield sites suitable for housing, and allowing easier conversion between unused offices and shops and homes.

Education

Recommendations in previous *Surveys*	Actions taken
Simplify the system of vocational education, and focus further on high-quality apprenticeships. Raise incentives for participation for children from low-income families.	The government has allocated GBP 40 million to deliver additional 20 000 higher apprenticeships in the 2013/14 and 2014/15 academic years. The 2014 Budget provided a further GBP 20 million over 2014-15 and 2015-16 to support apprenticeships up to the postgraduate level.
Increase focus and transparency of funding for disadvantaged students. Review the effects of schooling reforms, including Free Schools, on equity, fair access and user choice for disadvantaged students. Encourage the highest quality teachers to move to the most disadvantaged schools.	The government increased the Pupil Premium by GBP 625 million in 2013-14 spent on the most disadvantaged school pupils and by the same amount in 2014-15.

Health

Recommendations in previous *Surveys*	Actions taken
Improve methods and data to evaluate health care reforms.	From January 2015, four new research projects, based in English Universities, will assess: i) the new commissioning system in the National Health Service (NHS); ii) Commissioning of public health services; iii) the provider landscape in the NHS; and iv) the operation of Health and Wellbeing Boards.

Green growth

Recommendations in previous *Surveys*	Actions taken
Seek a higher carbon price at the international level through tighter quotas within the EU emission trading system (EU ETS) and the adoption of a 30% EU emissions reduction target by 2020.	The UK continues to favour an increase in the EU's 2020 emissions reduction target from 20% to 30%, with the higher target reflected through changes to the EU ETS cap and the Effort Share decision (which includes sectors not covered by the EU ETS). The UK has played an important role in the endorsement of an ambitious EU emissions reduction target for 2030 of at least 40%, as part of the EU's 2030 Climate and Energy Policy Framework agreed by the European Council in October 2014. As part of the implementation of this target, the allowance cap in the EU ETS will be reduced at a faster rate from 2021, which will tighten quotas within the system.
Move towards a uniform carbon price across sectors and fuels.	The adoption of the Carbon Price Floor in April 2013 set a minimum carbon price across all fuels used to generate electricity.
Continue to build capacity to adapt to climate change, with a focus on reducing market failures such as the appropriate provision of public goods, including information, better risk-assessment frameworks and more advanced metrics for monitoring and evaluation.	The government continues to support climate change adaptation through policies and actions identified in the first National Adaptation Programme (NAP) published in July 2013. A report to Parliament on the NAP's implementation is expected over summer 2015, and should contain metrics and indicators amongst other tools available for evaluation. The government has also taken action in conjunction with industry to set clear objectives and establish best practice to decarbonise the provision of infrastructure.
Raise the value-added tax (VAT) rate on domestic energy use over time to the standard rate. Address relevant distributional concerns through targeted support.	No action taken.

Thematic chapters

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Chapter 1

Improving infrastructure

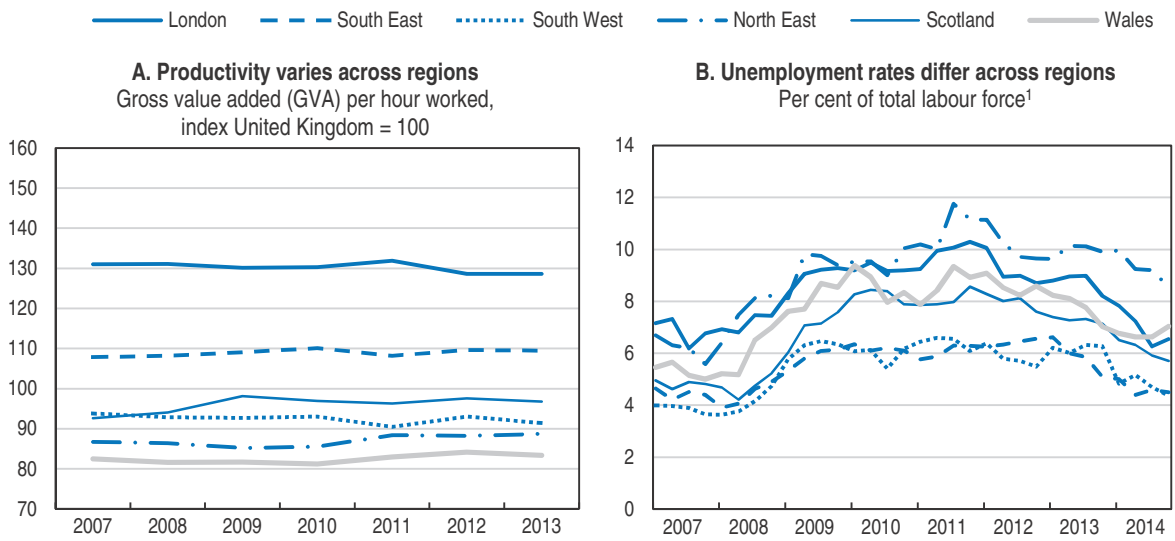
The United Kingdom (UK) has spent less on infrastructure compared to other OECD countries over the past three decades. The perceived quality of UK infrastructure assets is close to the OECD average but lower than in other G7 countries. Capacity constraints have emerged in some sectors, such as electricity generation, air transport and roads. Developing and regularly updating a national infrastructure strategy, with the National Infrastructure Plan being a welcome first step in this direction, would contribute to reduce policy uncertainty and tackle capacity constraints in a durable way. The design of coherent development plans by local authorities congruent with the national and local planning systems should continue to improve project delivery. The government intends to finance a large share of infrastructure spending to 2020 and beyond through private capital. Unlocking private investment in a cost effective and transparent way could be supported by further improving incentives for greenfield investment, continuing to carefully assess and record public-private partnerships, and promoting more long-term financing instruments.

Protracted underinvestment has taken its toll on UK infrastructure

Infrastructure is key for productivity and social welfare

Infrastructure contributes to productivity, economic activity and people's well-being in different ways. Infrastructure can raise the productivity of private and public sector inputs and the marginal rate of return of private investment, increase the durability of private capital, the volume of international trade and generate positive externalities (such as agglomeration effects) (OECD, 2009; Agénor and Moreno-Dodson, 2006; Yeaple and Golub, 2007; Sanchis-Guarner, 2013). Infrastructure is essential in attracting foreign direct investment. For instance, a recent survey has found that transport infrastructure is the second most important criterion for multinational firms when choosing where to invest, behind workforce availability and skills (EY, 2014). Moreover, infrastructure is important for regional development. The economic structure of the UK exhibits a wide dispersion in regional productivity and activation levels, in particular between the South East, including London, and the rest of the country (Ahrend et al., 2014) (Figure 1.1). Adequate infrastructure provision would be instrumental in lowering regional disparities.

Figure 1.1. **Regional imbalances in the United Kingdom are large**



1. Refers to population aged 16 and over. Data for Q4 2014 refer to the period between September and November 2014.

Source: ONS (2014), "Labour Productivity, Q3 2014", Office for National Statistics, December and ONS (2015), "Regional Labour Market, January 2015", Office for National Statistics.

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Better integrating physical transport infrastructure plans with land-use and social policies can raise well-being and social welfare, by reducing commuting times and contributing to green and inclusive growth (OECD, 2014a,b). For instance, geographical and

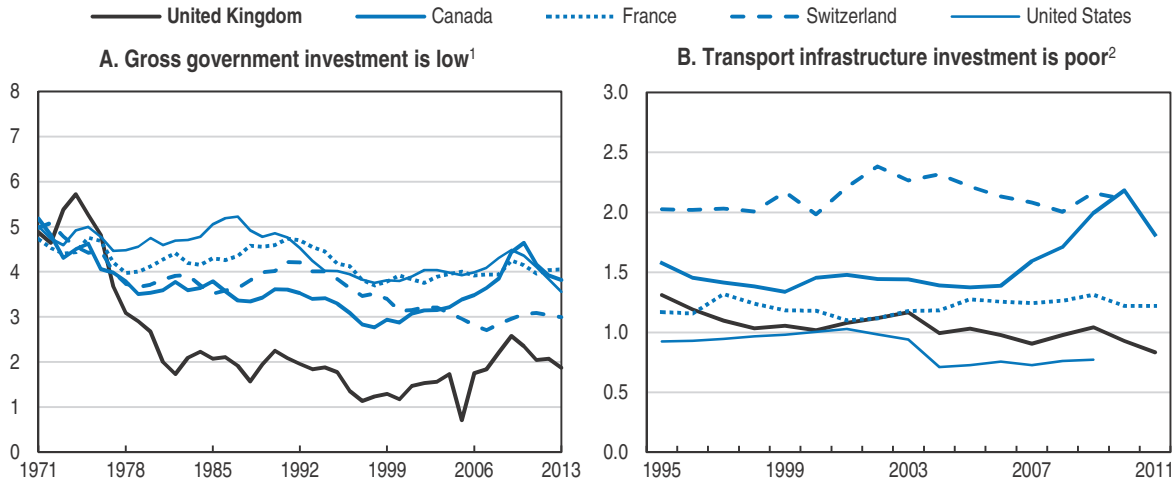
social segregation – and the ensuing crime – often result from insufficient transport infrastructure. People with longer commuting time report systematically lower subjective well-being (Stutzer and Frey, 2008; ONS, 2014).

The UK has been spending less in infrastructure compared to peers

According to different measures, public spending in the UK infrastructure has been lower than in other OECD countries. Since the 1980s, public investment has been lower than in the United States, France, Canada and Switzerland (Figure 1.2, Panel A). Rising private spending on infrastructure, following the privatisation and liberalisation reforms started in the 1980s, has partly offset the decline in public spending. However, cross-country comparable data on both public and private spending are not generally available. Transport infrastructure spending data are an exception and they suggest that spending as a share of gross domestic product (GDP) has declined from the mid-1990s and is now lower than in Canada, France and Switzerland, although higher than in the United States (Figure 1.2, Panel B). More generally, the government has identified major infrastructure investment needs in the UK to 2020 and beyond amounting to GBP 460 billion (around 25% of 2014 GDP). Of the GBP 330 billion for which the National Infrastructure Plan provides details, two-thirds will be financed by the private sector and the remaining share by the government and a mix of private and public sources (HMT, 2014a; HMT, 2014b).

Figure 1.2. **The United Kingdom has spent less on infrastructure than peers**

Per cent of GDP



1. Gross government fixed capital formation.
2. Also includes maintenance expenditure.

Source: OECD (2015), *OECD Economic Outlook: Statistics and Projections* (database), January and ITF (2013), "Spending on Transport Infrastructure 1995-2011", International Transport Forum, May.

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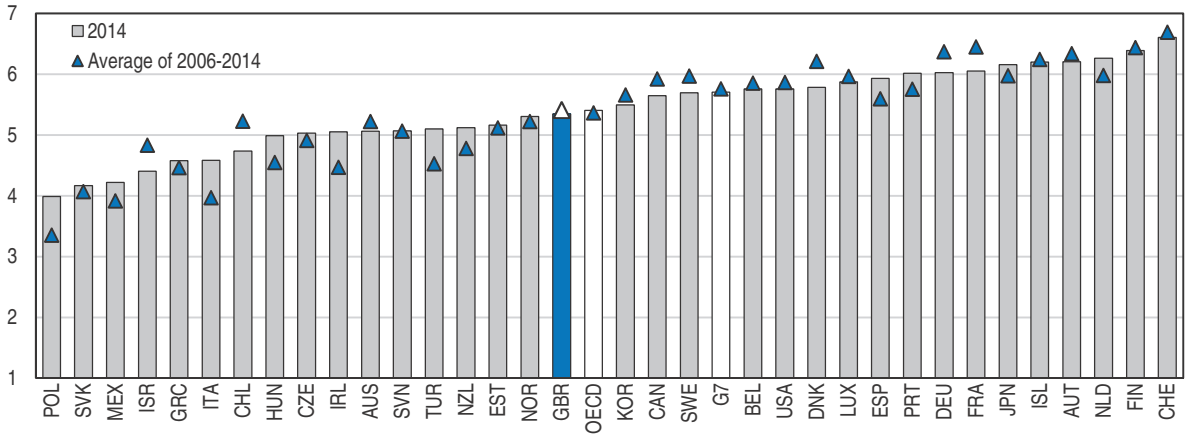
There are no comprehensive internationally comparable data on the quality of infrastructure based on objective criteria (Pisu et al., 2012). Survey data, asking users about the quality of infrastructure, ranks the UK 27th worldwide on overall perceived quality of infrastructure, in the middle of the ranking among OECD counties (WEF, 2014a) (Figure 1.3). According to another international survey of the quality of the public transport (PWC, 2014), London performs well among 30 world cities, after Singapore, Toronto, Seoul, Buenos Aires and Paris, and on par with Madrid, but other major UK cities fare significantly worse than London.

Figure 1.3. **There is scope to improve the perceived quality of overall infrastructure**

Value from 1 (worst) to 7 (best)[1]



1. Figures refer to the following question: How would you assess general infrastructure (e.g., transport, telephony, and energy) in your country (from 1 = extremely underdeveloped – among the worst in the world to 7 = extensive and efficient – among the best in the world)? The United Kingdom ranks 27th out of 144 countries in terms of perceived quality of infrastructure in 2014. The OECD aggregate is calculated as an unweighted average. The aggregate for G7 countries (excluding the United Kingdom) (i.e. Canada, France, Germany, Italy, Japan and United States) is calculated as an unweighted average.

Source: World Economic Forum (2014), *The Global Competitiveness Report 2014-2015*, Geneva.

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There is evidence that the privatisation and regulation of energy, telecommunications and water sectors have led to increased efficiency and reduced real prices for customers (Parker, 2004; Erbetta and Cave, 2007). The UK's system of network regulation is sound as it combines low barriers to entry, independent regulators and incentive-based price regulation. Network sectors – such as energy transmission and distribution, water and railways – are structured around a model that incentivises private operators to achieve productivity gains, with strict regulation enforced by an independent regulator. This prevents the misuse of monopolistic power and reduces the time-inconsistency problem by making it more difficult for governments to unilaterally revise previous agreements with a private company (Box 1.1). Roads and flood defences feature minimal or no private sector participation and there is no sector regulator. Ports have large private sector participation and do not have a sector regulator.

Box 1.1. **The framework of network regulation in the United Kingdom**

Economic regulation in network sectors in the United Kingdom aims to promote effective competition and, when competition is not feasible, to protect end users interests by regulation. The key features of the framework are:

- Private ownership of network infrastructure operators to drive cost efficiency and service delivery improvements.
- Sector-specific regulation with each regulated sector overseen by a separate regulator.
- Independent regulators, within a framework of duties and policies set by parliament and government.
- Price regulation in infrastructure sectors that are natural monopolies, such as the water system and electricity distribution. Price regulation focuses on pricing policies, not on

Box 1.1. **The framework of network regulation in the United Kingdom** *(cont.)*

profits earned, to incentivise innovation and efficiency. It usually involves price caps to what the regulated firm can charge the consumer.

- Competition powers are shared by the sectoral regulator and the national Competition and Market Authority.

In practice, price regulation in the water, energy distribution, railways network and air transport sectors is implemented using incentive-based regulation, based on a price cap and a regulatory asset base (RAB) model. The RAB model aims to provide a credible commitment to investing companies about the recovery of their capital investment. The RAB reflects the value of the assets necessary to carry out the required function. The private company and the regulator negotiate a contract for a 5-8 years control period in most sectors. The contract stipulates investment plans, required revenues and price caps. In most sectors, the UK uses the "RPI-X price cap": annual prices are allowed to grow with the Retail Price index (RPI), adjusted for "X", which reflects expected efficiency gains agreed by the regulator and regulated companies.

Source: BIS – Department for Business Innovation & Skills (2011), "Principles for Economic Regulation"; Stern (2013).

The UK's network sectors have overall the least restrictive product market regulation and regulatory management framework among OECD countries (Figure 1.4). The degree of competition is the highest in the energy sector, telecommunication (excluding postal services) and railways, although there is some scope for improvement compared to best performers in the electricity and road sectors. The success of regulated infrastructure sectors is due not only to the technical specification of the incentive-based regulation, but also to the transparency and quality of regulatory decisions (Stern, 2013).

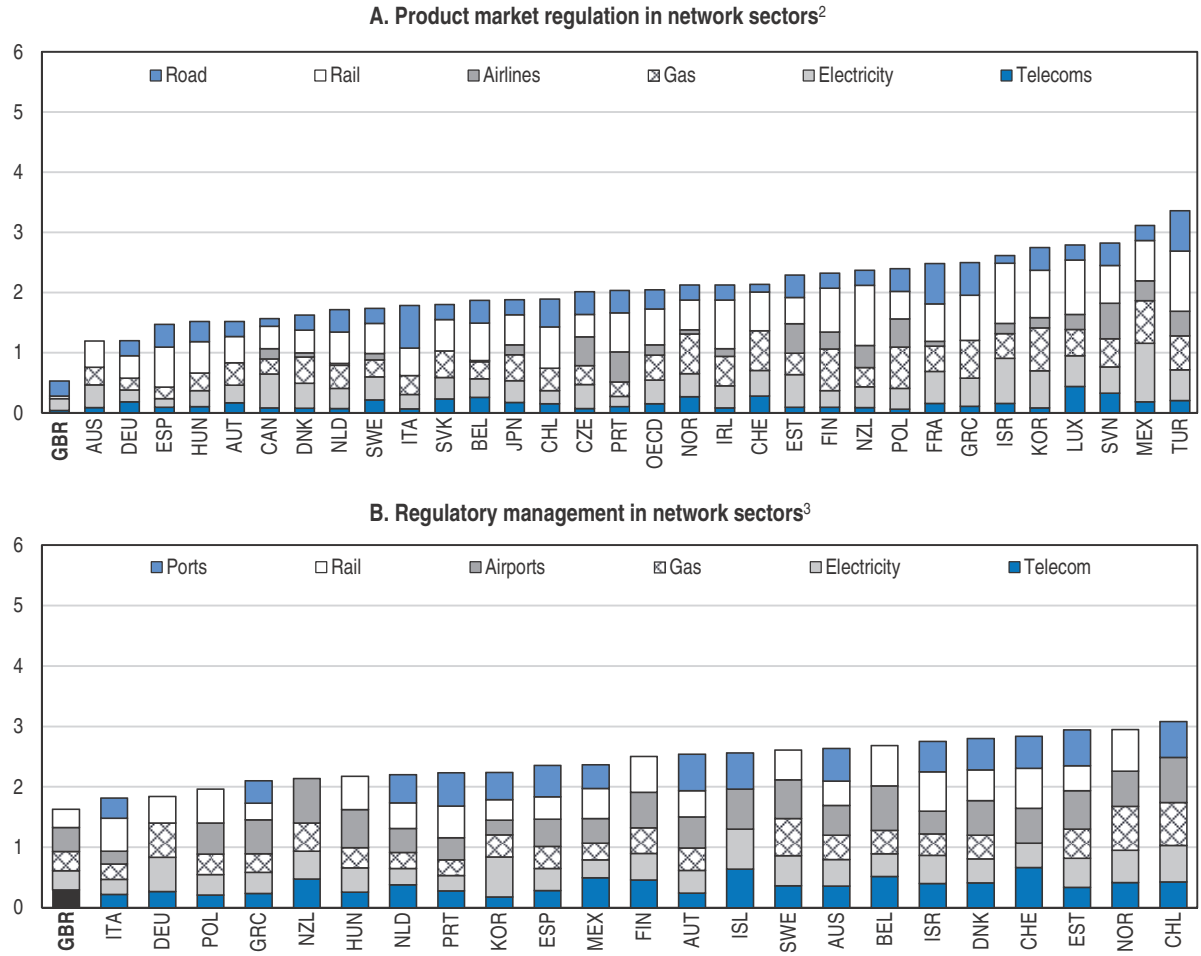
The OECD Services Trade Restrictiveness Index (STRI) also reveals low services trade restrictions (Figure 1.5). This measure includes domestic regulations – such as technical standards, regulatory transparency and administrative requirements – as well as trade and investment barriers. The UK has relatively low restrictions in the rail freight transport sector, maritime transport and in the telecom sector. The STRIs for road freight transport and air transport are higher, although still below the OECD average.

An overarching strategy and a sound institutional framework are key to improving infrastructure

A strong policy framework is required to effectively build, maintain and manage the infrastructure stock of a country. Strong institutional setting, leading to credible policy commitments, improves infrastructure outcomes (Esfahani and Ramirez, 2003; Andres et al., 2007; Henisz, 2002; Égert, 2009). Despite the UK's sound network regulation framework, which provides strong incentives for efficiency gains, policy uncertainty is one of the major risk factors that currently hamper private infrastructure investment (NAO, 2013). This is partly attributable to insufficient long-term planning, which has made it difficult to build a broad political consensus on contentious projects and resulted in delays in infrastructure provision. The launch of the National Infrastructure Plan in 2010 and its regular updates since then represent the first steps in the right direction towards providing a comprehensive view of the country's infrastructure needs and how the government plans to meet them.

Figure 1.4. **Product market regulation and regulatory management in network sectors are world-class**

Index scale of 0-6 from least to most restrictive, 2013[1]



1. In those cases where there is no regulator for a specific sector, the value of the respective indicator is 0.
2. The OECD aggregate is an average of the data shown.
3. The OECD indicators of regulatory management in network sectors measure regulatory management practices in six network sectors, electricity, gas, telecom, railroad transport infrastructure, airports and ports. They are meant to complement the network component of the product market regulation (PMR) indicator set, which measures the regulations that are imposed on network sectors, by measures of the governance of the bodies that design, implement and enforce these regulations. The indicators measure the de jure policy setting. Instances where laws or regulations are poorly implemented by authorities or where authorities implement a policy (e.g. publish a report) without being obliged by law are thus do not captured.

Source: OECD (2013), *OECD Product Market Regulation Database* and Beiter, P., I. Koske, F. Naru and I. Wanner (2014), "Economic Regulators – Their Independence, Accountability and Scope of Action", *OECD Economics Department Working Papers*, forthcoming.

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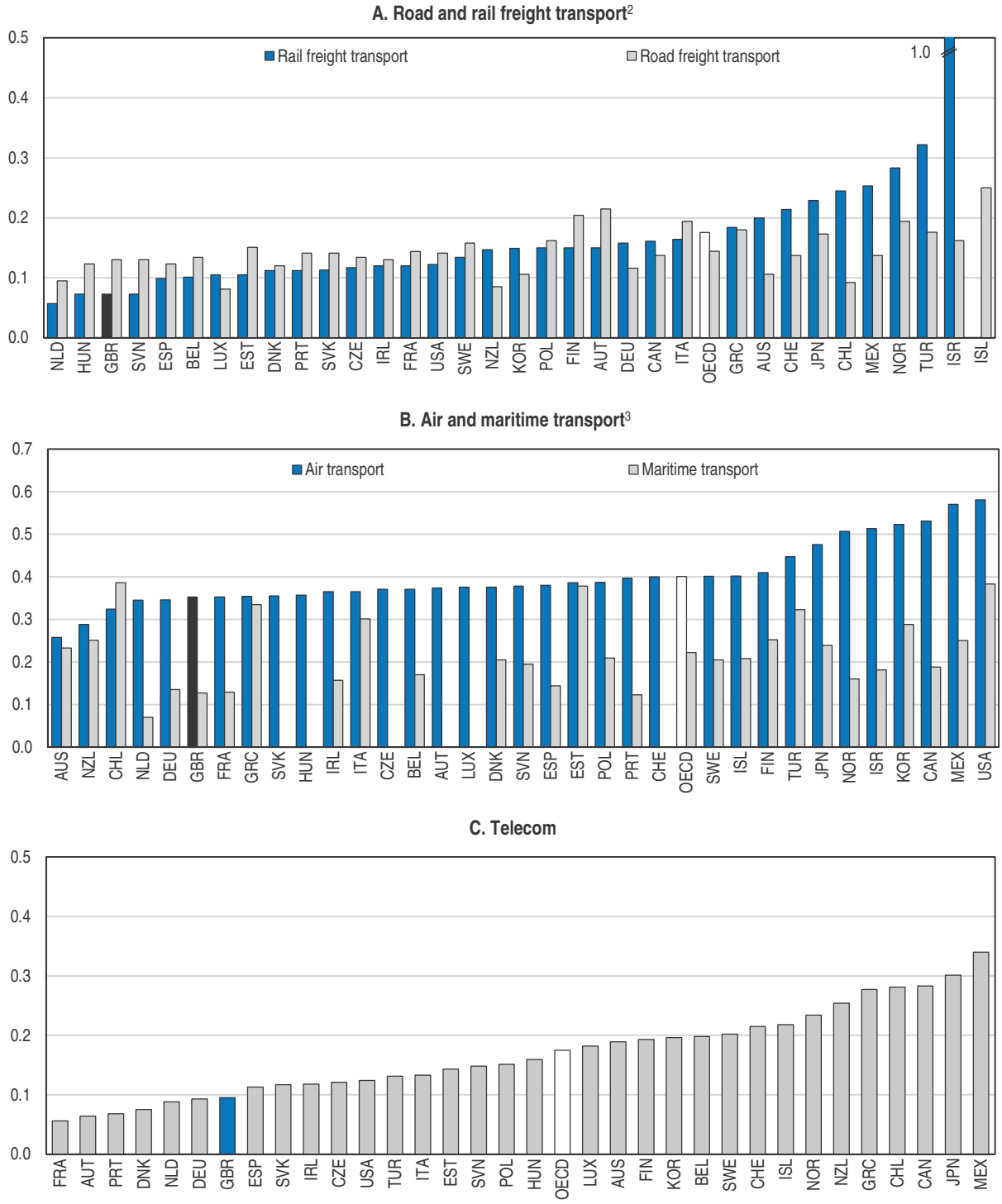
The UK needs to further develop a comprehensive long-term infrastructure strategy

Rising private sector participation since the 1980s in the absence of a coherent long-term infrastructure strategy, while improving efficiency and making service quality more responsive to client needs, may have led to sector fragmentation, impaired an across-sector view of infrastructure and, in some cases, could have weakened accountability for investment to build sufficient long-term capacity (Armitt, 2013). The government's 2010 cost review (HMT, 2014c) highlighted that more certainty about investment plans

Figure 1.5. **Services trade restrictions index in network sectors is low**

Index scale of 0-1 from completely open to completely closed, 2014[1]



1. The OECD aggregate is an average of the data shown.
2. There is no rail freight transport in Iceland.
3. There is no maritime transport in Austria, Czech Republic, Hungary, Luxembourg, Slovak Republic and Switzerland.

Source: OECD (2014), *OECD Services Trade Restrictiveness Index Regulatory Database*.

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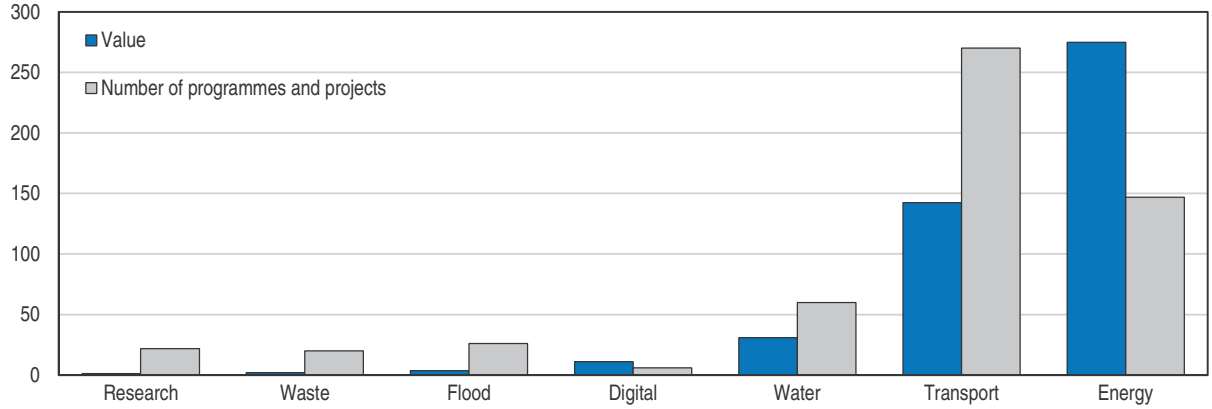
would allow private investors to develop the right skills, products and solutions to lower the costs of infrastructure projects, which are higher than in other European countries.

Several examples illustrate existing long-term planning difficulties. A 2003 White Paper set out a 30-year strategy that identified the need for additional runways in the South East. However, no progresses followed the White Paper and, more recently, an Airports Commission has been created and is expected to publish its final recommendation in 2015, a delay of 12 years since the issue was raised. Insufficient investment in electricity generation by private-sector companies, which are not under the purview of the energy regulator, has resulted in severe capacity constraints now manifest (see below). Moreover, recent surveys have found that a number of firms considered but decided not to enter the retail energy market because of the political uncertainties on the future course of energy policies (Ofgem, 2014a, CBI, 2011a). Also, a 2011 survey among British businesses found that the major impediments to infrastructure investment in the UK were the absence of a clear overall government strategy, delays and costs in the planning system, and regulatory burdens (CBI, 2011b).

The National Infrastructure Plan (NIP), launched in 2010, is the first welcome attempt by a UK government to provide a broad vision of the infrastructure investment required to underpin UK's long-term growth. The NIP has been regularly updated and lists major planned and potential infrastructure investments in the UK to 2020 and beyond for about GBP 460 billion (around 25% of 2014 GDP) (HMT, 2014a). The energy sector takes up the largest share of the planned investment, followed by transport (Figure 1.6). Of about 550 planned projects and programmes from the fiscal year 2014-15 until 2020-21 and beyond, 66% of financing is from the private sector, 21% is from the public sector and 14% is from mixed (public-private) source.

Figure 1.6. **Infrastructure pipeline 2014 focuses on energy and transport reflecting major investment needs**

GBP billion and number of programmes and projects[1]



1. Value of infrastructure projects is in constant 2013/14 prices. Includes public and private investment. UK-wide projects may impact on several regions. The total value of infrastructure projects is GBP 466 billion while the total number of programmes and projects is 551.

Source: HM Treasury (2014), "National Infrastructure Pipeline 2014", December.

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The NIP provides a comprehensive and useful list of ongoing and planned infrastructure projects but the strategic component of the NIP could be further developed. There is growing consensus that the UK's infrastructure strategy needs to be enhanced

(WEF, 2014b; LSE Growth commission, 2013). Expanding the long-term infrastructure strategy component of the National Infrastructure Plan would contribute to raise the level of debate on infrastructure needs and policies, thus contributing to lower policy uncertainty. Lower policy uncertainty would, in turn, be conducive to higher private infrastructure investment. Strategic infrastructure planning requires a long-time horizon – 20-30 years or more – and incorporating projections for all drivers of economic and social change (OECD, 2012a). The Netherlands provides an example of coherent long-term infrastructure strategy based on a long-time horizon and considering wide policy objectives (Box 1.2).

Box 1.2. **Long-term infrastructure planning in the Netherlands**

The Netherlands has a long tradition of long-term strategic infrastructure planning. The framework changed in 2006, giving more powers to local authorities. Still, with regard to national projects and aims, the national government develops an overarching long-term plan. Previously, a "Key Planning Decision" (*Planologische Kern Beslissing*) with a time horizon of 20 years, defining potential projects in line with wider policy objectives, was developed and adopted by parliament. In the new framework, the government adopts a general "Structural Vision", which focuses on nationally significant planning decisions and is discussed in parliament. In a second stage, the central government, together with local authorities, agrees on regional agendas ("*gebiedsagenda*"), which describe the vision and potential projects for the region in the medium term. In addition, a multi-year programme ("MIRT") is developed, which includes a set of specific fully-funded projects to implement the regional agendas. A set of decision-making procedures on stakeholder involvement and decision making is laid out for the MIRT. An advantage of the Dutch system is that, in line with the political tradition of the country, a political consensus is sought on the long-term infrastructure strategy and specific projects.

Infrastructure challenges

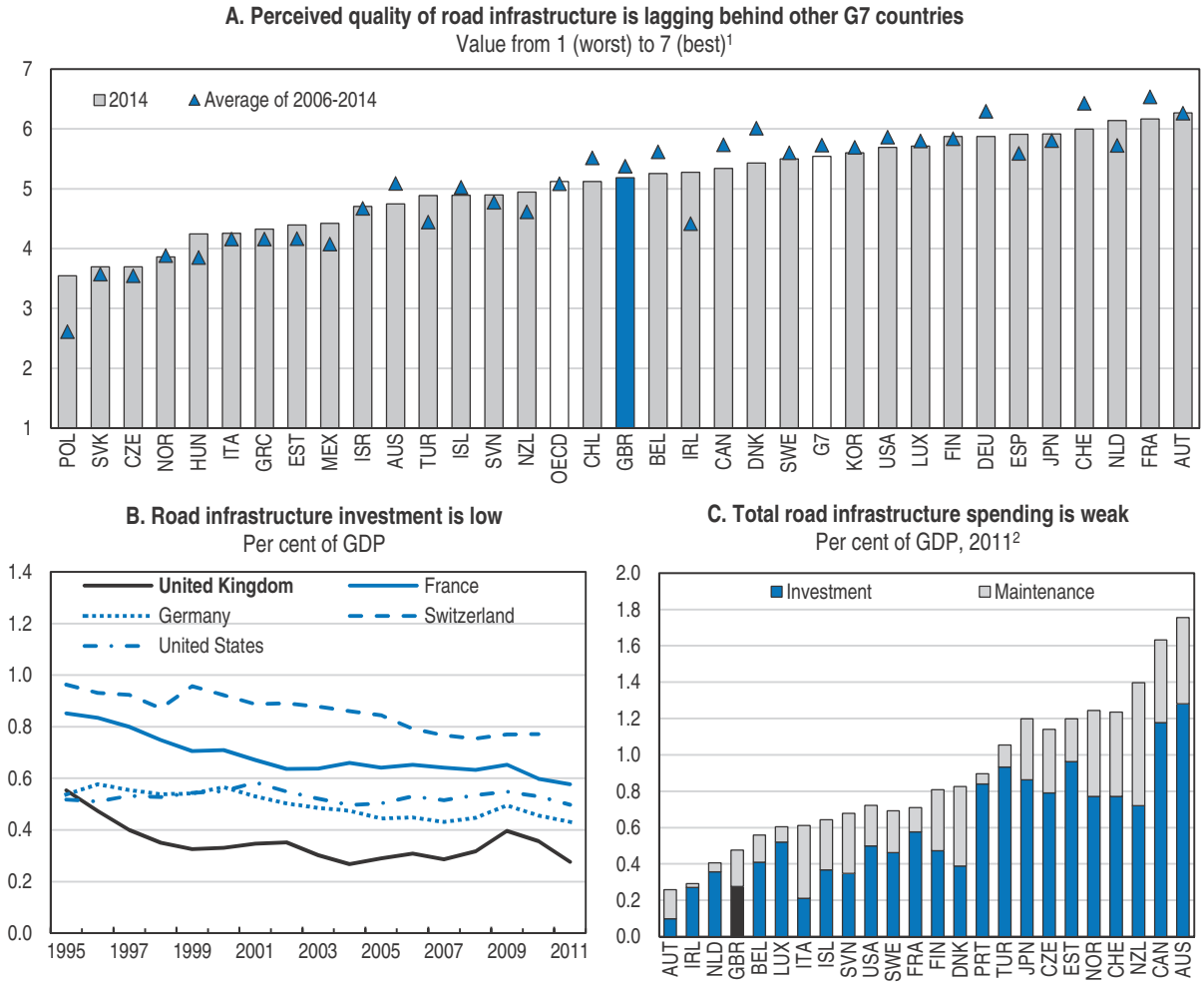
Road sector: Dealing with congestion and moving towards an independent regulator

The perceived quality of the UK's road system is worse than in most OECD countries of similar size and wealth (Figure 1.7, Panel A). During the past two decades, investment in UK roads has been considerably below the level in Germany and France (Figure 1.7, Panels B and C). Commuting times are relatively long, although they have improved at peak hours, and reported congestion is high (Figure 1.8, Panels A, B and C). However, road accidents are among the lowest in the OECD (Figure 1.8, Panel D).

The Highways Agency is responsible for the maintenance, improvement and operation of the strategic road network, while local authorities are in charge of local roads. The recent decisions to transform the Highways Agency into a publicly-owned corporation, make it more independent from the government, and move from a one- to a five-year funding cycles are steps in the right direction. Annual budget cycles for infrastructure result in unsatisfactory outcomes (OECD, 2012a). The recent changes will contribute to reduce uncertainty around investment plans and lower the cost of investment by lengthening the investment cycle.

A wider utilisation of toll roads and congestion charges would contribute to a more rational use of road infrastructure, with the Highways Agency acting as a regulator.

Figure 1.7. **The United Kingdom has underspent on roads compared to peers**



1. Figures refer to the following question: In your country, how would you assess the road transport infrastructure (from 1 = extremely underdeveloped – among the worst in the world to 7 = extensive and efficient – among the best in the world)? The OECD aggregate is calculated as an unweighted average. The aggregate for G7 countries (excluding the United Kingdom) (i.e. Canada, France, Germany, Italy, Japan and United States) is calculated as an unweighted average.
2. 2009 for Belgium. 2009 for maintenance for United States. 2010 for Denmark, Italy, Japan, Portugal and Switzerland. 2010 for maintenance for Australia.

Source: World Economic Forum (2014), *The Global Competitiveness Report 2014-2015*, Geneva and ITF (2013), "Spending on Transport Infrastructure 1995-2011", International Transport Forum, May.

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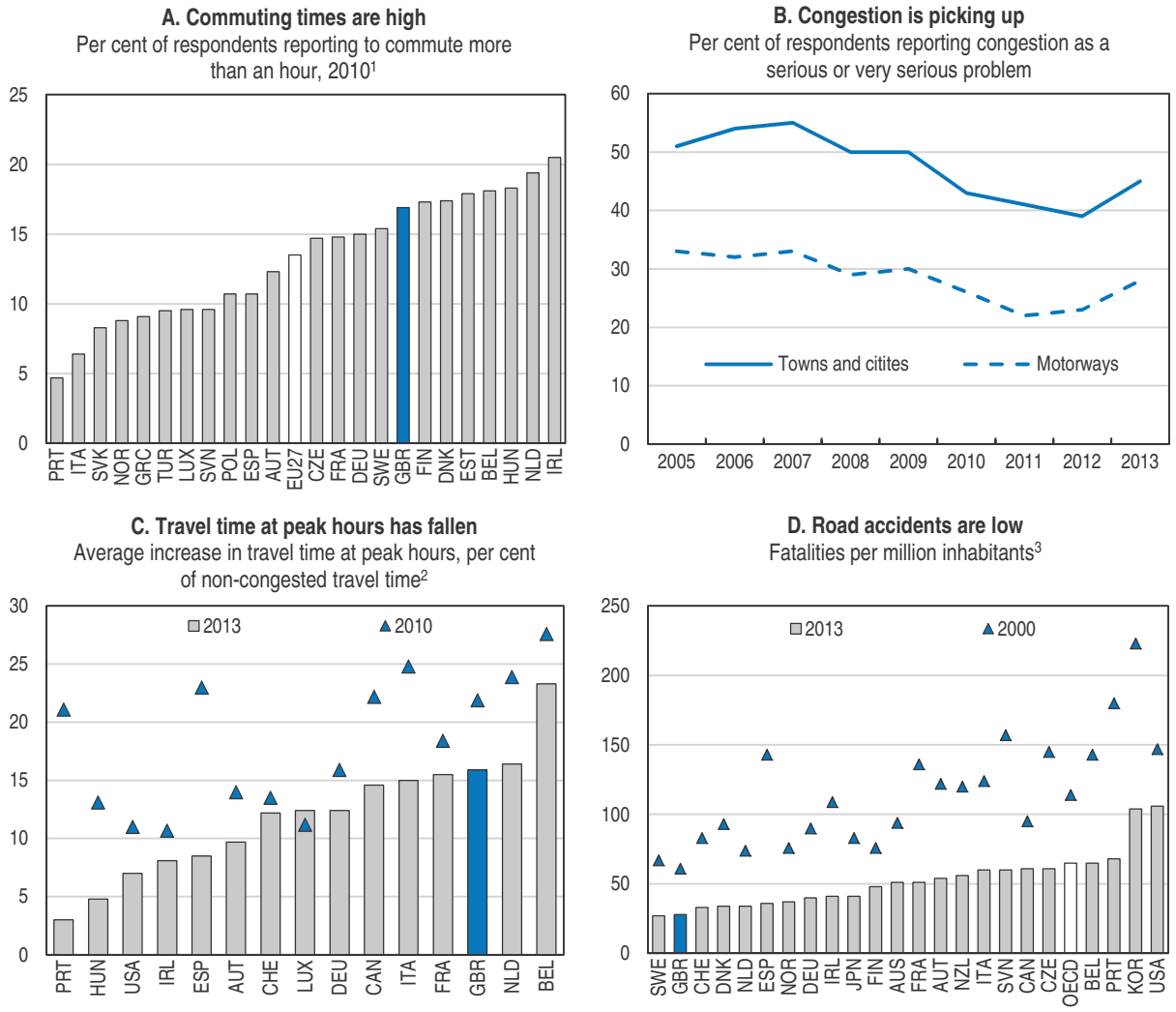
Currently, user charges are underutilised in the UK road sector compared to many other European countries. There is only one toll road (the M6 Toll) – plus a small number of bridges and tunnels where tolls are collected – and only London and Durham (the latter for just one street) have congestion charges. The deployment of a user-paid toll system for the busiest parts the road network, ideally with charges varying over time, would be in line with the "user pays" principle for transport (EC, 2008). Importantly, it would contribute to a more rational use of roads by pricing congestion and therefore smoothing peaks in road traffic. Equity issues arising from an increased use of toll roads can be effectively dealt with targeted social policies.

Figure 1.8. **Road congestion remains important but the safety record is sound**



1. Figures refer to the following question: In total, how many minutes per day do you usually spend travelling from home to work and back?
2. The INRIX Index represents the barometer of congestion intensity. For a road segment with no congestion, the INRIX Index would be zero. Each additional point in the INRIX Index represents a percentage point increase in the average travel time of a commute above free-flow conditions during peak hours. An INRIX Index of 30, for example, indicates a 20-minute free-flow trip will take 26 minutes during the peak travel time periods with a 6-minute (30 per cent) increase over free-flow.
3. 2012 instead of 2013 for Italy, Portugal, United States and the OECD aggregate.

Source: Eurofund (2010), "European Working Conditions Survey 2010", November, Department for Transport (2014), "British Social Attitudes Survey 2013: Public Attitudes Towards Transport", July, INRIX (2014), INRIX Traffic Scorecard and ITF (2014), *Road Safety* (database), International Transport Forum, November.

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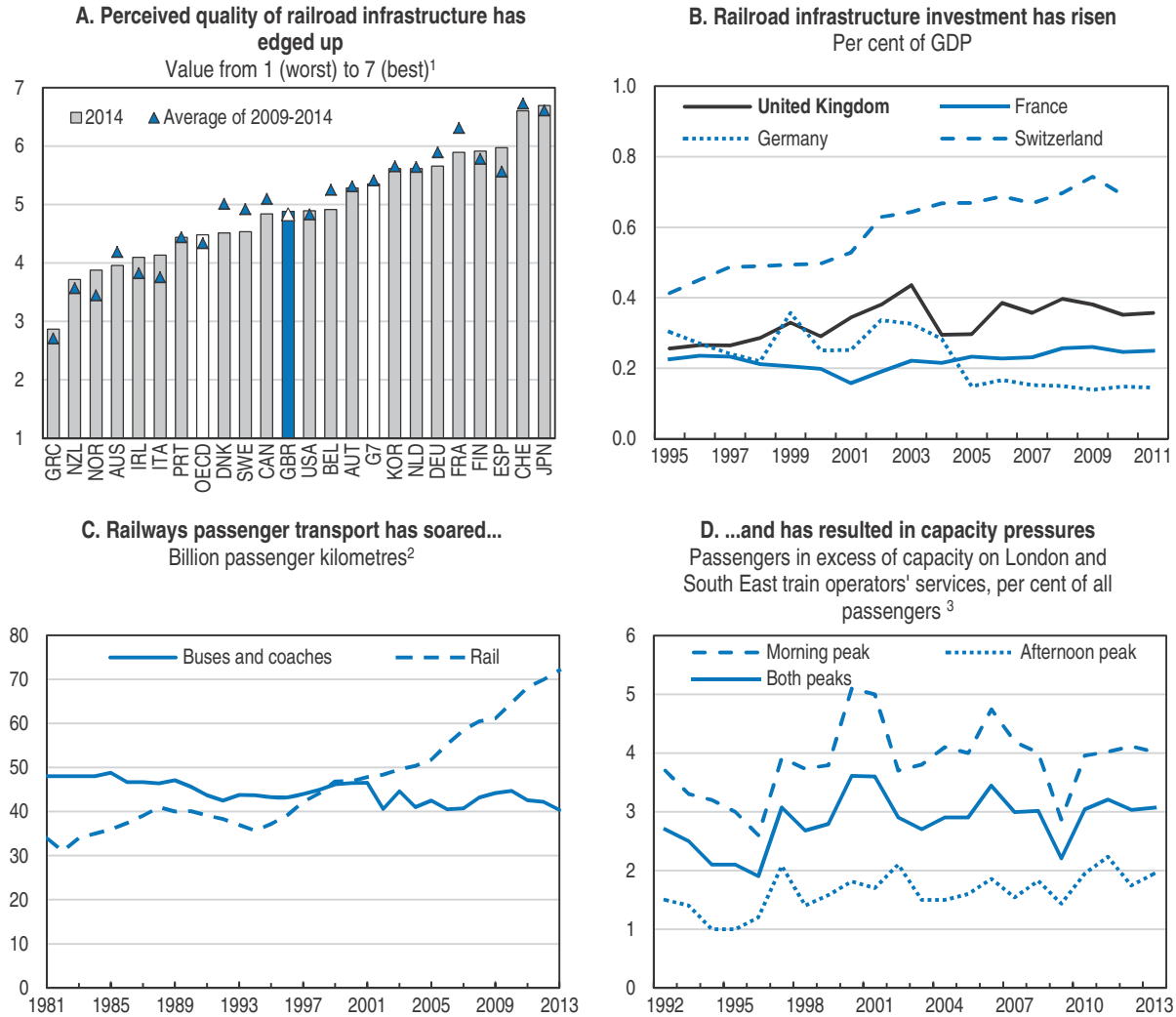
Railways: Sustaining modernisation efforts and revising the franchising framework

The railway sector has been significantly modernised in the last 20 years and the perceived quality of railroad infrastructure has continued to edge up (Figure 1.9, Panel A). This can be partly ascribed to increased investment, which started in the late 1990s-early 2000s (Figure 1.9, Panel B). Since the late 1990s, passenger journeys have more than doubled (Figure 1.9, Panel C). At the same time, overcrowding in some of the busiest railway sections (London and South East) has remained frequent, in contrast to the downward

Figure 1.9. **Rail infrastructure has improved and passenger transport is high**



1. Figures refer to the following question: In your country, how would you assess the railroad system infrastructure (from 1 = extremely underdeveloped – among the worst in the world to 7 = extensive and efficient – among the best in the world)? The OECD aggregate is calculated as an unweighted average. The aggregate for G7 countries (excluding the United Kingdom) (i.e. Canada, France, Germany, Italy, Japan and United States) is calculated as an unweighted average.
2. Data for rail transport refer to national rail (franchised operators only to 2008, franchised and non-franchised operators from 2009), urban metros and modern trams and to financial year.
3. Data refer to standard class passengers in excess of the capacity on weekday commuter services on a typical autumn weekday arriving in London during the morning peak (i.e. 07:00-09:59), and those departing during the afternoon peak (i.e. 16:00-18:59). This measure is derived from the number of passengers travelling in excess of capacity on all services at their busiest point, expressed as a percentage of the total number of passengers travelling.

Source: World Economic Forum (2014), *The Global Competitiveness Report 2014-2015*, Geneva, ITF (2013), "Spending on Transport Infrastructure 1995-2011", International Transport Forum, May, Department for Transport (2014), "Transport Statistics Great Britain 2013", December and Department for Transport (2014), "Rail Passenger Numbers and Crowding on Weekdays in Major Cities in England and Wales: 2013", September.

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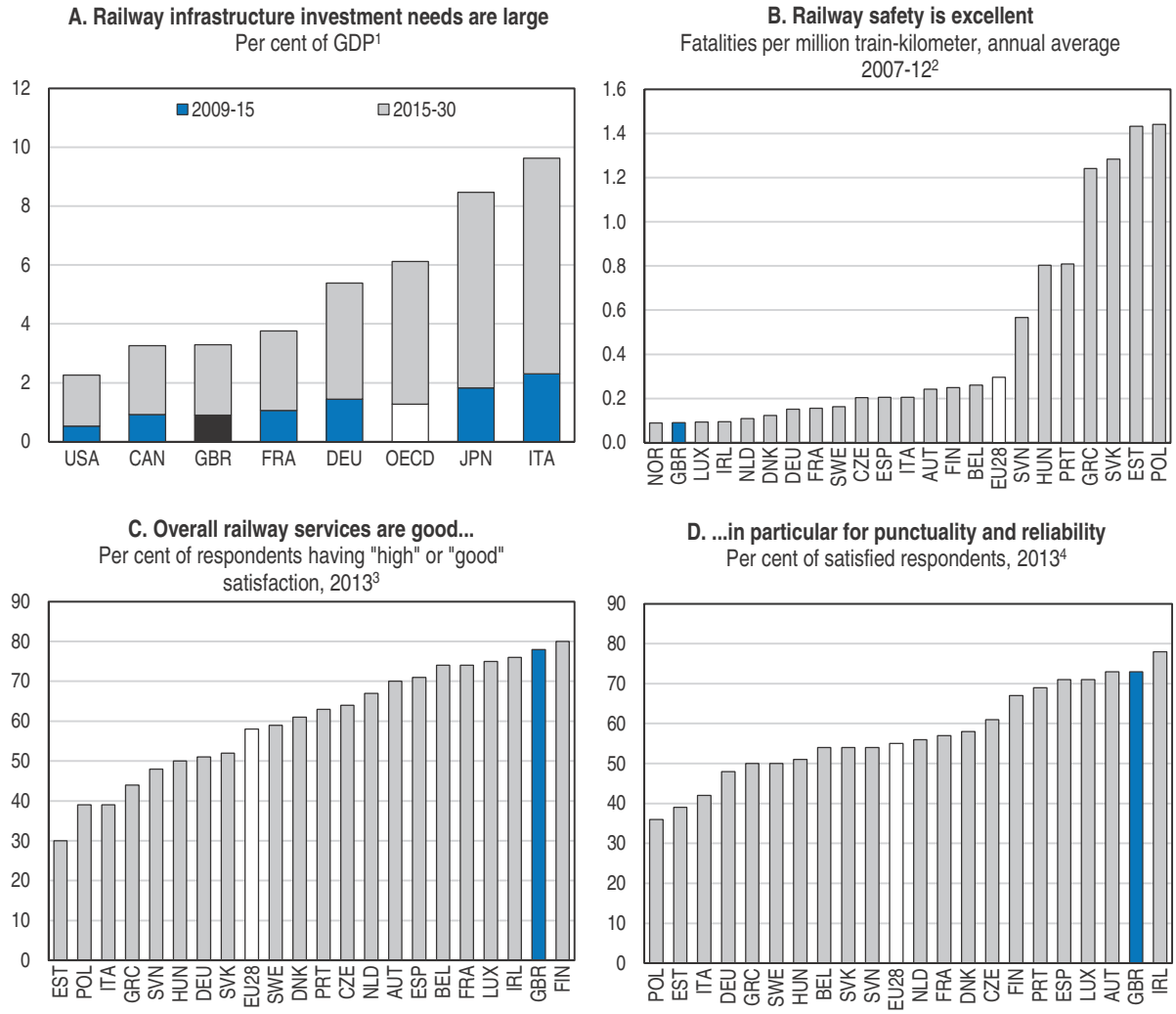
trend in the pre-privatisation period ending in 1994 (Figure 1.9, Panel D). Passenger traffic is forecast to rise further by nearly 15% between 2013-14 and 2018-19 (DfT, 2012a). OECD estimates point at still significant railway investment needs in the UK up to 2030, with a cumulative amount equivalent to about 3.5% of today's GDP, but which are lower than for Italy, Japan and Germany and below the OECD average (Figure 1.10, Panel A) (OECD, 2012a).

Figure 1.10. **A safe railway system featuring high passenger satisfaction**



1. In USD constant prices using purchasing power parities.
2. 2009-12 for Luxembourg. 2010-12 for the EU28 (i.e. European Union) aggregate.
3. The aggregate satisfaction index of railway stations and travels ranks respondents into four categories (i.e. high, good, medium and low) based on how satisfied they are overall with the eleven elements evaluated (i.e. information on timetables, ease of buying tickets, complaints mechanisms, cleanliness and maintenance of stations and travels, frequency of trains, punctuality and reliability, availability of through-tickets, provision of information, availability of staff and bicycle access to the trains). Respondents who are ranked as having "high" satisfaction answered that they are satisfied with at least nine of the eleven elements related to railway stations or travels by train. Respondents who are ranked as having "good" satisfaction answered that they were satisfied with six to eight elements.
4. Figures refer to the following question: Are you satisfied or not with the punctuality and reliability of railway travel? Data refer to respondents who are "very satisfied" or "fairly satisfied".

Source: OECD (2012), *Strategic Transport Infrastructure Needs to 2030*; ERA (2014), "Railway Safety Performance in the European Union 2014", European Railway Agency and European Commission (2013), "European's Satisfaction with Rail Services", *Flash Eurobarometer 382a*, September.

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Such investments will be needed to sustain strong performance metrics of safety, customer satisfaction and punctuality (Figure 1.10, Panels B, C and D). Network Rail plans to spend GBP 38 billion (2% of 2014 GDP) between 2014 and 2019.

The government privatised railways in 1994-95, but its support to the railway industry remains significant as passenger traffic has been rising over time. In 2012-13, it amounted to about GBP 5 billion against total railway industry expenditure (excluding government support) of more than GBP 12 billion and total industry income about GBP 9 billion (ORR, 2014). Government support increased further in 2013-14 to above GBP 5 billion, the third highest level ever recorded. The government's railway strategy up to 2019 includes close to GBP 5 billion for infrastructure enhancements, including major projects such as Thameslink and Crossrail in London, the Intercity Express Programme on the Great Western and East Coast Main Lines and elements of the Northern Hub, the latter aimed at improving connectivity within the North of England (HMT, 2013). Government financial support for such projects has increased every year since 2009-10.

The government should make sure that resources to fund a possible extension of the high-speed network are not diverted from the maintenance and improvement of the regular network. The UK has a small high-speed rail system compared to other European countries such as France, Germany, Spain and Italy. Currently, there is only one line (HS1) connecting London with the channel tunnel and France. The government has plans for a second high speed rail line (HS2) connecting London with Birmingham and, in a second phase, with Manchester and Leeds. The project is costly (estimated at GBP 50 billion or nearly 3% of GDP), but the Department for Transport has carried out a cost-benefit analysis which shows that HS2 should offer value for money (DfT, 2013). However, such evaluations are complex and HS2 could also cause a spatial re-organisation of economic activity in the UK resulting in additional economic benefits and costs, which cost-benefit analyses cannot capture as they focus on marginal changes (Rosewell and Venables, 2013; Crozet, 2013). For instance, HS2 could potentially result in GBP 8-15 billion in productivity gains for the British economy in 2037 (in 2013 prices), with up to half of this total gain generated outside Greater London by the use of freed-up railways capacity to improve rail services on the established network, particularly on long-distance routes (KPMG, 2013).

The cost efficiency of railways is low. Railway infrastructure and train operation were separated in the 1990s. Although this arrangement promotes competition (Cantos et al., 2010), it is more complex to manage than a vertically integrated sector. The British rail system has an efficiency gap of about 20-40% with respect to comparable European countries (McNulty, 2011). The gap is notably attributable to a lack of co-ordination and misaligned incentives between large and centralised company owning and managing railway track (namely Network Rail) and numerous and much smaller train operating companies. Also, the costs of the rolling stock in the UK, which accounted for about 70% of total private investment in railways in 2013-14 (ORR, 2014), are 40-60% higher than in other European countries, due to the complexity and structure of the train fleet, a higher share of diesel trains, shorter trains and a less favourable age structure of the rolling stock (Civity, 2012).

Costs could be lowered by promoting more co-operation between train operating companies and Network Rail and better aligning their incentives (Brown, 2013; McNulty, 2011). The government could increase standardisation of the rolling stock and seek a more effective procurement of it (McNulty, 2011; Brown, 2013). Recent reforms freeing the companies owning the rolling stock from the obligation of offering leases at the same price and terms to each bidder for a railway franchise and for the full length of the franchise goes in the right direction as this should allow bidders to negotiate better leasing deals (Brown, 2013). Reducing costs will free additional resources for investment and maintenance of the railway system without the need of recurring to significant increases in rail fares, which

have increased by more than 50% since 2004 (ORR, 2014) and are already high by international standards (TUC, 2014).

Giving the responsibility of franchising to an agency at arms-length from the government could be beneficial. Awarding franchises for passenger rail traffic is currently the responsibility of the Department for Transport. But criticism of the franchise framework is widespread, as it has proved difficult to deliver in terms of performance and costs to users and taxpayers. For instance, in 2012, the public tender for the InterCity West Coast franchise was cancelled due to technical flaws (Brown, 2013). A 2013 report by the Transport Committee of the House of Commons was positive about the idea to move decisions on franchise contracts to a body at arm's length from the government (Transport Committee, 2013).

Air transport: Tackling supply bottlenecks

The UK has a dynamic and competitive air transport sector, but airport capacity in the South of England is constrained. The UK has the biggest aviation market in Europe and the UK's main airports operate their infrastructure more cost-efficiently than other countries – Heathrow is the busiest two-runway airport in the world and Gatwick is the busiest single runway airport (Airports Commission, 2013).

The regulatory framework of the air transport sector is of good quality and has ensured strong competitive pressures among airports. The aviation regulator – the Civil Aviation Authority (CAA) – is recognised for its competence. One of its important remits includes the economic regulation of airports and of air-navigation service providers by avoiding abuse of market power. The CAA assesses the market power of all airports and if an airport passes the market-power threshold set by the Civil Aviation Act, the CAA starts regulating it. Currently, Heathrow and Gatwick are regulated airports.

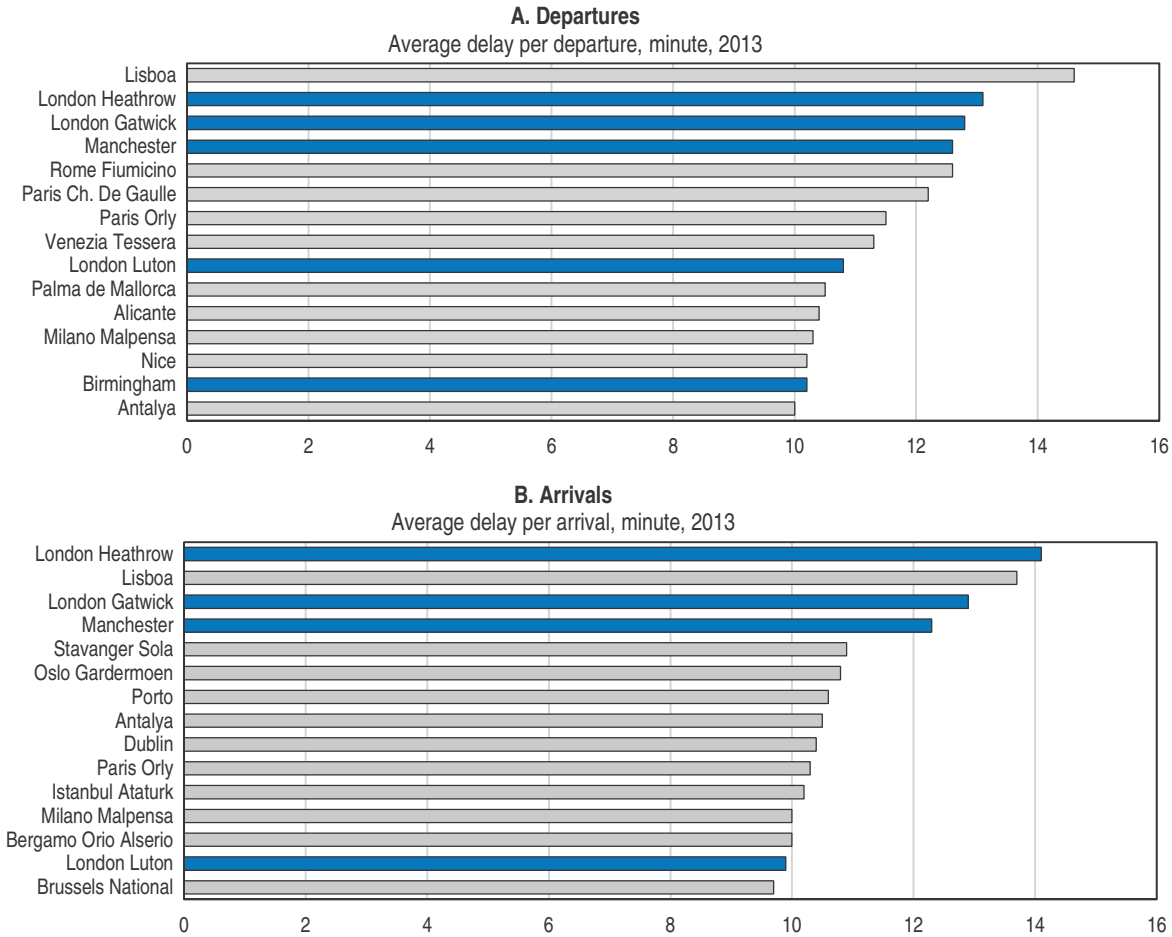
However, the combination of insufficient investment with rising levels of traffic has brought about heavy congestion. Heathrow and Gatwick (along with Manchester) are among the most congested airports in Europe (Figure 1.11). During the last decades, only two new runways, in Manchester Airport and London City Airport, have been added (Airports Commission, 2013). The quality of air transport infrastructure is perceived to be weaker than in some other countries, such as Germany, France and the United States (Figure 1.12).

The next government should take a swift and final decision to tackle airport congestion, carefully considering the recommendation of the Airports Commission, and ensure to maintain strong competitive pressures among airports. After years of debates and reports on if and how to expand airport capacity in the South East, no final decision has yet been taken. The creation in 2012 of an independent Airports Commission has promised to break the logjam. An interim report was published in 2013, shortlisting two options: adding a runway at Heathrow Airport or one at Gatwick Airport. The Commission is expected to make its final recommendation in the summer of 2015, after the general election.

Seaports: Maintaining high competitive pressures and supporting offshore renewable energy sources

Port activities have continued to expand, but further investments are needed to ensure adequate capacity in the medium term. UK ports handle more than 500 million tonnes of freight per year, making it the biggest port industry in Europe. Because of UK's geography, the sector is crucial to the UK economy, as 95% of traded goods pass through ports. The

Figure 1.11. **Some of the UK airports are among the most congested in Europe**[1]



1. Top 15 affected European airports. Data refer to delays of all causes. Figures cover commercial flights in the European Civil Aviation Conference (ECAC) region.

Source: CODA (2014), "Delays to Air Transport in Europe – Annual 2013", Central Office for Delay Analysis.

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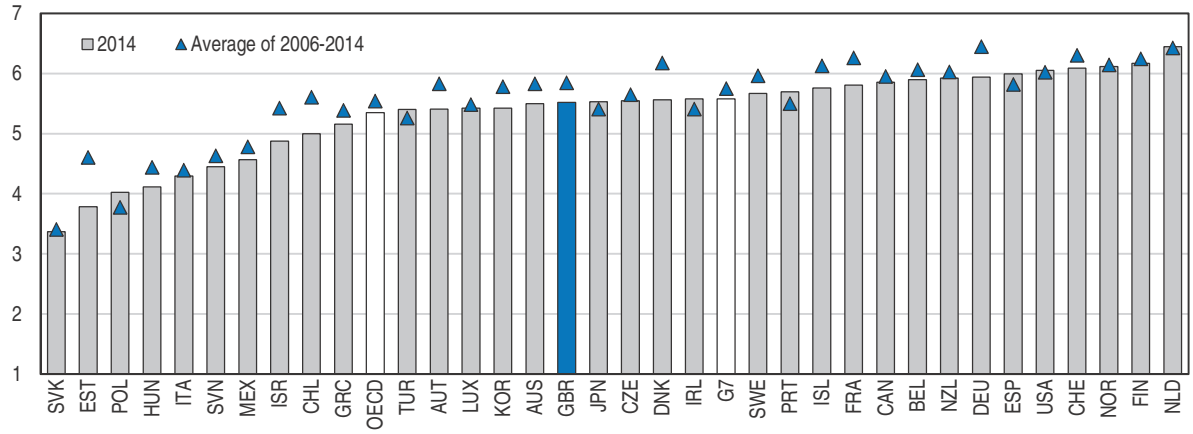
perception of UK port infrastructure is relatively good, but not as high as in best-performing OECD countries (Figure 1.13, Panel A). Investment in harbour infrastructure has been stable as a share of GDP (Figure 1.13, Panel B) since the late 1990s.

However, recent data show increasing congestion at UK ports (World Bank, 2014) and the government plans to extend port capacity substantially in the next 20-30 years through private financing to match the projected increase in freight traffic (HMT, 2013). Successive governments have encouraged private participation in the port sector resulting in strong competition. Private sector operators manage 15 out of the 20 largest ports by tonnage and around two-thirds of the UK's port traffic (DfT, 2012b). Overall, competitive pressures among ports in the UK are high (OECD, 2011b).

Ports will be essential to the provision of construction and maintenance services of offshore energy installations. Ports already play an important role in the energy sector via the imports and exports of energy supplies, including oil, liquefied natural gas and biomass. Because of the government's renewables targets, decisions on expanding the port sector will have to take into account the need to support the development of offshore sources of renewable energy.

Figure 1.12. **Perceived quality of air transport infrastructure is low and has fallen**

Value from 1 (worst) to 7 (best)[1]



1. Figures refer to the following question: In your country, how would you assess the air transport infrastructure (from 1 = extremely underdeveloped—among the worst in the world to 7 = extensive and efficient—among the best in the world)? The OECD aggregate is calculated as an unweighted average. The aggregate for G7 countries (excluding the United Kingdom) (i.e. Canada, France, Germany, Italy, Japan and United States) is calculated as an unweighted average.

Source: World Economic Forum (2014), *The Global Competitiveness Report 2014-2015*, Geneva.

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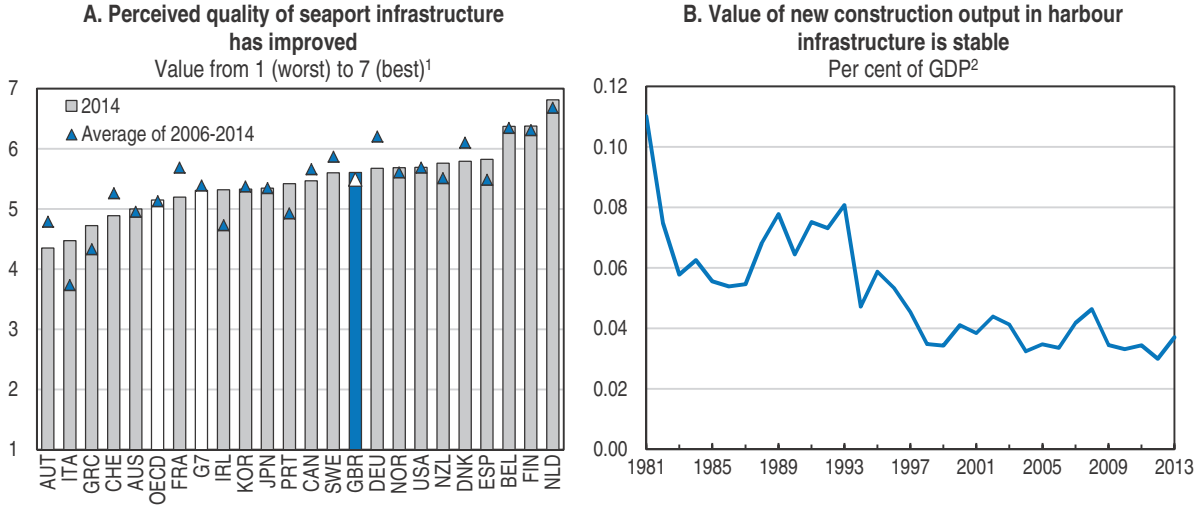
Figure 1.13. **Private investment in seaports has resulted in high perceived quality**



1. Figures refer to the following question: In your country, how would you assess the seaport facilities (For landlocked countries: How accessible are seaport facilities?) (from 1 = extremely underdeveloped – among the worst in the world to 7 = extensive and efficient – among the best in the world)? The OECD aggregate is calculated as an unweighted average. The aggregate for G7 countries (excluding the United Kingdom) (i.e. Canada, France, Germany, Italy, Japan and United States) is calculated as an unweighted average.
2. Annual data calculated from quarterly, non-seasonally adjusted data.

Source: World Economic Forum (2014), *The Global Competitiveness Report 2014-2015*, Geneva and ONS (2015) "Output in the Construction Industry, November 2014", Office for National Statistics, January.

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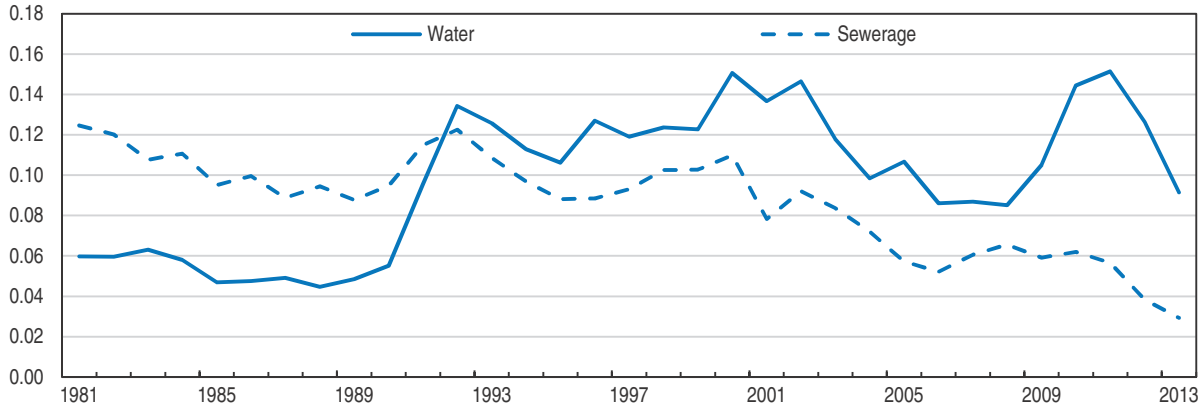
Water and flood defences: Ensuring high competitive pressures and adapting to climate change

The water sector is a successful example of how privatisation combined with network regulation can provide a good level of services. Since privatisation in 1989, considerable

investment has occurred in the water sector (Figure 1.14). However, investment as a share of GDP declined in the sewerage sector. According to Ofwat (The Water Services Regulation Authority in England and Wales), privatisation has improved performance, with: i) 35% lower leakage levels than the mid-1990s peak; ii) 75% fewer properties at risk of sewerage flooding over the past decade; iii) 99% fewer properties with low water pressure; and iv) high standards of water (for bathing and drinking). Looking ahead, the government and Ofwat should take action to increase competition in the water sector and find ways to further increase consumers' satisfaction. For instance, the introduction in the 2014 price review (for the 2015-20 period) of targeted rewards and penalties (i.e. price controls for different parts of each company's operations) will encourage companies to find more sustainable ways to meet their customers' needs.

Figure 1.14. **Investment in the water sector has increased after privatisation**

Value of new construction output in water and sewerage infrastructure, per cent of GDP[1]



1. Annual data calculated from quarterly, non-seasonally adjusted data.

Source: ONS (2015), "Output in the Construction Industry, November 2014", Office for National Statistics, January.

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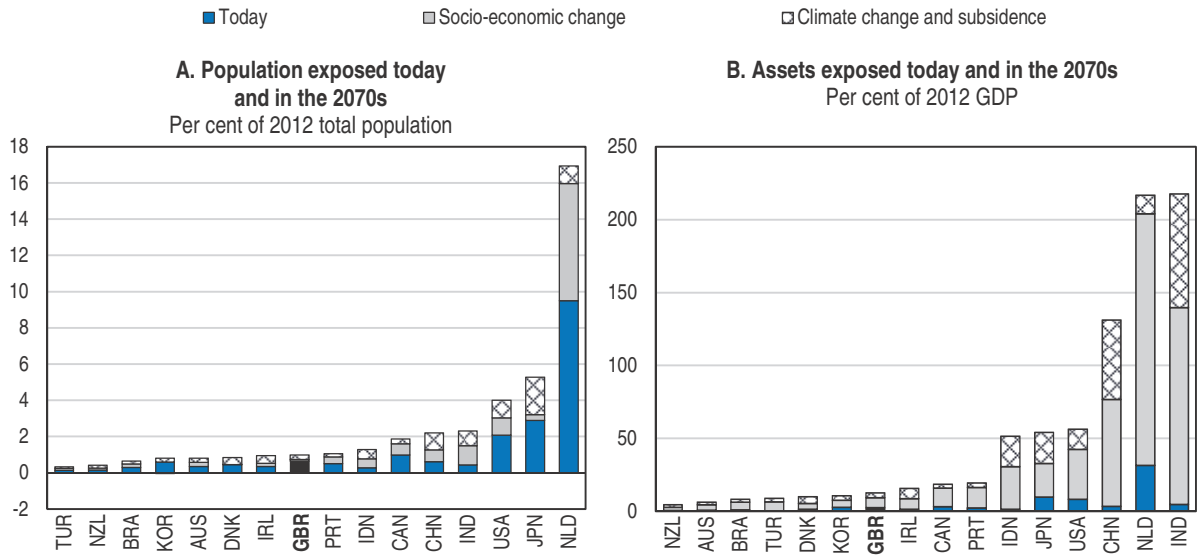
New investment is needed for the water sector to manage the challenges of climate change adaptation, population growth and rising environmental standards. Currently, the biggest investment project since privatisation concerns the Thames Tideway Tunnel (known also as the "super sewer"), which is a proposed tunnel running mostly under the Thames and central London to provide storage and conveyance of sewage and rainwater discharges that currently overflow into the river (Ofwat, 2014).

The UK requires steady investment to manage flood risks, partly due to the effect of climate change (Figure 1.15). Compared to other European Union (EU) countries, the UK has an intermediate exposure to flooding of coastal regions partly attributable to rising sea levels (EEA, 2006). The most recent progress report of the Committee on Climate Change, an independent body advising the UK government on climate change, finds that many flood defence schemes require greater funding to ensure stronger protection (CCC, 2014). In December 2014, the government announced a six-year programme of capital flood defence improvement works in England, with a commitment to ensure real average spending growth of almost 10% per year to 2021. The Thames estuary, which includes London, faces increasing risk of tidal floods over the next 100 years (EA, 2012). The Thames Estuary 2100 Plan lays out steps to avoid such risks, by monitoring climate change impacts and carefully assessing future investment needs, which include options to replace the existing

Figure 1.15. **Major coastal cities are exposed to flood risks**[1]



1. Exposure refers to the population and assets that are threatened, taking no account of any flood defences or other adaptation. Socio-economic change refers to the scenario of current environmental situation with the 2070's economy and population. Climate change and subsidence refers to the scenario of future socio-economic situation with the 2070's climate change, natural subsidence/uplift and human-induced subsidence minus the impact of the scenario of socio-economic change.

Source: R.J. Nicholls et al. (2008), "Ranking Port Cities with High Exposure and Vulnerability to Climate Extremes: Exposure Estimates", *OECD Environment Working Papers*, No. 1, and OECD (2015), *OECD National Accounts Statistics* and *OECD Population Statistics* (databases), January.

StatLink http://dx.doi.org/10.1787/888933189436

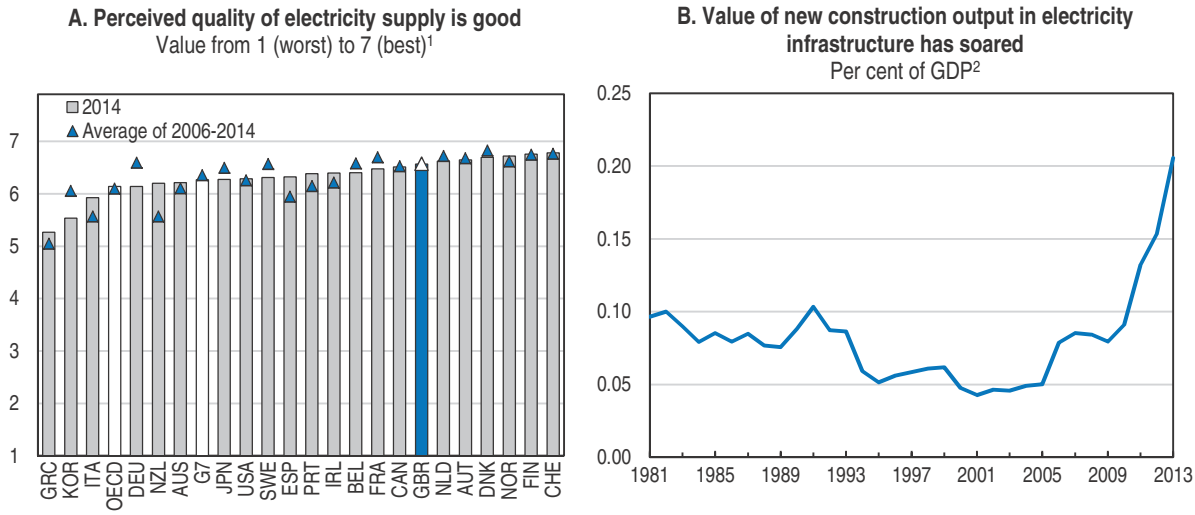
Thames barrier before it reaches the end of its useful life (currently estimated to be in about 60 years' time).

Energy sector: Addressing supply constraints and boosting competition

The quality of the electricity supply in the UK is perceived to be high (Figure 1.16, Panel A), but major strains in electricity-generation capacity have emerged over the recent years. The regulator, Ofgem (the Office of Gas and Electricity Market), first highlighted concerns over electricity-generation capacity in 2010 as old coal- and oil-fired plants were being phased out without sufficient new investment generation capacity being planned. Action is being taken to strengthen energy production and spending on electricity infrastructure has soared since 2010 (Figure 1.16, Panel B). Most of the old coal- and oil-fired plants have already been closed and the rest will be shut down by 2015, and capacity constraints should decline thereafter when new plants will become operational (Ofgem, 2014b).

The current energy sector structure emerged from the liberalisation reforms of the 1990s. The UK energy sector is divided into three areas: i) the wholesale market where generators, suppliers and large customers buy and sell electricity; ii) transmission and distribution networks at national and regional levels; and iii) the retail market, where energy suppliers sell to domestic and business customers. Ofgem issues licences to operate in each of these three areas. Its strongest regulatory powers apply to transmission networks for which it sets periodic price controls and approves companies' investment plans. No price controls apply to wholesale and retail markets, on the premise that strong competition and consumer choice will contribute to keep electricity retail prices low and drive sufficient investment in generation capacity (in the wholesale and retail sectors,

Figure 1.16. **Electricity infrastructure is being renewed**



1. Figures refer to the following question: In your country, how would you assess the reliability of the electricity supply (lack of interruptions and lack of voltage fluctuations) (from 1 = not reliable at all; to 7 = extremely reliable)? The OECD aggregate is calculated as an unweighted average. The aggregate for G7 countries (excluding the United Kingdom) (i.e. Canada, France, Germany, Italy, Japan and United States) is calculated as an unweighted average.
2. Annual data calculated from quarterly, non-seasonally adjusted data.

Source: World Economic Forum (2014), *The Global Competitiveness Report 2014-2015*, Geneva and ONS (2015), "Output in the Construction Industry, November 2014", Office for National Statistics, January.

StatLink http://dx.doi.org/10.1787/888933189446

Ofgem is mainly responsible for monitoring market developments and investigating anti-competitive practices) (IEA, 2012).

Notwithstanding the liberalisation reforms of the 1990s, the electricity and gas sectors remain highly concentrated. They are dominated by six large vertically integrated companies, which are successors of the former regional monopolies and still have a strong position in their respective regions (IEA, 2012). The residential retail market share of these companies – in both the electricity and gas sectors – is about 95%. In both sectors, the market share of small suppliers increased from about 1% in 2010 to about 5% in 2014, but it is unclear whether any of them will achieve sufficient scale, in the near term, to challenge the incumbents (Ofgem, 2014a). The wholesale electricity market is also highly concentrated, with the six largest vertically integrated companied owning about 70% of the generation capacity (Ofgem, 2014a).

Competition among electricity generators is low. In its 2008 Retail Market Probe and the subsequent 2011 Retail Market Review, Ofgem found that a combination of factors, including tariff complexity, vertical integration of the major suppliers and tacit collusion among them restrained competition in the electricity sector. High market concentration in the wholesale electricity market has led to low liquidity of forward contracts, resulting in low price transparency and blurring price signals pointing to the needs for new investment in generation capacity (Stoft, 2003; Roques et al., 2005; Ofgem, 2014a). Moreover, low liquidity of forward contracts in the wholesale electricity sector has impinged negatively on competition, by restricting market entry and hindering the expansion of small electricity suppliers and independent generators (IEA, 2012; Ofgem, 2014a). The Competition and Markets Authority (CMA) is investigating the supply and acquisition of energy in the UK and will publish the final report at the end 2015 (CMA, 2014).

In early 2014, Ofgem enacted reforms to increase liquidity in the wholesale electricity market, especially of forward contracts. These reforms impose new market-making obligations on eight large electricity-generating companies in the expectation of increasing the share of electricity that is exchange-traded (instead of traded over the counter) so as to improve price transparency of and access to forward contracts by independent suppliers and generators. The government and the regulator will need to monitor closely the effect of this reform and, if needed, take additional steps to further increase price transparency of forward contracts.

There is also a need to quantify the benefits and costs of the consequences of vertical integration in the UK's energy markets, which could be done by Ofgem. Vertical integration might reflect a rational response to relatively high transaction costs associated with the operation in wholesale power markets and results in efficiency gains for the firm (Coase, 1937; Williamson, 1979; Jaskow, 2008). This is not necessarily a problem as long as there is vigorous competition among vertically-integrated firms and a realistic threat of entry. However, in practice vertical integration, combined with other factors such as low liquidity in wholesale markets and tacit collusion among major suppliers, can restrict competition by increasing entry costs and hindering the expansion of non-vertically integrated suppliers (Jaskow, 2008). In its latest Market Assessment Report, Ofgem (2014a) stated that in the UK the costs attributable to vertical integration might be significant and would deserve further scrutiny.

The Electricity Market Reform (EMR) programme is a groundbreaking attempt to reform the electricity market and tackle capacity constraints on a durable basis, while promoting low-carbon energy sources. Its main feature consists of two innovative schemes to increase competition, support needed investment to expand capacity and promote the use of low-carbon energy sources in electricity generation (Box 1.3). The mechanisms to achieve these objectives are: i) the Contract for Difference (CfD) between a low carbon

Box 1.3. **Main elements of the Electricity Market Reform**

The Electricity Market Reform introduces two key mechanisms to incentivise investment in energy infrastructure

- The Contract for Difference (CfD): its main purpose is to stimulate investment in low-carbon energy capacity by paying the difference between the "strike price" – a price for electricity reflecting the cost of investing in a particular low-carbon technology – and the "reference price" – a measure of the market price for electricity in the United Kingdom. The CfD is essentially a feed-in tariff system for the whole sector. The CfD will provide greater certainty and stability of revenues to generators by lowering their exposure to volatile wholesale prices and protect consumers and the budget when electricity prices are above the strike price by having generators pay back the difference. The CfD will support different kinds of low-carbon generation technologies, but the support will differ according to the degree of development of each technology and will be temporary as the government plans to withdraw it as renewable technologies become competitive.
- The Capacity Market: its main purpose is to ensure a sufficient and reliable electricity generation capacity to meet demand. The capacity market aims at increasing investment in electricity generation to replace older power stations and get the best out of existing generation to provide necessary capacity for the intermittent supply of low-carbon generation technologies.

Box 1.3. **Main elements of the Electricity Market Reform** *(cont.)*

The timetable for the implementation of the Electricity Market Reform is the following:

- 2014-17: CfD will run alongside the Renewables Obligation, which will be closed to new entrants from 2017. Established renewable technologies will enter a competitive auction to set the strike prices, with an administrative strike price acting as a ceiling for bids. The first capacity auction took place in December 2014 for delivery of capacity from winter 2018-19.
- 2018-19: The Capacity Market starts to deliver capacity.
- 2020s: Continued maturity of technologies and movement towards technology neutral auctions; additional storage and interconnection, and well-functioning energy markets across the European Union, will play an increasingly large role in managing supply and demand.
- Late 2020s and beyond: Technologies are mature enough and the carbon price is high and sustainable enough to allow all generators to compete without intervention.

Source: DECC (2014b).

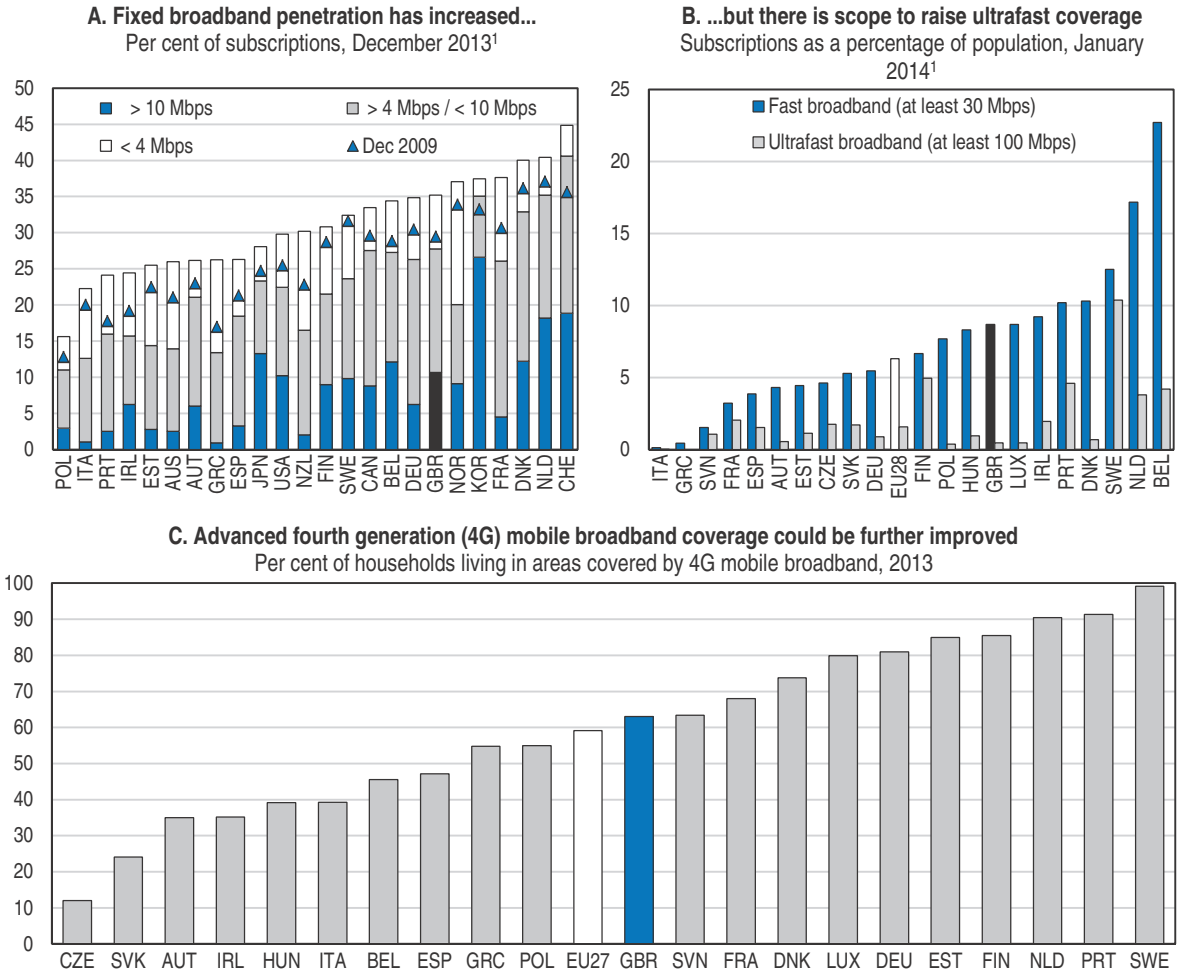
electricity generator and a government-owned company (the CfD Counterparty), with the latter paying the former the difference between a fixed "strike price" and a market reference price (or, if the market reference price is higher than the strike price, the generator will pay the difference back to the CfD Counterparty); and ii) the Capacity Market, which will provide regular payments to generators for ensuring a certain degree of spare capacity is available to use when needed. Among OECD EU countries, France is introducing capacity mechanism to ensure adequacy of electricity supply over the long term (RTE, 2014) whereas Finland, Greece, Ireland, Italy, Portugal, Spain and Sweden have already implemented some form of a capacity remuneration mechanism (ACER, 2013). Both schemes will involve payments to private sector electricity generators that will be auctioned and financed through a levy on energy bills.

The Electricity Market Reform is well thought out, but continued detailed assessment of the level of public support available (as recently started in the 2014 Annual Energy Statement) as well as the organisation of highly competitive auctions are needed to contain costs and risks to consumers and the budget. Policies to support renewables, although desirable to accelerate the transition towards green growth, can entail costs – for the Treasury, users or both – which in difficult economic periods might undermine popular and political support for them. For instance, in Germany these costs are set to reach about 0.8% of GDP in 2014, reflecting the gap between generous feed-in tariffs, which has boosted the use of renewables, and market prices (OECD, 2014c). The government has estimated that the electricity market reform could slow the increase in household electricity bills and result in yearly savings of about GBP 40 (or 6%) per household on average over the period 2014-30 for meeting the same objectives without the Electricity Market Reform (DECC, 2013a). To achieve these targets, the government will need to take special care to hold highly competitive auctions for the CfD and the Capacity Market and establish a robust reference price for the CfD, which reflects market fundamentals and cannot be manipulated. The first round of Capacity Market auctions was concluded in January 2015.

Digital infrastructure: More investment is needed to bridge the regional digital divide

The UK's digital economy is well developed as the country offers one of the most conducive environments for the development of information and communications technologies (Bilbao-Osorio et al., 2013). The UK has made progress in the rollout of high-speed services over recent years, but it lags behind the best performing countries in the EU regarding the uptake of fast and ultrafast fixed broadband, and the coverage of the latest (4G) mobile technology (Figure 1.17). However, the proportion of fast fixed connection surged from 5% in 2011 to about 20% in 2014 and the average speed has continued to increase (Ofcom, 2014). The gap between advertised and effective broadband speeds is larger in the UK than in the other EU countries, while the costs of access to broadband services are below (above) the EU average for standard (superfast) broadband (EC, 2014a). There are indications that some small businesses face difficulties in accessing fast broadband (FSB, 2014; Ofcom, 2014).

Figure 1.17. **Fixed and mobile broadband penetration and coverage are mixed**



1. Mbps: megabits per second.

Source: OECD (2014), *Measuring the Digital Economy: A New Perspective* and European Commission (2014), "Trends in European Broadband Markets 2014", May.

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The telecommunication market in the UK is highly competitive. The UK comes first on product market regulation and among the best performers on regulatory management in

the telecommunication sector (Figure 1.4). Operators are regulated by the Office of Communications (Ofcom), which also has competition law power. Ofcom reported that the variation of the availability and quality of telecommunications services across the UK is partly attributable to the largely market-led approach to service provision (*Ofcom, 2013*), in common with other OECD countries. Once the cost to the provider of extending the infrastructure exceeds the revenues they generate, the provider no longer has an incentive to extend the infrastructure. While Universal Service Obligation (USO) has virtually ensured universal access to basic telecommunications, such as fixed telephony, the expansion of fast broadband coverage by the private sector is more difficult to achieve.

International experience shows that market forces do not always lead to sufficient provision of broadband services in all geographical areas of a country. For instance, empirical evidence for the telecommunication sector suggests that allowing regulated access to incumbent's infrastructure, as a way to increase retail competition, increases the quality of services – in terms of connection speed – but it may also result in reduced investment, leading to lower broadband penetration (Grajek and Roller, 2012; Nardotto et al., 2013; Crandall et al., 2013). Competition helps drive down prices and increase quality and variety of services, but the authorities also need to create the right incentives to promote the access to modern digital services and raise penetration rates in rural areas, as extending telecommunication infrastructure therein can be highly costly and deter private investment.

In 2010, the government set the objective to provide the UK with the fastest broadband network in the EU. This included a pledge to ensure access to broadband in rural areas even if it is not commercially viable. The government has an ambitious goal of providing universal access to broadband by 2017, with a minimum speed of 24 megabits per second (Mbps) in at least 95% of premises. The authorities are also currently conducting a series of pilot projects to address the coverage for the remaining 5%. To achieve these targets, the government will need to decrease the regional disparities in the availability of broadband, which – in common with virtually every OECD country – are large, especially for fast broadband (Table 1.1). There is evidence that the gap in access to modern telecommunications services among local authorities is slowly closing but the dispersion in penetration rate of fast broadband is still large (Figure 1.18).

The UK government should improve the competitive framework to award subsidies to expand broadband services in rural areas. This will minimise the costs for the exchequer and accelerate the achievement of the government's targets of providing universal access to broadband services. The experience of Chile in awarding subsidies on a competitive basis is highly positive as it succeeded in lowering the share of people without basic communications services from 15% in the mid-1900s to 1% in 2002 (Wellenius, 2002). Stronger government support to expand broadband access underpins the European Commission's digital strategy, which allows for exceptional government subsidies for broadband rollout (EC, 2013). The implementation of the government's rural broadband programme has been criticised as only the historical incumbent (British Telecom, BT) has faced little competition or no competition during the bidding process and won all contracts. The House of Commons Public Accounts Committee has argued that the Department of Culture Media and Sport's procurement approach for the rural broadband programme has resulted in too little competition among potential bidders (HoC, 2014). This has in turn resulted in a lack of transparency about the costs the sole supplier (BT) actually incurs in deploying broadband services in rural areas and in lower-than-expected capital contribution by BT (HoC, 2014).

Table 1.1. **Availability of broadband services varies greatly across regions, and urban and rural areas**

Per cent of households, 2012

	All	Urban	Semi-urban	Rural
Standard broadband				
UK	95.3	98.3	96.9	80.1
England	95.8	98.5	97.1	80.6
Northern Ireland	87.4	96.0	95.6	66.5
Scotland	95.3	98.0	96.8	85.9
Wales	91.9	96.4	95.2	77.0
East Midlands	94.5	98.5	97.4	76.1
East of London	94.0	97.6	96.9	79.0
Greater London	99.2	99.3	100.0	87.4
North East England	95.1	97.4	96.1	80.5
North West England	96.3	98.1	97.3	79.0
South East England	95.7	97.1	97.6	85.3
South West England	94.7	98.5	97.9	81.4
West Midlands	96.1	98.8	97.1	79.6
Yorkshire and the Humber	94.5	96.9	95.8	78.9
Fast broadband (at least 30 Mbps)				
UK	67.9	86.0	67.0	21.2
England	70.9	86.7	70.5	19.1
Northern Ireland	96.0	98.4	97.1	92.4
Scotland	47.6	72.3	48.3	6.3
Wales	39.8	90.1	33.8	6.6
East Midlands	67.1	93.5	68.8	17.9
East of London	68.5	94.0	74.4	14.0
Greater London	87.9	87.9	95.0	58.5
North East England	71.2	79.1	74.4	23.4
North West England	72.9	84.3	74.1	18.0
South East England	70.8	90.7	75.8	25.4
South West England	52.3	89.9	46.5	16.0
West Midlands	75.0	86.4	75.9	18.8
Yorkshire and the Humber	63.6	70.9	67.0	20.0

Source: Ofcom (2013), "The Availability of Communication Services in the UK", May; *http://stakeholders.ofcom.org.uk/market-data-research/market-data/economic-geography*.

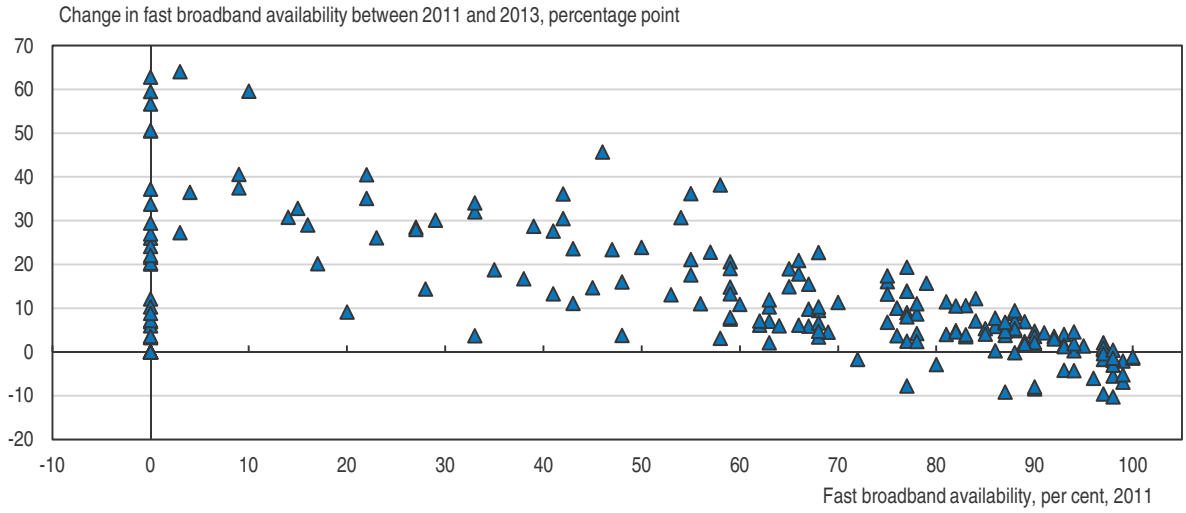
Infrastructure is key to move towards green growth

Shifting transport to environmentally friendly modes

Passenger transport has increased considerably since the 1980s, mainly driven by a surge in the use of cars, although it has stabilised more recently (DfT, 2014a). In 2012, cars accounted for more than two-thirds of total passenger transport, walking for close to a fifth, local buses for about 5%, and rail and other transport modes (such as air travel, motorcycles and tram) accounted for less than 5% each. Domestic freight transport increased steadily over the 1990s and until the mid-2000s, thereafter it flattened and declined as a consequence of the economic crisis.

Transport accounts for a large share of total greenhouse gas emissions and air pollution, in particular from road transport. In 2011, transport was responsible for almost 30% of UK greenhouse gas emissions, compared to less than 20% in 1990. Road transport was the largest contributor to total transport emissions, accounting for about two-thirds of

Figure 1.18. **The gap in fast broadband access across regions is closing**[1]



1. Data refer to broadband availability for local authorities. Broadband connections with a headline speed of up to 30 megabits per second (Mbps) or higher are considered superfast.

Source: Ofcom.

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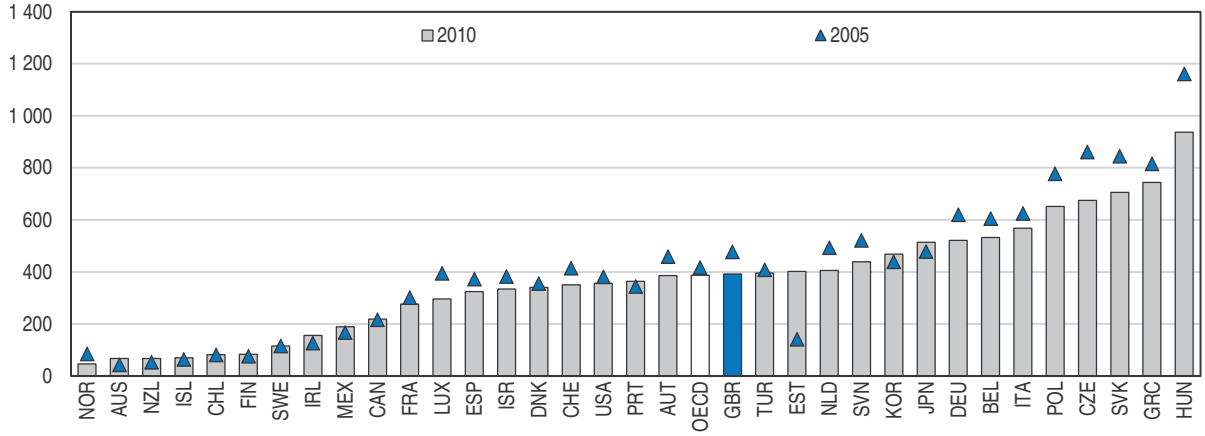
transport greenhouse gas emissions, international aviation and shipping accounted for slightly more a fourth, and domestic aviation and shipping by around 5% (DfT, 2014a). Also, road transport accounts for a significant share of pollution. In 2008, 80% and close to 40% of particulate matter (PM) emissions in London and Manchester, respectively, originated from road transport (Moore, 2012). Pollution generates large economic costs and negatively affects well-being (OECD, 2014a). In the UK, the death rate form air pollution is around the OECD average. Although it declined from 2005 to 2010, it is still significantly higher than in some other affluent OECD countries (Figure 1.19). Surveys also reveal that in the UK almost half of the population considers exhaust fumes in towns and cities as a major problem (DfT, 2014b).

Figure 1.19. **Deaths from air pollution are about OECD average**

Number of deaths per million capita



Source: OECD (2014), *The Cost of Air Pollution: Health Impacts of Road Transport*.

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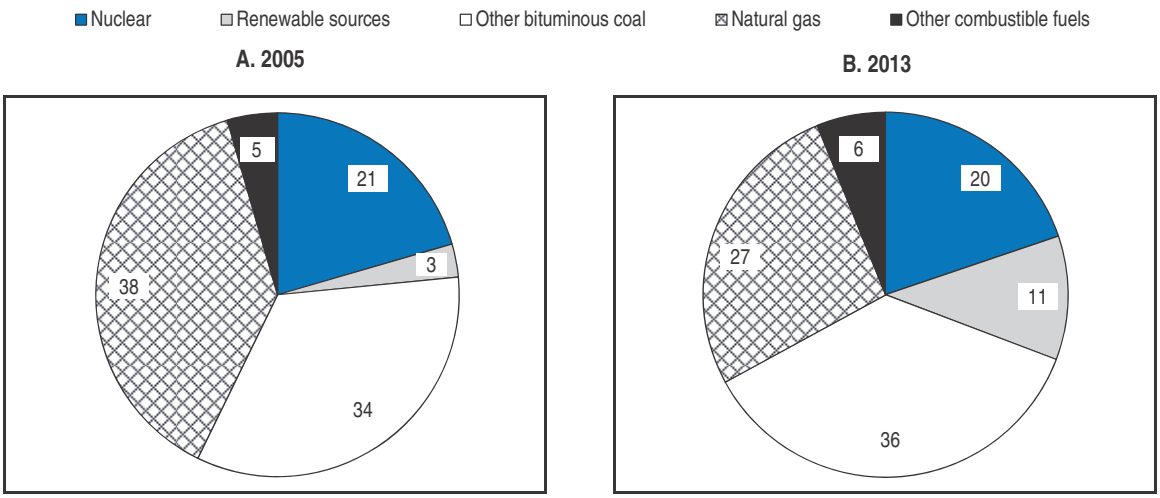
A comprehensive transport infrastructure strategy will need to ensure an adequate supply of infrastructure and its efficient use, but also to shift transport towards more environmentally-friendly modes, such as trains, buses and bicycles. In the UK, there is room to shift freight transport from roads to railways, which would diminish the environmental impact of the transport system and would reduce road congestion. Currently, the share of railway freight transport is slightly lower than in the other EU countries. Several private rail freight companies operate in the market, which functions well as incumbents lost their dominant position following the privatisation in the mid-1990s (OECD, 2013a). The government should consider substantially increasing the freight grants managed by the Department of Transport through the Mode Shift Revenue Support Scheme. These grants provide incentives to freight companies to transport freight by rail (and water) instead of road. In the 2013-14 financial year, these grants accounted for slightly above GBP 15 million out of more than GBP 5 billion of government support to the railway sector, thus even doubling this amount would not have a large impact on the budget.

Supporting renewable energy sources and increasing energy efficiency

The UK relies on a large array of policies to increase energy efficiency and to promote the use of renewable energy sources (DEEC, 2013a). These policies seem to be bearing fruit. From 2005 to 2011, households' electricity and gas consumption declined by respectively about 10% and 20% because of energy efficiency improvements (DECC, 2013a). Greenhouse gas emission per unit of GDP almost halved since 1990. This was mainly due to changes in the energy mix. Between 1990 and 2012, the share of coal in total energy supply fell from close to 30% to 20%, from almost 40% to about 30% for oil, while gas increased from nearly 25% to 35% (IEA, 2012). The share of renewable energy in total energy supply increased from 1% in 1990 to 5% in 2012, still some way off the 15% target in 2020 as part of the EU strategy on renewable energy. In electricity generation, the share of renewable energy sources increased from less than 5% in 2005 to more than 10% in 2013 (Figure 1.20).

Figure 1.20. **The share of renewable energy source is expanding**

Per cent of total electricity production[1]



1. Gross electricity production (GWh) of all electricity, heat and combined heat and power (CHP) plants. Renewable sources include hydro, wind, solar, tide, wave and ocean as well as renewable municipal waste.

Source: IEA (2014), "OECD – Electricity and Heat Generation", *International Energy Agency Electricity Information Statistics* (database).

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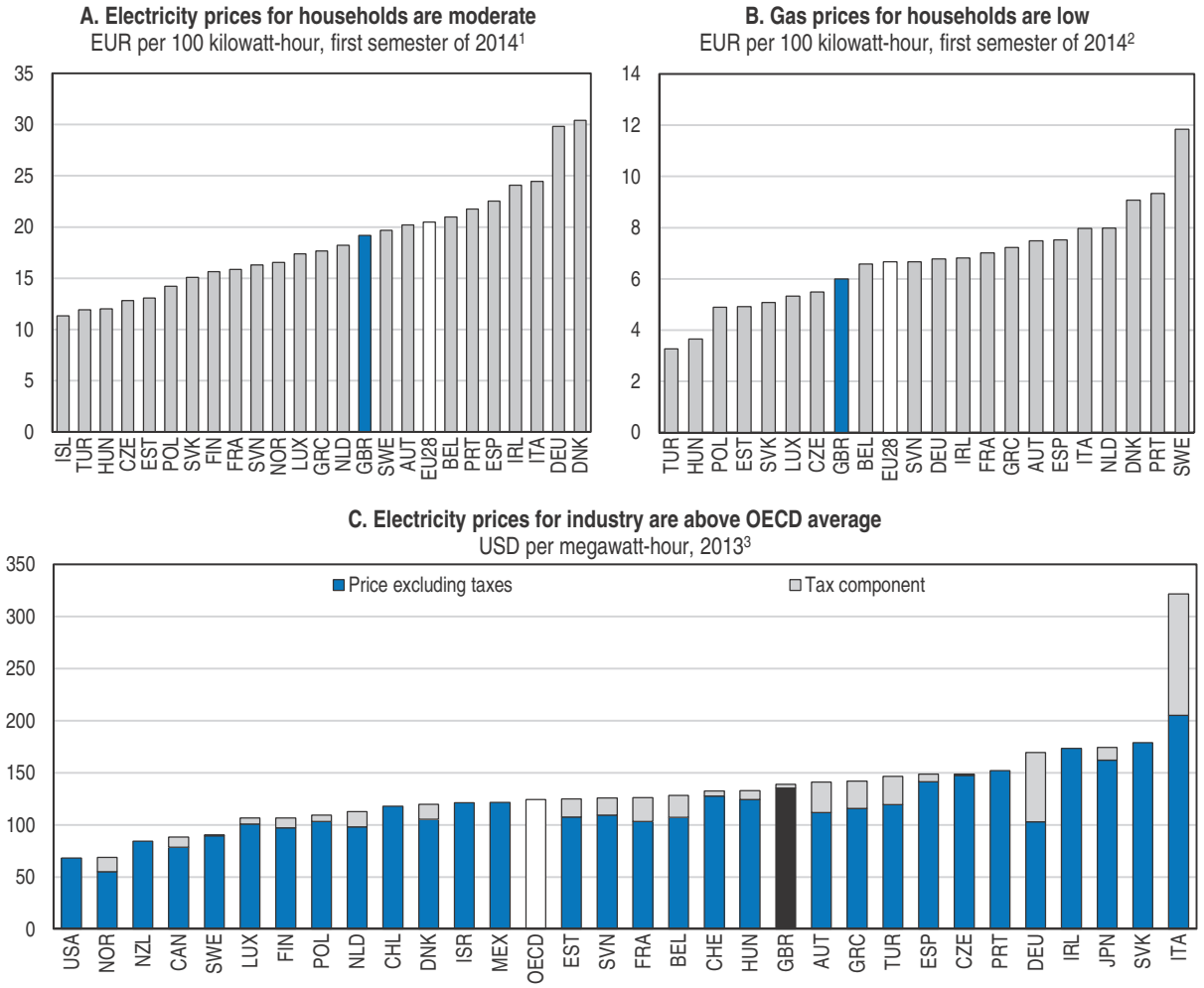
Current targets to increase the share of renewables in the energy mix and reform the electricity sector are worthwhile initiatives, but they will contribute to raise retail electricity prices (DECC, 2013a). Their effects on energy bills, especially for poor households, will need to be closely monitored. In 2013, retail gas and electricity prices for households were below the EU28 average, while electricity prices for the industry exceeded the OECD average (Figure 1.21). On average in 2013, energy and climate change policies accounted for about 10% of households energy bills (DECC, 2013b). However, accounting for the effect of the numerous energy saving policies now in place, the Department of Energy and Climate Change estimated that in 2013 these policies yielded a 5% saving on the households' energy bill.

Figure 1.21. **Energy prices for households are affordable and are relatively high for industry**



1. Electricity prices refer to prices for a household with an annual consumption of between 2 500 and 5 000 kiloWatt-hour (kWh), and include taxes.
2. Gas prices refer to prices for a household with an annual consumption of between 5 600 and 56 000 kiloWatt-hour (kWh) of gas, and include taxes.
3. 2011 for Spain. 2012 for Canada and New Zealand. Tax information is not available for United States and the OECD aggregate.

Source: Eurostat (2015), *Energy Statistics* (database), January and IEA (2015), *Energy Prices and Taxes* (database), International Energy Agency, January.

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Looking ahead, the government should consider simplifying the energy-efficiency policy framework by moving towards a single carbon price applying to all economic activities, reducing compliance costs and raising awareness across the population of the initiatives offering the highest value for money. The many policies now in place often overlap, making the overall policy framework overly complex and likely to result in different effective carbon prices in different parts of the economy.

Attracting private financing for infrastructure spending

The role of the public and private sector in financing and managing infrastructure has changed over time (Box 1.4). The current environment, characterised by low government borrowing costs and low inflation, presents a good opportunity to increase public infrastructure spending. Recent evidence from advanced economies suggests that in the current macroeconomic situation public investment that is financed by issuing debt has larger output effects than when it is financed by raising taxes or cutting other spending (IMF, 2014).

Box 1.4. **The changing roles of the public and private sectors in infrastructure financing over time**

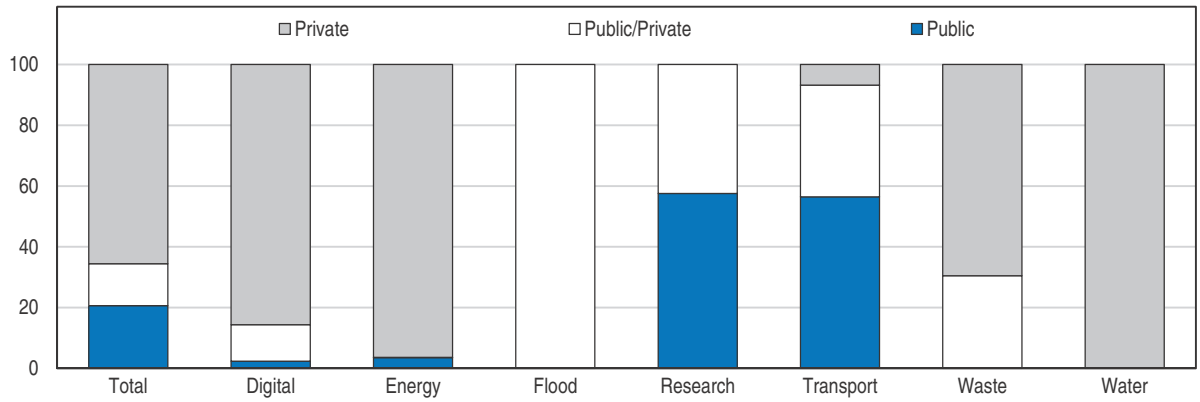
Across history, there have been different patterns of private and public involvement in infrastructure financing. In the 1930s and 1940s, infrastructure investment was largely made by the private sector, frequently with implicit or explicit subsidies or other forms of government support. The private sector then came to be widely regarded as taking too short-term approach and, as its investment record was considered insufficient, large parts of infrastructure were taken into public ownership in the 1960s and 1970s. However, the performance of public infrastructure – airports, highways, waterways and public railways – was considered unsatisfactory owing to cost overrides, planning and construction delays as well as safety problems, lack of innovation and technological advance (Henckel and McKibbin, 2010). To address some of these problems, in the late half of the 20th century, infrastructure investment entered a new phase with privatisation, new regulation models were introduced together with new ways of co-operation under innovative legal frameworks for public-private partnerships (PPPs) (Wagenvoort et al., 2010). The PPP was first introduced in the United Kingdom (UK), but it was quickly adopted by other European Union countries that nowadays account for a larger incidence of PPPs than the UK.

However, rising public spending on infrastructure would strain the government's fiscal consolidation plan. Given this tension, the government can at best reprioritise public spending and otherwise devote greater efforts to attract more private financing. The government is already shifting public spending towards infrastructure as it plans to increase infrastructure spending by GBP 3 billion each year from 2015-16, while adhering to its fiscal consolidation plan. This is a welcome move but unlikely to contribute substantially to necessary spending on infrastructure, which, according to the National Infrastructure Plan and the National Infrastructure Pipeline, would need to amount to more than GBP 460 billion to 2020 and beyond (HMT, 2014a).

Attracting additional private capital in infrastructure will be key to financing the government's infrastructure plan (Figure 1.22). Water infrastructure projects are expected to be wholly privately financed and private finance should fund about 95% of investment in the energy sector. In transport, public financing is projected to play instead an important role, providing slightly more than half of the total spending.

Figure 1.22. **The share of private financing for pipeline infrastructure projects varies by sectors**

Per cent of total financing of infrastructure pipeline projects, 2014-15 to 2020-21



Source: HM Treasury (2014), *National Infrastructure Plan 2014*.

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Unlocking private sector investment by proposing ready-to-finance projects

Infrastructure projects are – in principle – attractive assets for private equity investors and debt providers. They tend to offer stable returns, low volatility and hedge inflation. They also help to diversify portfolios as the correlation between infrastructure investment and other assets is low, especially for equity capital (WEF, 2014b).

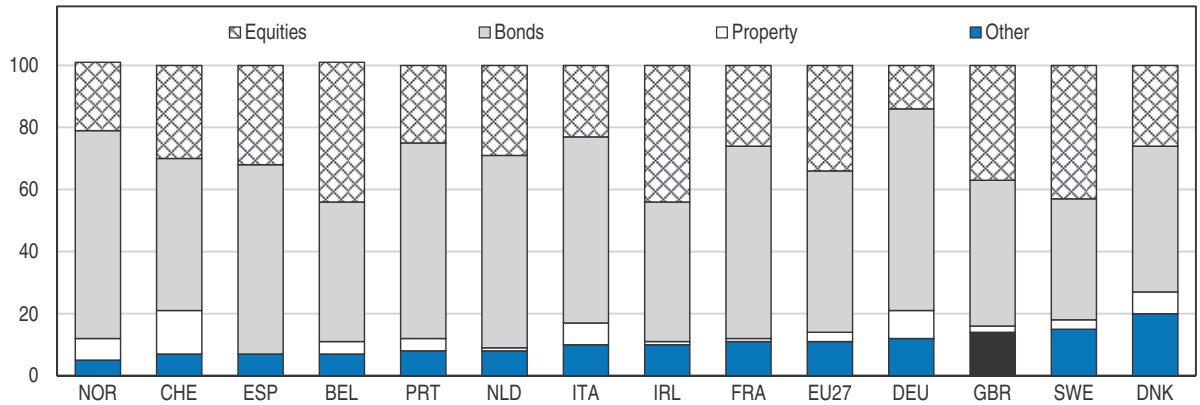
However, long-term institutional investors (such as pension funds and life insurers) still allocate only a limited share of their resources on direct infrastructure investment (Figure 1.23). Also, they seem to prefer the secondary market, as capital can be deployed quickly across a broader range of assets and the planning, construction and start-up stages of projects involve high risks that investors prefer to avoid (Dewing et al., 2013). Globally, most of the investment of large pension funds is directed towards fixed income and cash (around 60%), listed equity (nearly 30%) or other alternative investments (10%) – of which a tiny part, around 1%, goes to unlisted infrastructure investment (Inderset and Della Croce, 2014; Subacchi et al., 2014). Among long-term institutional investors, only pension funds in Canada and Australia have a non-negligible share of their portfolio (around 5-6%) invested in domestic and foreign infrastructure projects.

The UK ranks 10th among a set of developed and developing countries in terms of attractiveness for private investment in infrastructure, although among OECD countries Canada, Sweden, Norway, the United States and Australia all rank higher (Arcadis, 2014). Recently, the involvement of UK institutional investors in long-term infrastructure has risen, also beyond the domestic economy. For example, the BT Pension Scheme has recently taken a 13% stake in Thames Water (the UK water supplier), while the Universities Superannuation Scheme, together with a consortium, invested directly in ConnectEast (an Australian road owner and operator) (FT, 2014a). However, further action is needed to match institutional investors' preferences with the UK's large infrastructure needs.

While the National Infrastructure Plan and its regular updates are a step in the right direction, the government should bolster ready-to-finance projects in the National Infrastructure Pipeline so as to attract more private investors. Private investors are especially interested in ready-to-finance infrastructure projects as the initial stages of projects – scoping, planning and consents – involve large additional risks. Between 2013

Figure 1.23. **The share of alternative investment in asset allocation is low**

Per cent of total asset allocation, 2014



Source: Mercer (2014), *European Asset Allocation Survey*.

StatLink http://dx.doi.org/10.1787/888933189514

and 2014, the share of infrastructure projects having reached the stage of "Consents Approved" (that is before the construction stage) declined from 15% to less than 5%; those in the construction stage increased from 45% to more than 60%; those in the "Planning and Consents" stage were stable at around 10% (HMT, 2014b). The insufficient involvement of long-term equity investors is not due to shortage of private capital. The combined assets of liability-constrained investors (such as pension funds and insurance companies) and asset-based investors (such as sovereign wealth funds, endowments and family officers) amount globally to USD 50 trillion (WEF, 2014b). A recent OECD (2013b) report for the G20 leaders underlines that across OECD countries large amounts of equity capital have been allocated to infrastructure asset class, but in fact they remain un-invested. This is because of a combination of factors, including high returns thresholds for a given risk level because of perceived policy uncertainty. At the EU level, the absence of ready-to-finance infrastructure projects have slow down the take up of recent initiatives to attract private investors in infrastructure sectors, such as the Loan Guarantee Instrument for Trans-European Transport Network Projects (Box 1.5).

Improving incentives for greenfield projects

The National Infrastructure Plan focuses primarily on greenfield investment (investment in new infrastructure), but private investors tend to prefer brownfield investment (investment in already existing infrastructure). Greenfield projects are perceived as more risky owing to the lack of clarity in bidding criteria, delays in the award of projects, pre-construction delays, and delays in financial approvals and construction risks (OECD, 2012a). Among private investors, there is the perception that the UK government should take more of the risk involved in new infrastructure projects. There is a feeling that governments in continental European countries are willing to offer more security to investors than the UK (FT, 2013).

The government could better target the use of the UK Guarantees Scheme by strengthening current incentives for private investors supporting greenfield projects. The government introduced this scheme in 2012 with the Infrastructure (Financial Assistance) Act to provide a sovereign-backed guarantee to improve access to finance of projects. The government offers support for greenfield or projects in the construction phase, but it can

Box 1.5. **Recent EU initiatives to attract private investment in infrastructure**

The Connecting Europe Facility (CEF) is aimed to be a catalyst for further private and public funding by giving infrastructure projects credibility and lowering their risk profiles, thereby attracting investors. One of the CEF's key elements is more systematic use of innovative financial instruments, such guaranteed loans, to provide a funding alternative to traditional grants and fill financing gaps for strategic investments.

The high levels of revenue risk in the early stages of public-private-partnership transport projects can cause difficulties in attracting private sector funding. Indeed, one of the major hindrances of a large private involvement in transport infrastructure is the concern that user-dependent revenue (tolls, fares, etc.) may not reach medium-term target. Therefore, the Loan Guarantee Instrument for Trans-European Transport (LGTT) has been introduced to partially cover risks for network projects of common interest and to receive income from user-charges.

The LGTT normally guarantees a maximum of 10% of senior debt (20% in exceptional instances) up to a maximum of EUR 200 million per project. This support substantially enhances credit quality, thereby encouraging a reduction of risk margins applied to senior project loans. This support is available for as much as 5 to 7 years after project completion. The European Investment Bank and the European Commission have jointly contributed EUR 1 billion in capital, which could support up to EUR 20 billion of senior loans. A recent evaluation of the LGTT project (EC, 2014a) shows that while LGTT covers only the traffic risk, investors are looking for more general instruments covering broader risks, such as construction and re-financing risks, as well as the traffic risk beyond the first 5 to 7 years.

also do so for the acquisition, design, conversion, improvement, operation and repair of infrastructure assets. The government has a wide discretion over how a guarantee is structured and it is provided in return for a fee to be charged at market rates (Allen & Overy, 2013). Up to GBP 40 billion in guarantees can be offered. By September 2014, the UK Guarantee Scheme was used for six projects (four in the transport and two in the energy sector) for a total of GBP 1.5 billion.

The government should also explore in depth the option of using capital recycling to finance greenfield projects. Capital recycling involves reinvesting the revenues from the privatisation of existing brownfield assets, alongside private sector funds, into new greenfield projects. The 2014 update of the National Infrastructure Plan mentions capital recycling as a possible financing option but does not provide details on how and for which projects this option could be used. Australia is currently considering a more intensive use of capital recycling (Office of the National Infrastructure Co-ordinator, 2013). Its recent experience in this area points to the need of effectively communicating how the funds will be used and how a project would benefit the broad community.

Better linking national and local planning systems through the long-term infrastructure strategy would improve project implementation and avoid delays in greenfield project delivery. The UK infrastructure investment and decision-making process has been historically highly centralised. At the same time, it has suffered from the absence of a clear national strategy and planning process. This has contributed to slow down project planning and implementation. The UK government is aware of this contradiction and has taken step to improve the coherence between the national and local planning systems with the adoption of the National Planning Policy Framework (NPPF) and the Nationally Significant Infrastructure Projects (NSIPs).

The NPPF, introduced in 2012, sets out the government's planning policies for England. The NPPF's main features are significantly simplified national planning guidelines and decentralised procedures for local authorities developing local plans (Chesire et al., 2012). To date, about 80% of local authorities have published a Local Plan (HMT, 2013). The government should make sure that project implementations are not delayed by the absence of local plans and encourage local authorities who have not yet done so to adopt a local plan.

The NSIP framework institutes a separate planning procedure for large infrastructure projects. Since its inception, several projects have been granted approval in this way, for example nuclear power plants and wind farms. Such projects, which are subject to specific investment thresholds, do not need to obtain separate consents including planning permissions, and their development depends on a final decision of relevant secretary of state.

Stimulating institutions that promote long-term infrastructure investment

Public financial institutions dedicated to long-term investment can play a key role in the financing of infrastructure. In some European countries, national development banks facilitate the provision of long-term loans and crowd-in private finance. For instance, Kreditanstalt für Wiederaufbau (KfW) in Germany provides low-interest, long-term loans (20 – 30 years) for infrastructure projects with fixed interest rates and a maximum of three-to-five repayment-free startup years (Weber and Alfen, 2010). In Italy, Cassa Depositi e Prestiti (CDP) provides either direct financial support for key domestic infrastructure projects through loans, or indirect support through investments in infrastructure funds. At the EU level, the European Investment Bank raises funds on the capital markets and lends them on favourable terms (Subacchi et al., 2014).

The EU has started new initiatives to promote long-term investment in infrastructure and to co-ordinate the activities of European national development banks so as to make them more effective in supporting infrastructure investment (Box 1.6) (Valla et al., 2014). In addition in late 2014, the European Commission announced an Investment Pan for Europe (the so-called Juncker's plan) with the aim of unlocking public and private investments of at least EUR 315 billion over three years (2015-17). To achieve this target a new European Fund for Strategic Investments is being set up so as to provide risk support for long-term investments and ensure increased access to risk financing for small and medium-sized enterprises and mid-cap companies (EC, 2014c).The UK government should support these initiatives at the European level as the UK along with other European countries should benefit from them.

In 2010, the UK established the Green Investment Bank (GIB) and the authorities should expand its operation to emerging low-carbon technologies. The GIB is the first institution devoted to financing infrastructure projects promoting green growth. With available government funding of slightly less than GBP 4 billion by April 2015, the GIB is investing in innovative, environmentally-friendly areas for which there is currently a lack of sufficient support from the market. This includes many infrastructure projects, such as offshore wind generation, waste recycling, energy from waste, as well as biomass and energy efficiency measures. Since starting operation, the GIB has made 22 transactions totaling about GDP 750 million, which have leveraged close to GBP 2 billion of total funding from private investors. In the absence of a plan to establish a national infrastructure bank and given the ambitious government's targets to transition towards a green growth model, the government should support – through grants and guarantees – not yet commercially

Box 1.6. **Recent EU initiatives to support long-term investment in infrastructure**

Recently, European national development banks have joined forces with other leading financial institutions, forming the Marguerite Fund. The Marguerite Fund is part of the new financial instruments introduced under the wider "Europe 2020" strategy. The Marguerite Fund is a pan-European equity fund that acts as a catalyst for key investments in renewables, energy and transport. It combines a market-based principle of return to investors with the pursuit of public policy objectives. Launched in 2010, with the backing of six major European financial institutions (namely the European Investment Bank, Caisse des Dépôts et Consignations, Cassa Depositi e Prestiti, Instituto de Crédito Oficial, Kreditanstalt für Wiederaufbau, PKO Bank Polski), it makes capital-intensive infrastructure investments. Together with the European Commission and other institutional investors the fund has commitments of about EUR 700 million.

In 2013, the European Commission proposed the introduction of a new fund, the European Long-Term Investment Fund (ELTIF), whose implementation is now discussed in the European Parliament. The ELTIF is designed to channel investment from retail and institutional investors into companies and projects by offering an appropriate risk and return profile. The ELTIF will offer investors the opportunity to make long-term investment into a mixture of long-term assets (such as private equity and infrastructure) and transferable securities.

viable low-carbon technologies that have the prospect of becoming so, such as carbon capture and storage, marine energy, and biofuels for transport.

Supporting PPPs while transparently recording liabilities and assets arising from them

The UK has a well-established system of public-private partnerships (PPPs) as it developed the Private Finance Initiatives (PFI) framework in the 1990s. By the end of March 2014, almost 730 PFI projects were financed through this route, with an aggregate capital value of slightly more than GBP 55 billion. Infrastructure sectors (transport and waste) account for less than 25% of the total capital costs of all PFI projects (Figure 1.24, Panel A). The yearly payment from the government to the private partner for infrastructure PPP projects currently amounts to about 20% of the corresponding payment for all PPP projects and it is poised to fall from the mid-2020s (Figure 1.24, Panel B).

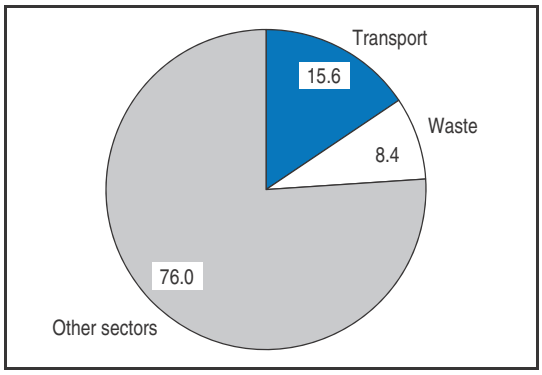
The government should seek to increase the use of PFI as a way to manage the construction risks more effectively and attract more private investors in infrastructure sectors. The likelihood of costs overrun in the construction phase is lower for PFI than for traditional procurement methods (Duffield 2008; Blanc-Brude and Makovsek, 2013). Using PFI in regulated infrastructure sectors for large new projects would complement the gains in operational efficiencies that infrastructure-sector regulation generates with well-managed construction risks (Makovsek, 2015). The Tideway Tunnel presents a recent example in this direction as the government guarantees the construction risks and the new infrastructure, when completed, will be transferred to the regulated asset based of the regulated company owning it (Thames Water Utility).

Private Finance 2 (PF2) was introduced in 2012 to replace the previous PFI model. This new scheme aims at improving the value for money and transparency of PPP projects,

Figure 1.24. **Private finance initiative (PFI) contracts are not well developed in infrastructure**

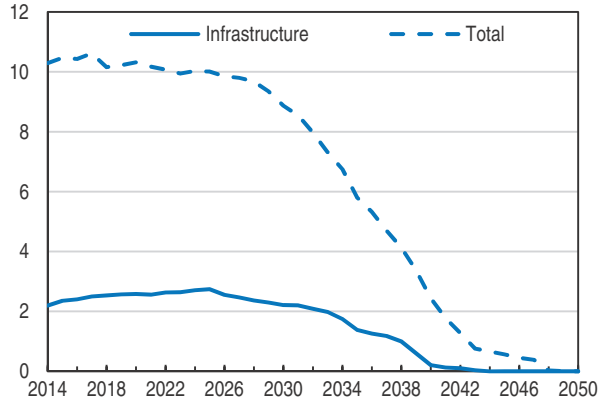
A. Infrastructure accounts for a small share of UK PFI contracts

Capital value of PFI projects by sector, per cent, 1992 - end of March 2014[1]



B. Government payments under PFI will fall

Estimated payments in nominal terms, undiscounted, GBP billion[2]



1. Other sectors include health, education and housing among others.
2. Fiscal years year ending in March. Infrastructure includes transport and waste.

Source: HM Treasury (2014), "Private Finance Initiative Projects: 2014 Summary Data", December.

StatLink http://dx.doi.org/10.1787/888933189528

including those for infrastructure. An assessment of the previous system revealed lack of transparency and optimism bias in project preparation (NAO, 2011). Also, there is a perception that private investors have made windfall profits, causing concerns about the value for money of projects (HMT, 2012). One of the main innovations of PF2 is to involve the government as a minority public equity co-investor in new deals. This reform is likely to better align the incentives of the public and private partners, although it also increases taxpayer exposure to projects that fail. PF2 also provides stronger incentives to deliver projects on time and budget as, for instance, payments to the successful private sector bidder will be made only when the operating asset is delivered (HMT, 2012). Recent G20-OECD work on long-term investments in infrastructure suggests the need to find a balance between public support to private investors and ensuing moral hazard from the private sector (OECD, 2014d).

The government should make available to investors and the public comparable data about the performance of PPP projects. The latest change in the PFI regime was partly motivated by lack of data and transparency on the financial and operational performance of PPP projects (HMT, 2012). The government has introduced some measures to improve data transparency, notably by requiring the private sector to provide actual and expected equity return information for publication. An additional step forward would be to make available to the public, quantitative assessments comparing the value for money offered by PPPs relative to alternative procurement routes, consistent with the OECD Principles for Public Governance of PPPs (OECD, 2014e). A recent joint collaboration between the University College of London and the consultancy firm KPMG has produced two assessments of the performance of PPP projects in the education and health sectors in the UK (Edkins et al., 2011; Ive et al., 2010). In Australia, the University of Melbourne PPP Benchmarking Study is another example of a study comparing the effectiveness of PPP in terms of costs and delays with alternative procurement routes in Australia (Duffield, 2008). Such information would help to assess the risks hindering private participation in

infrastructure (OECD, 2014f), hence supporting a more informed decision-making process on the choice of procurement.

The government should continue to transparently record assets and contingent liabilities arising from PPPs in the Whole Government Accounts (WGA). In 2013, capital liabilities in the WGA related to all PFI accounted for a tiny share of gross total liabilities (about 1%), being close to GBP 40 billion (out of which GBP 5 billion was recorded in the National Accounts). If all PFI-related investment were undertaken through conventional debt finance, public sector net debt would have been around 2 percentage points of GDP higher than currently measured (OBR, 2014).

Better pooling resources of institutional investors

The government should support initiatives contributing to overcome the problems of investing in infrastructure assets caused by the fragmentation of the UK pension system and the lack of necessary expertise to evaluate infrastructure investments. The main reason why the UK pension funds have historically invested relatively small amounts in infrastructure assets seems to be the lack of in-house expertise to invest directly in such assets and a weak capacity to assess their risks. This is related to the insufficient size of many institutional investors, which in itself is another impediment to long-term infrastructure investment. The UK pension system is heavily fragmented. While there are GBP 1.5 trillion in assets under management of the industry, these are unevenly distributed among 7 500 schemes. Of the total, 1 000 schemes have assets below GBP 5 million and only 190 of them have more than GBP 1 billion (OECD, 2014g). The development of specific skills is therefore essential for changing investors' investment habits and increasing participation in less liquid, longer-term assets (Deau, 2011). This must be accompanied by actions by governments and stakeholders to pool funds so as to reduce fragmentation and improve information collection and financial education campaign (Della Croce et al., 2011).

To overcome these problems, the UK introduced in 2012 the Pensions Infrastructure Platform (PIP). The PIP is a collaboration between the National Association of Pension Funds (NAPF) and the Pension Protection Fund (PPF). Its aim is to explore options for pension funds to invest in UK infrastructure on more favourable terms than are currently available through traditional fund managers (OECD, 2014g). The PIP's design was modelled on Australia's IFM Investors, a fund manager owned by 30 Australian non-profit pension funds to invest, inter alia, in infrastructure assets. Although the PIP is the result of an agreement with the government, the scheme is entirely independent. The platform secured ten founding investors but so far results have been below expectation as at October 2014 the fund has secured only GBP 350 million, against an initial GBP 2 billion target, and is investing in the "secondary market" rather greenfield projects (FT, 2014b).

Promoting new financial instruments for long-term infrastructure investment

Because of the dearth of appropriate financing vehicles, only the largest investors have the capacity to directly fund infrastructure projects (Della Croce and Yermo, 2013). Collective investment vehicles are available, such as infrastructure funds, but because of high fees and extensive leverage these have become less popular since the financial crisis.

The large majority of infrastructure projects is debt-financed (the world average is around 85%) and the commercial banks have been the key providers. During the crisis banks scaled back infrastructure loans, raised interest rates and shifted assets to shorter maturities. Standard and Poor's has estimated that between 2011 and 2012 the fall in

project finance loans was in the range of 10-30%. More recently, banks have been reporting stronger capacity to provide longer-term lending for infrastructure and the cost of credit has fallen.

Developing project bonds (issued by one company or jointly by several companies) to finance specific infrastructure projects could partly substitute for reduced bank finance. Project bonds are the main source of infrastructure finance other than bank debt and account for 10% of the global private debt funding (Inderset, 2013). These instruments service the borrowed capital through the project's revenue and have several advantages for financial investors, including better identification of risks and a competitive rate of return. Recent transactions for long-dated project bonds offered yields of between 5% and 6.5%. This is higher than the 4-5% yields available on sovereign bonds with equivalent ratings. In the UK, infrastructure bonds guaranteed by monoline insurance companies were relatively common in PPPs before the financial crisis (EPEC, 2012). However, the demise of monoline insurance companies in the wake of the crisis has reduced the attractiveness of project bonds among investors.

The UK government could work in partnership with national and European financial institutions to support infrastructure project bonds by developing an insurance market for them. The EU is promoting a more intensive use infrastructure bonds (Box 1.7). Moreover, the UK government could consider granting a tax exemption or a reduced tax rate to raise incentives for the development of project bonds issued by corporations. Such an intervention would have to be justified by positive externalities infrastructure provides and the market failures in properly assessing the risk involved in long-term infrastructure projects. The United States has successfully adopted this approach to develop a dynamic

Box 1.7. **The EU 2020 Project Bond Initiative**

The EU 2020 Project Bond Initiative, together with the Loan Guarantee for TEN Transport and the Marguerite Fund, is part of the new financial instruments foreseen under the proposed "Connecting Europe Facility" (CEF), which is part of the wider "Europe 2020" strategy. The aim of the CEF is to provide a longer-term financial framework ensuring that energy, transport and telecommunications projects are developed and implemented in a timely and effective manner. The Project Bond initiative is designed to enable eligible infrastructure projects promoters, usually public-private partnerships (PPP), to attract additional private finance from institutional investors such as insurance companies and pension funds. This is planned to be achieved by providing credit enhancement to the infrastructure promoters, whose debt will effectively be divided into two tranches, senior and subordinated.

The subordinated debt or Project Bond Credit Enhancement (PBCE) can take the form of a loan from the European Investment Bank given to the promoter at the outset. It may also take the form of a contingent credit line which can be drawn upon if the revenues generated by the project are not sufficient to ensure senior debt service. The PBCE underwrites the senior debt and therefore improves its credit quality by allowing a rating uplift.

The Greater Gabbard bond issue (2013) was the first in the United Kingdom to use the European Investment Bank's (EIB) credit enhancement initiative. The EIB provided a GBP 45 million guarantee of a total investment of GBP 300 million, which helped to pull the rating of the issued bonds up by one notch to A3 by Moody's. UK-based fund managers, mostly on behalf of institutional investors took nearly 80% of the bonds, while insurers and pension funds took the remaining.

municipal bond market to finance infrastructure projects while the Australian government offered tax reliefs on infrastructure bonds in the 1990s, which however were later repealed (Abelson, 2005).

Main policy recommendations to boost infrastructure provision

Strengthening infrastructure strategy and planning

- Continue to build on the progress made with the National Infrastructure Plan to further enhance long-term infrastructure strategy and planning.
- Continue to encourage the development by local authorities of up-to-date local plans to make sure infrastructure provision is not delayed.

Policies to ensure sound infrastructure in specific sectors

- Improve the use of roads by introducing user-paid tolls.
- Ensure the arms-length responsibility for awarding rail franchises.
- Take a final decision on how to tackle airport congestion in the South East, after carefully considering the recommendation of the Airports Commission, while maintaining strong competitive pressures among airports.
- Evaluate the interaction of the Electricity Market Reform with existing policies to promote renewable energies.
- Ensure competitive auctions are held to award subsidies for expanding access to digital services in rural areas.

Improving the financing of infrastructure

- Increase the number of ready-to-finance projects to attract private investors.
- Promote the financing of infrastructure by supporting the development of new financial market instruments, such as project bonds, and consider granting tax reliefs if needed.
- Develop further the use of public-private partnerships (PPP) and public guarantees to attract private investment into infrastructure and record the associated assets and liabilities in the government fiscal accounts. Enhance the provision to investors and the public of comparable data about public guarantees and the financial and operational performance of PPP projects.
- Strengthen the use of the UK Guarantee Scheme to support greenfield infrastructure projects. Explore in depth the option of using capital recycling to finance greenfield projects and clarify for which projects it could be used.
- Strengthen the Green Investment Bank and other targeted financial aids to further support the implementation of not yet commercially viable low-carbon technologies that have the prospect of becoming so in the foreseeable future.
- Support the Pension Infrastructure Platform to overcome the problems caused by the fragmentation of the UK pension system and to develop private sector expertise in direct infrastructure investing.

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Chapter 2

Enhancing the financing of the real economy and financial stability

The banking sector in the United Kingdom (UK) was deeply affected by the crisis. Bank credit has collapsed reflecting both weak demand and tighter supply. New prudential requirements have improved the resilience of the banking sector and a number of measures were taken to support credit supply. These included conventional and unconventional monetary policies, policies to address credit constraints with Help to Buy and Funding for Lending programmes, and a number of public programmes to improve access to finance united under the roof of the British Business Bank. Further structural reforms are needed to improve competition in the SME credit market and to boost credit provision to SMEs in the medium term. Sustainable financing of the economy and greater financial stability should be achieved by sound regulation, ensuring high capital requirements for systemically important banks, improving banks' resolvability and fine-tuning the use of countercyclical measures. Data should be collected on a wider set of financial institutions than currently done and macro-prudential regulation should be gradually extended beyond the banking sector to prevent the migration of systemic risks.

The banking sector is recovering but the financing of the real economy remains impaired

The health of the banking sector was deeply affected by the crisis

The pre-crisis model of UK banks was based on high leverage, short-term funding and relatively lenient financial regulation and supervision. For example, large repurchase agreements (temporary sale of securities in return for cash) contributed to excessive leverage of Northern Rock, exposing the bank to a liquidity run that was at the heart of its collapse (Shin, 2009). The failure of the Royal Bank of Scotland (RBS) was also caused by overreliance on short-term wholesale funding, reinforced by rapid growth via acquisitions of other banks and poor investment regarding credit-default swaps (insurance against credit events) (FSA, 2011). The framework of bank regulation and supervision of the Financial Services Authority, at the time referred to as "light-touch" regulation, was based on excessive confidence in self-regulation of financial markets (FSA, 2011). As a result, banks did not have sufficient capital and liquidity buffers to withstand the, admittedly very large, shocks in 2008 and 2009.

To prevent the collapse of the banking industry, the Treasury put in place a number of support measures (Box 2.1) to: i) recapitalise RBS and the Lloyds Banking Group (LBG); ii) protect depositors; and iii) provide guarantees and liquidity support to banks. According to the National Audit Office, guarantees amounted to about 65% of gross domestic product (GDP), while direct cash support stood at almost 10% of GDP. On the top of that, the Bank of England (BoE) introduced a range of conventional and unconventional monetary policy measures that further helped to stabilise banks.

Since then, the total level of state intervention has been reduced significantly owing to net repayments of support by banks, the sale of the Northern Rock to Virgin Money at the end of 2011, and a partial privatisation of LBG. Nevertheless, the government remains the majority owner of RBS and defining a schedule to a full return of the bank to the private sector would be a step in the right direction. Capital and funding positions of banks have strengthened since the crisis but risks remain.

Banks' risk-weighted capital ratios have risen significantly, partly owing to declines in risk weights and state recapitalisation. The core Tier 1 capital ratio increased from 6% of risk-weighted assets in 2007 to 12% in 2013 (Figure 2.1). This rise occurred due to reduced lending, asset divestment, and increases in additional capital primarily financed by the government given difficulties to tap private sources of capital. Moreover, risk-weighted assets diminished due to the continued decline of average risk weights that fell from about 50% in 2003 to 35% in 2007, but have recovered somewhat since then (Figure 2.1). The pre-crisis decline in risk-weights was due to the transition from Basel I to Basel II capital requirements (particularly the adoption of internal rating-based models, which have allowed banks to rely on lower risk weights), which was completed for most banks in 2008. In the aftermath of the crisis, a number of banks have increased their holdings of sovereign assets, which has contributed to lower risk weights.

Box 2.1. **UK Treasury's support to the banking industry**

According to the National Audit Office, the Treasury's support to the banks included:

Recapitalisation of the Lloyds Banking Group (LBG) and the Royal Bank of Scotland (RBS) through a series of transactions eventually acquiring 83% of the latter (68% of the voting rights) and 41% of the former (of both ordinary shares and voting rights).

Lending money to the Financial Services Compensation Scheme so it could guarantee customer deposits of up to GBP 50 000.

Lending directly to insolvent banks so they could repay customer deposits of over GBP 50 000, including to London Scottish Bank, Dunfermline Building Society and several Icelandic Banks (Heritable, Kaupthing Singer and Friedlander, and Landsbanki).

Nationalising Northern Rock and Bradford & Bingley to protect their depositors and facilitate the orderly unwinding of their obligations and the Treasury's guarantees.

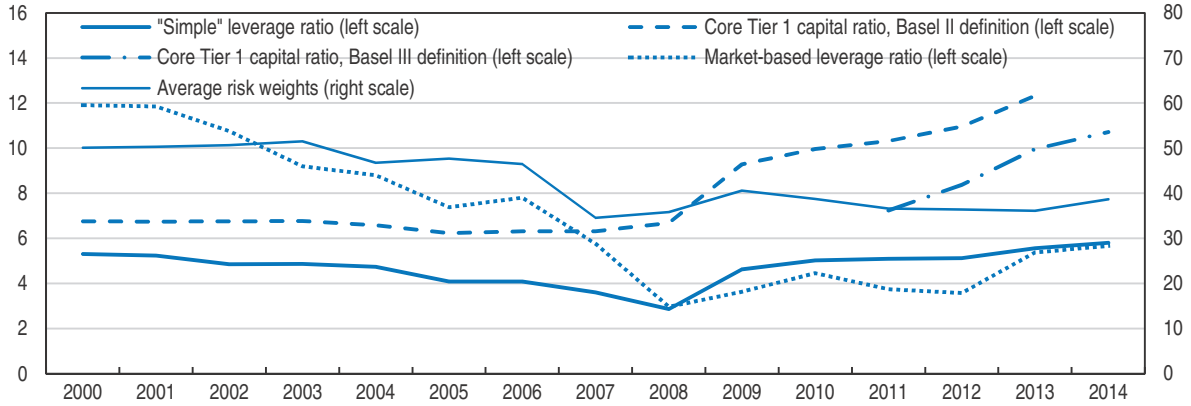
Operating the Special Liquidity Scheme, between April 2008 and January 2012, to increase the liquidity of UK banks. It was a Bank of England's scheme, supported by a Treasury guarantee, under which banks swapped assets for more liquid Treasury Bills in return for a fee.

Running the Credit Guarantee Scheme, between October 2008 and October 2012, to help restore investor confidence in bank wholesale funding by guaranteeing certain unsecured debts in return for a fee.

Implementing the Asset Protection Scheme, from January 2009 to October 2012, to protect assets on banks' balance sheets. RBS and LBG initially agreed to join, but in the end only RBS did.

Figure 2.1. **UK banks' capitalisation has improved**

Per cent[1]



1. Figures for "simple" leverage ratio, Core Tier 1 capital ratio (Basel III definition) and average risk weights for 2014 refer to first half of 2014. "Simple" leverage ratio is calculated as aggregate peer group equity (shareholders' claims) over aggregate peer group assets. Core Tier 1 capital ratio (Basel II definition) refers to major UK banks' aggregate core Tier 1 capital as a percentage of their aggregate risk-weighted assets. The Basel II series was discontinued on 1 January 2014. Core Tier 1 capital ratio (Basel III definition) is calculated as aggregate peer group common equity Tier 1 levels over aggregate risk-weighted assets. Market-based leverage ratio is calculated as total peer group market capitalisation divided by total peer group assets (note a discontinuity due to introduction of International Financial Reporting Standards (IFRS) accounting standards in 2005, which tends to reduce leverage ratios thereafter). Average risk weights are calculated by dividing aggregate peer group risk-weighted assets by aggregate peer group assets.

Source: Bank of England (2014), "Financial Stability Report, December 2014", Issue No. 36, December.

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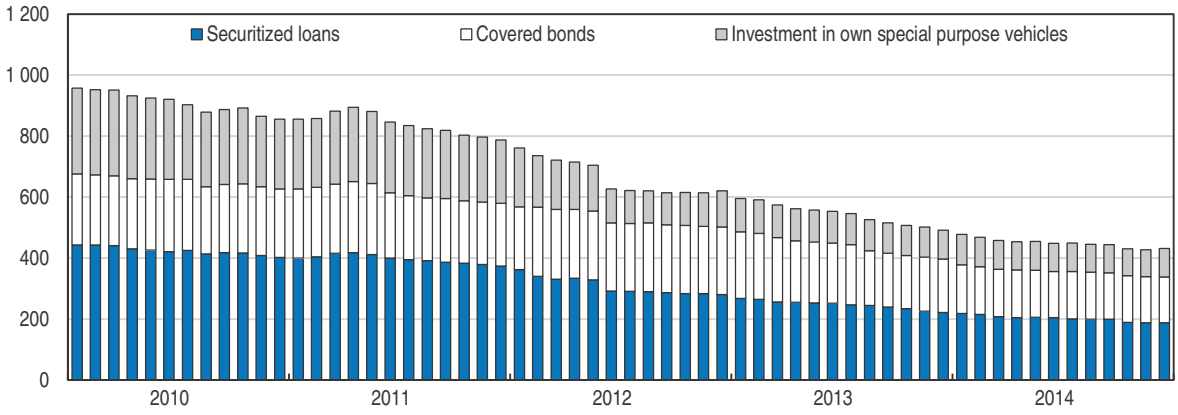
Banks' leverage ratio has also increased, but given the lesson of the crisis that high equity is needed to withstand major shocks, the improvement could be considered as moderate. Simple leverage ratio (capital to unweighted assets) rose from close to 3.5% in 2007 to almost 6% in the first half of 2014, a comparatively more modest increase than that of the risk-weighted capital ratio. Moreover, the average leverage ratio stood at only 4% in 2013 if one applies a stricter definition of capital proposed by the Basel III rules. Reflecting diminishing uncertainty about potential unrecognised losses, the market valuation of capital has finally recovered to slightly above the book value (as of September 2014), but this still results in very low market-based leverage ratio when compared to the pre-crisis period. Developments in leverage ratios are important because they appear to be superior predictors of future bank problems than risk-weighted capital ratios (Blundell-Wignall and Roulet, 2013; Haldane, 2011a, 2012).

Fragilities of the banking sector related to short-term wholesale funding and reliance on securitisation have declined. The share of wholesale funding in total banks' assets fell from nearly 30% in 2007 to 15% in 2013. Securitised loans shrank by more than 50% between January 2010 and December 2014 (Figure 2.2). In parallel, banks' investment in their own special purpose vehicles (SPVs) or so-called "conduits" (entities that issued short-term debt to finance long-term off-balance sheet bank assets) collapsed by two-thirds. The decline in securitisation was caused by increased risk aversion and tighter regulation, which notably removed the possibility of regulatory arbitrage that was prevalent before the crisis when conduits were set up to avoid capital regulation, as discussed below.

Figure 2.2. **Off-balance sheet activities of UK banks have fallen**

GBP billion[1]



1. The chart presents data on monetary financial institutions' (MFI) loans that are securitised or ring-fenced for covered bond programmes, and MFI holdings of securities issued by own special purpose vehicles (SPVs). The data presented cover only securitisation SPVs that are owned by UK MFIs, and do not cover all SPVs resident in the UK. Securitisation SPV mean any undertaking which: i) is organised to carry out one or more securitisation transactions; and ii) issues, or may issue, securities and/or which holds, or may hold, assets underlying the issue of securities that are offered for sale to the public, sold on the basis of private placements, or held by the institution that originated the underlying assets. Data are not seasonally adjusted.

Source: Bank of England (2015), "Monetary and Financial Statistics", *Statistical Interactive Database*, January.

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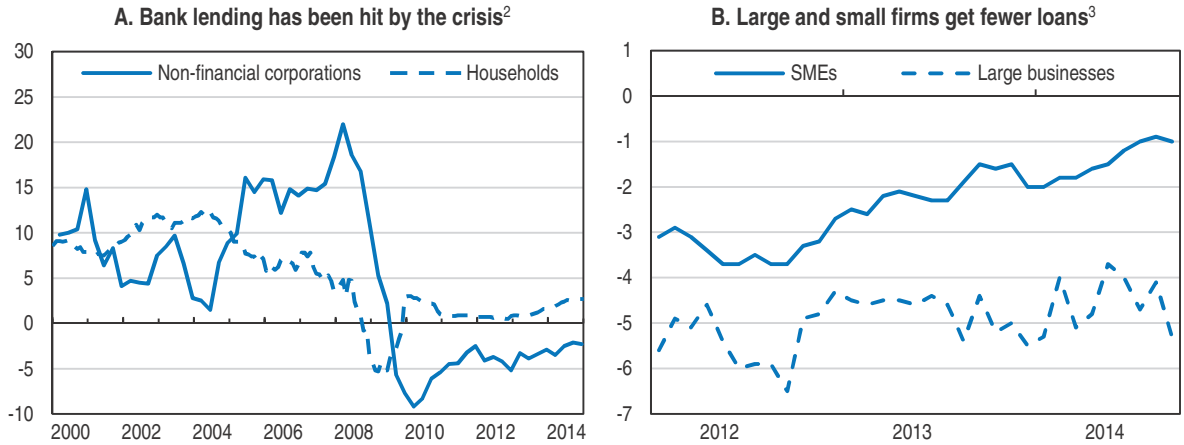
Credit intermediation has been impaired

The crisis has hampered credit intermediation, especially lending to the business sector. Net lending to businesses has been falling since 2009, declining more for large businesses than for small and medium-sized enterprises (SMEs) (Figure 2.3). Large businesses were able to rely on the bond market that has remained rather healthy during the post-crisis years (Figure 2.4), but this was not sufficient to substitute for a dramatic fall in bank lending (Grjebine et al., 2014).

Figure 2.3. **Net loan growth of monetary financial institutions has been weak**

Per cent[1]



1. 12-month growth rates. Data are not seasonally adjusted.
2. Lending to non-financial corporations (NFCs) refers to UK resident monetary financial institutions' sterling and all foreign currency net lending to NFCs. Lending to households refers to monetary financial institutions' sterling net lending (M4) to the household sector.
3. These data relate to loans and advances in all currencies made by UK monetary financial institutions (MFIs) to non-financial businesses, including to small and medium-sized enterprises (SMEs). SMEs are defined as those with an annual debit account turnover on the main business account of up to GBP 25 million. Those with an annual debit account turnover on the main business account above GBP 25 million are termed "large businesses".

Source: Bank of England (2015), "Monetary and Financial Statistics", *Statistical Interactive Database*, January.

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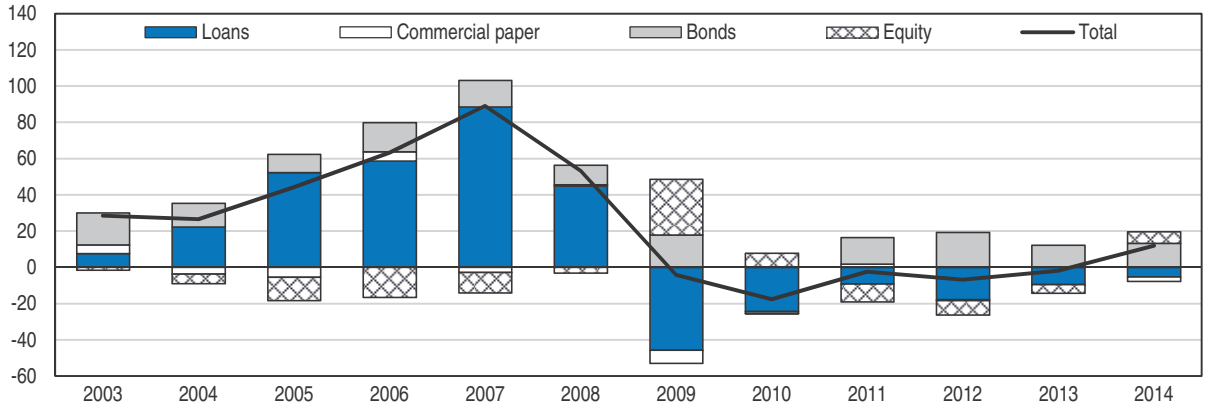
At the same time, SMEs do not have meaningful alternatives to bank finance and, in 2012, the UK was one of the few countries where outstanding SME loans were lower than in 2007 (Figure 2.5). In contrast, net lending to households has resumed since 2010, although at a moderate pace (Figure 2.3). Following the cut in the policy rate to 0.5% in March 2009, monetary policy has been efficient at reducing the cost of credit: interest rates on bank loans to households and non-financial corporations have declined correspondingly because a large share of lending is done at flexible interest rates (Figure 2.6, Panel A). However, despite this fall, the spread between interest rates on large and small loans to companies has widened, reflecting a reassessment of risk since the crisis and its underestimation before, and current difficulties for SMEs to get financing (Figure 2.6, Panel B).

Lending by new credit providers does not substitute for bank financing

As traditional banks are contracting their lending, new credit providers are entering or strengthening their positions. These include: i) alternative finance providers (peer-to-peer lending, crowdfunding); ii) institutional investors (such as insurance funds, pension funds,

Figure 2.4. **The bond market has supported the financing of businesses**

Net external finance raised by UK businesses, GBP billion[1]



1. Finance raised by private non-financial corporations (PNFCs) UK monetary financial institutions and capital markets. Bonds data cover debt issued by UK companies via UK-based Issuing and Paying Agents. Data are annual and cover funds raised in both sterling and foreign currency, expressed in sterling. Annual data calculated from monthly, non-seasonally adjusted data.

Source: Bank of England (2015), "Monetary and Financial Statistics", *Statistical Interactive Database*, January.

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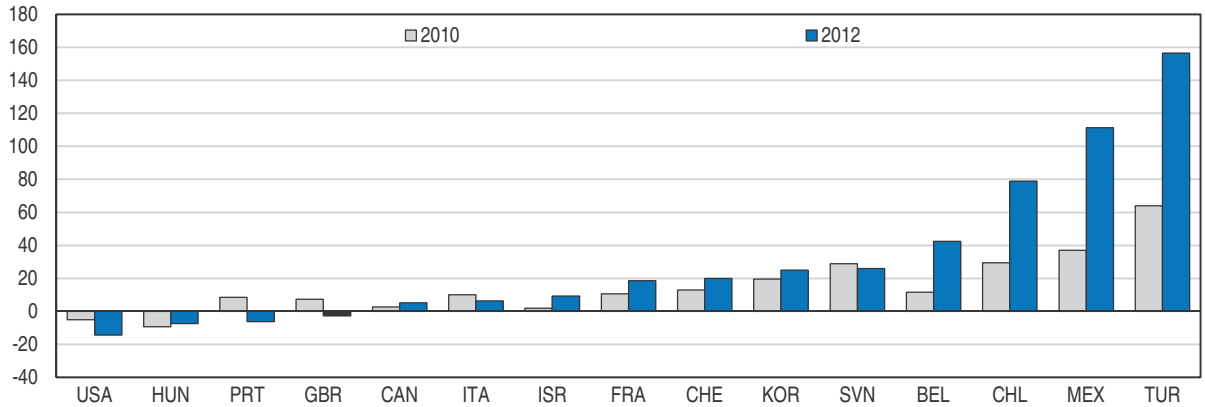
Figure 2.5. **Lending to UK SMEs has not recovered since the crisis**

Change in outstanding loan amounts relative to 2007, per cent[1]



1. Data across countries are not strictly comparable as definitions differ across countries. SME: Small and medium-sized enterprises.

Source: OECD (2014), *Financing SMEs and Entrepreneurs 2014: An OECD Scoreboard*.

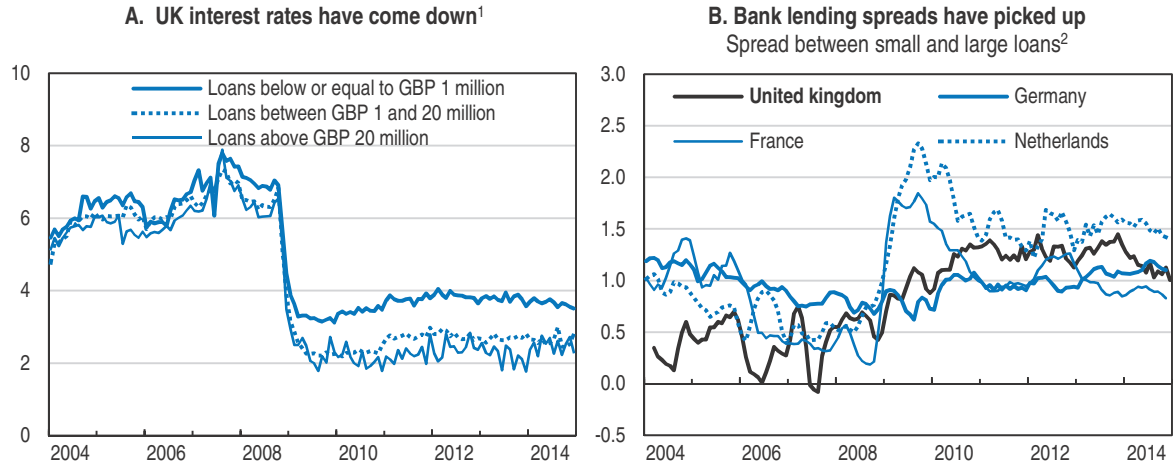
StatLink http://dx.doi.org/10.1787/888933189553

etc.) that provide credit through direct lending funds; and iii) asset-based-finance (factoring, invoice discounting and asset-based lending). Table 2.1 displays information on direct loan supply by these new credit providers. Transactions by alternative finance providers increased by about 90% in 2013, but loan amounts are low (Table 2.1). They explain only 1% of lending to SMEs and although they start providing a meaningful financing alternative for some businesses, less than 25% of SMEs are aware of them (CMA and FCA, 2014).

Alternative finance providers allow direct contact between savers and borrowers. This occurs via social networking based on internet/mobile technology and all financial transaction are web-based. In some cases (donation-based crowdfunding/peer-to-peer online fundraising), no legally binding financial obligation exists between the recipient and the donor. Put differently, no financial or material returns can be expected by the donor.

Figure 2.6. **Businesses face lower bank lending rates, but higher risk premiums**

Percentage points



1. Monthly average of weighted average interest rates of UK resident monetary financial institutions' (excluding Central Bank) new sterling loans to private non-financial corporations. Not seasonally adjusted.
2. Three month moving average applied. In the United Kingdom, small loans are defined as loans below GBP 1 million, while in France, Germany and Netherlands small loans are defined as loans below EUR 1 million.

Source: Bank of England (2015), "Interest and Exchange Rates Data", *Statistical Interactive Database*, January and ECB (2015), "MFI Interest Rates", *Statistical Data Warehouse*, European Central Bank, January.

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Table 2.1. **Loans provided by monetary financial institutions and new credit providers**[1]

GBP billion

	2008	2009	2010	2011	2012	2013
Monetary financial institutions						
Outstanding loans to NFCs	503	489	446	421	406	393
Net lending to NFCs	13.2	-21.4	-11.4	-12.0	-10.5	-2.2
Outstanding loans to households	1 288	1 301	1 179	1 178	1 184	1 187
Net lending to households	66.5	22.1	11.1	9.0	7.5	15.3
Gross lending to large businesses	..	..	..	98	108	120
Gross lending to SMEs	..	..	..	34	38	43
Insurance and pension funds						
UK loans holdings at market values	24	22	23	31	34	..
Net investment in UK loans	7.3	-1.7	0.7	8.1	3.0	1.2
Asset based finance: factoring, invoice discounting or asset based lending						
Outstanding advances	17	13	15	16	16	18
Alternative finance						
Finance raised	..	..	..	0.31	0.49	0.94

1. New credit providers include donation-based crowdfunding, peer-to-peer fundraising, peer-to-peer lending, peer-to-business lending, invoice trading, equity-based crowdfunding, reward-based crowdfunding, debt-based securities, revenue/profit sharing crowdfunding, microfinance/community shares. NFCs: Non-financial corporations. SMEs: Small and medium-sized enterprises.

Source: Bank of England, Office for National Statistics, Asset Based Finance Association (ABFA) and L. Collins, R. Swart and B. Zwang (2013), "The Rise of Future Finance", the *UK Alternative Finance Benchmarking Report*.

Peer-to-peer or peer-to-business lending platforms allow debt-based transactions between individuals, or individuals and SMEs. Equity-based crowdfunding involves a sale of registered security by mostly early-stage firms to investors.

Alternative forms of finance appear attractive for both individual investors and SMEs. For lenders, interest rates are higher than in banks' savings accounts. For borrowers, procedures seem to be much faster, although interest rates are higher than in banks. Default rates are currently low, but these business models have emerged only a few years ago and it is too early to know how they could behave in a downturn. Since April 2014, peer-to-peer lending and crowdfunding have started to be regulated by the Financial Conduct Authority (FCA), which obliges them to have capital buffers against operational risk.

Traditional institutional investors, such as pension funds and insurance companies, form another group of new credit providers, as they started to provide loans through direct lending funds (investment funds which supply credit to enterprises). However, aggregated information about their activities is not readily available. The Office for National Statistics (ONS) documents that holdings of UK loans by insurance and pension funds amounts to nearly 10% of banks' outstanding loans to non-financial corporations. Unlike lending by traditional banks, net flows have remained positive, albeit volatile, in the wake of the crisis (GBP 1.2 billion or less than 0.1% of GDP in 2013) (Table 2.1). Yet, it is not clear what part of this portfolio involves direct lending by institutional investors, securitised loans or loan portfolios bought from banks. Neither the ONS nor the FCA provide information on direct lending by investment trusts. In its annual survey of investment funds, the Investment Management Association does not collect data on direct lending.

Asset-based finance existed before the crisis, and was used exclusively by smaller companies and entrepreneurs. But with tighter access to bank credit, companies of all sizes have been using it since then. Outstanding advances recovered since the crisis and exceeded the pre-crisis peak in 2013 (Table 2.1). However, low competition and poor corporate governance may have been negatively weighing on access to finance from this source. In 2013, the Asset Based Finance Association introduced the code of conduct, stating six key principles of good practice for anyone providing invoice discounting and factoring services. This was a response to allegations, collected by the group called the Campaign for Regulation of Asset-Based Finance, of excessive fees, unexpected charges and businesses being forced into bankruptcy by their lenders.

Improving access to bank loans and smoothing the credit cycle

To stimulate nominal demand, the BoE reduced borrowing costs both by sharply cutting interest rates and subsequently embarking on quantitative easing (QE) between March 2009 and October 2012. The Bank bought GBP 375 billion of assets (25% of GDP), mostly UK government bonds. The implementation of asset purchases was made through the non-bank private sector, notably because of potential concerns that banks would use the proceeds to deleverage had QE been directly implemented through them, rather than to expand lending (Joyce et al., 2011). Still, when assets were purchased from institutional investors, this increased customer deposits and reserves of the banking sector overall, potentially allowing banks to extend more loans. Empirical analysis finds no statistically significant evidence that those banks who received deposits due to quantitative easing lent more (Butt et al., 2014). To help lending more effectively, other policy measures have been implemented with various success, both for companies and households.

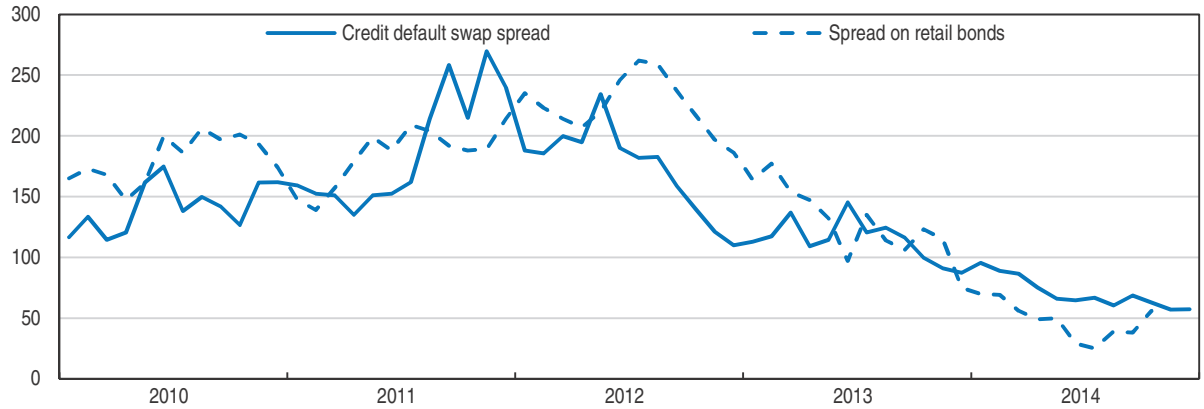
Lending to firms have been supported by new policies

Funding for Lending Scheme has aimed to spur loan supply but with mixed success for firms

To incentivise loan supply for both households and firms, the BoE and the Treasury launched the Funding for Lending Scheme (FLS) in mid-July 2012, for which both the price and quantity of funding to banks are linked to banks' lending performance. In the initial phase, until January 2014, banks that maintained or expanded their lending benefited from a funding cost of only 25 basis points. One the other hand, banks that contracted their stock of loans saw their cost of funding increased by 25 basis points for every 1 percentage point of contraction in lending, with a maximum fee of 150 basis points. As a result, as long as funding costs were high, banks had an incentive to use the FLS. The introduction of the FLS has contributed to a sustained decline of banks' funding costs (Figure 2.7), possibly partly owing to quantitative easing and positive spillover effects from receding sovereign debt crisis in the euro area. Over time, this made the use of the FLS less attractive. As of end-September 2014, the aggregate FLS drawings amounted to around GBP 49 billion (around 3% of GDP).

Figure 2.7. **Funding spreads of UK banks have declined**

Basis points[1]



1. Credit default swap (CDS) spread for the UK banking sector refers to five-year senior debt, mid-rate credit default swap CDS spreads. Spread on retail bonds refers to sterling average of two and three-year spreads on retail bonds, over relevant swap rates.

Source: Datastream and Bank of England (2014), "Inflation Report, November 2014".

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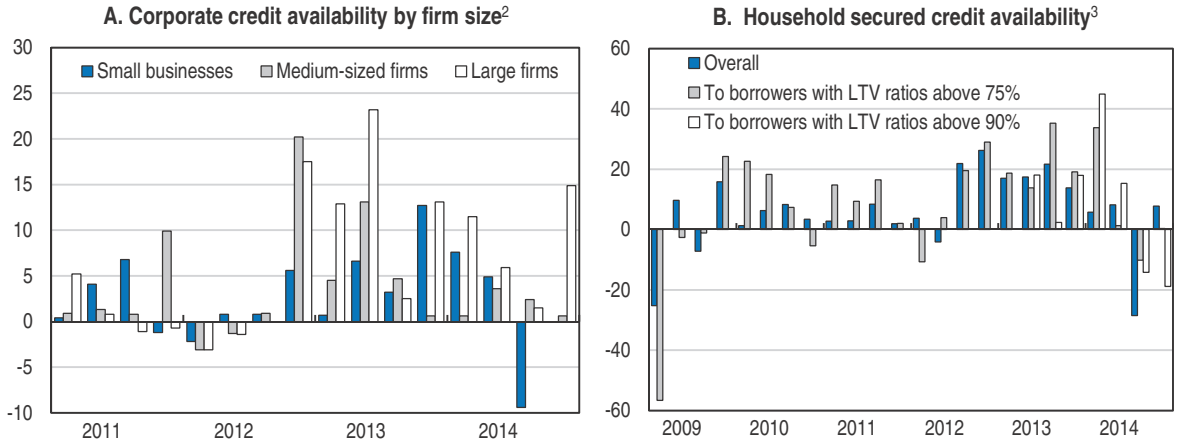
The programme was very effective for households (see below) but seemingly less effective in supporting lending to companies as net lending to non-financial enterprises has continued to fall. However, the latter declined less so than expected by the BoE prior to the introduction of the FLS and by about what the BoE expected after its launch (BoE, 2014a). More broadly, corporate credit conditions have improved somewhat since 2012, but the improvement has been more pronounced for large businesses. For example, Credit Conditions Surveys show that credit availability has increased much more for large enterprises than for SMEs (Figure 2.8, Panel A). Moreover, the SME Finance Monitor suggests that the success rate of obtaining a loan declined in 2013. As a consequence, the design of the FLS was changed in late April 2013 to boost loan supply to SMEs, with banks being allowed to draw GBP 10 of funding for every GBP 1 of net lending to SMEs until

Figure 2.8. **Corporate and household credit availability has been improving until recently**

Net percentage balances[1]



1. A positive balance indicates that lenders, on balance, reported credit availability to be higher than over the previous three-month period. Net percentage balances refer to the difference between the weighted balances of lenders reporting that credit availability was higher/lower. The net percentage balances are scaled to lie between ±100.
2. Small businesses are defined as those with an annual turnover of under GBP 1 million. Medium-sized firms are defined as those with an annual turnover of between GBP 1 million and GBP 25 million. Large firms are defined as those with an annual turnover of more than GBP 25 million.
3. The question on credit availability to borrowers with loan-to-value (LTV) ratios above 90% was introduced in Q2 2013.

Source: Bank of England (2015), "Credit Conditions Survey 2014 Q4", January.

StatLink http://dx.doi.org/10.1787/888933189576

December 2013. Empirical evidence using bank-level data has not found an impact on the supply of loans to SMEs corresponding to this expansion of the programme, notably because declining market funding may have reduced banks' incentives to use it (Havrylchyk, 2015). Throughout 2014, banks were allowed to draw a further GBP 5 for every GBP 1 of net lending to SMEs. In November 2014, the programme was extended by an additional year (until January 2016) with an exclusive focus on SME lending, providing an insurance against risks of a sudden increase in banks' funding costs.

Public support programmes have been designed to boost SME lending

The UK government has introduced a number of programmes to spur lending to SMEs (Box 2.2). All these schemes are united under the roof of the British Business Bank, a commercially-oriented institution. The Bank is expected to become fully operational from 2015. It is not a bank in a conventional sense as it will not finance businesses directly, but it will work with private sector partners by providing funds and guarantees to deliver all of its programmes.

Over the next five years, the Bank aims to unlock up to GBP 10 billion of financing for viable smaller businesses bringing public resources to 0.6% of GDP. This will make the UK public support program to SMEs close in size to similar programmes in France, Italy and Germany (Infelise, 2014). The British Business Bank should continue to address market failures in access to finance for projects with high economic potential by assessing SME finance markets to identify any new areas for intervention and evaluating the impact of its existing programmes. The authorities should consider transforming the British Business

Box 2.2. **Government programmes to support financing of SMEs**

The government has launched a number of initiatives to support the financing of SMEs.

The British Business Bank programmes include:

Business Finance Partnership, first announced in 2011, aims to diversify the sources of finance available to smaller and medium-sized firms with funding of GBP 950 million. One strand of the programme invests in funds which lend to businesses with turnover of up to GBP 500 million. The second strand invests non-traditional channels that provide an alternative source of finance (peer-to-peer, supply chain finance, asset finance lenders and mezzanine finance providers) for small businesses with turnover up to GBP 75 million. Around GBP 860 million has been allocated for supporting medium-sized firms, with GBP 260 million invested alongside private money, generating slightly over GBP 800 million of lending to businesses in the year to end-September 2014.

Enterprise Finance Guarantee (EFG) enables lenders to provide debt finance to small businesses with insufficient collateral or track record. The EFG supported close to GBP 350 million of lending in 2013-14, up by about 20% on the previous financial year, helping 3 000 businesses.

Enterprise Capital Funds make equity investments in early stage companies. Nearly GBP 290 million of public money has been invested in 14 funds, alongside GBP 200 million from private investors. About 160 businesses have received investment so far.

Venture Capital Catalyst Fund is a new variant to the existing Enterprise Capital Fund programme, co-investing on the same terms as private investors. It has a funding capacity of up to GBP 125 million and makes investments of GBP 5-10 million in private sector-led venture capital funds.

Business Angel Co-Fund supports angel investments in innovative start-ups. The fund has supported almost 30 businesses since its launch in November 2011.

Start-Up Loans scheme was established in 2012 to provide mentoring and financial support to young entrepreneurs, and saw the available funding doubled to around GBP 320 million following the Autumn Statement 2013. Over 23 000 loans totalling more than GBP 125 million have been made since the launch in April 2012.

In addition to the British Business Bank programmes, several schemes have been created and supported by tax reliefs to incentivise investment into small and growing businesses:

Seed Enterprise Investment Scheme (SEIS) was launched in April 2012 to support start-ups, and made permanent in Budget 2014. SEIS offers 50% income tax relief on investments made into qualifying small, early-stage companies and some associated capital gains tax exemptions. Over 2 000 companies have raised over GBP 175 million of SEIS investment since the scheme was introduced in 2012.

Enterprise Investment Scheme and **Venture Capital Trust**, respectively introduced in 1994 and 1995 and in force since then, aim at helping smaller higher-risk trading companies by offering a range of tax reliefs to investors who purchase new shares in those companies.

Bank into a permanent instrument of SME financing, beyond the current framework allowing the Bank to reinvest the returns of its programmes.

The main difference between the British Business Bank and its peers in other countries, such as France or Germany, is that the British Business Bank will not provide loans directly to SMEs, but rather to smaller banks and alternative finance providers that

specialise in SME finance. Supporting lending through alternative finance providers is an innovative but untested feature. Although they face lower operating costs than banks, their interest rates could exceed rates charged by large banks, which benefit from deposit insurance and implicit government guarantees. In contrast, the German Kreditanstalt für Wiederaufbau (KfW) is able to provide loans to SMEs on attractive interest rates owing to government guarantees of its bond issuance, zero tax rate and zero dividends due to state ownership.

The introduction of government schemes should relieve credit constraints of SMEs, in particular in the short term (OECD, 2014; Öztürk and Mrkaic, 2014). However, it is necessary to perform a regular assessment of these programmes and to review them, if needed. For example, government incentives to lend to SMEs in Japan in the 1990s led to higher non-performing loans (Hoshi and Kashyap, 2010). There is also a need to evaluate the extent to which net lending is larger as a result of public intervention and not due to displacement of other sources of lending. This will require to improve data availability, in particular at the firm level and including credit statistics on credit conditions, collateral, purpose of credit, etc. (OECD, 2014).

The SME bank credit market is not competitive

The SME bank credit market is highly concentrated, which is likely to create a structural barrier to access to finance: 90% of the SME credit market is controlled by three banks in Scotland and by four banks in England, Wales and Northern Ireland. New entrants have difficulties in obtaining information on the creditworthiness of prospective borrowers (CMA and FCA, 2014; Large, 2013). The fact that some of these major providers of SME credit experienced large financial difficulties during the crisis and needed to restructure their activities has hurt the SME sector. It is possible that if the provision of credit had been more diversified, the credit constraints would have been less tight.

Market concentration has increased significantly during the crisis due to the merger of Lloyds TSB and HBOS in 2009. This happened despite concerns of the Office of Fair Trade (OFT) that a new merger would lessen the competition, notably in the markets for banking services to SMEs (Smith, 2008). Normally a merger of this size and scale would have required to be referred by the OFT for clearance of the Competition Commission, but the government had waived such investigation as ensuring the stability of the UK financial system outweighed competition concerns.

The contestability of the SME bank lending market is poor, which leads to low satisfaction and increases the cost of banking services for businesses. Still, banks with lower customer satisfaction levels have high market shares and are not losing them, while those with the highest customer satisfaction are not able to expand. Although 10% to 20% of SMEs rate the overall standard of service received from their main bank as poor, the switching rate is less than 5% and has been unchanged for a decade. More SMEs would be unwilling to recommend a large bank to a friend than would be willing to do so; the opposite is true for smaller banks. The analysis of the Competition and Markets Authority (CMA) and FCA (2014) and the Independent Commission on Banking (ICB) (2011) also found that smaller banks were around 15% to 30% cheaper than large banks and differences are likely to be even larger for loan pricing, which is difficult to compare across banks.

Recent measures have aimed to incentivise customers to switch banks and they need to be continued. Since September 2013, the Current Account Switch Service has been put

in place, following the recommendation of the ICB (2011). It allows SMEs with a turnover of up to EUR 2 million (or sterling equivalent) to have a simplified procedure to switch a bank. This should lower switching costs and encourage mobility and competition. This service has increased the rate of account switching, but it is too early to assess whether this is a structural change or a temporary uptick driven by advertising. An additional step forward would be to lower switching costs for SMEs with existing loans, as this is not addressed by the above service.

More credit data sharing would enhance loan provision to SMEs

Beyond lowering switching costs, additional measures are needed to spur competition and strengthen credit availability by reducing informational asymmetries between incumbent and new banks about customer creditworthiness. The situation of "hold-up" by incumbent banks creates a barrier to the entry and expansion of smaller and newer credit providers and could lead to higher prices, less lending and higher defaults than it would be the case in a perfectly competitive market.

A well-functioning credit information sharing scheme could reduce informational asymmetries and has been shown to lower the cost of intermediation and to improve access to credit (Brown et al., 2009). In the UK, credit data are shared by banks through credit reference agencies (CRAs). However, some banks do not provide comprehensive data on their clients and hence have more information on their customers. Moreover, the data is provided on the principle of the reciprocity, so for example, business current account data can only be accessed by providers of business current account data, which excludes new credit providers.

To address the issue of data sharing, the government has launched three initiatives. In 2014, it proposed to make mandatory the supply of SME data (positive and negative) to CRA and its sharing between lenders (including some new credit providers) through CRAs. Moreover, to improve information on regional and local lending, the government agreed in 2013 with major banks that they will publish lending data across nearly 10 000 postcodes. This should allow new lenders (banks and new credit providers) to identify areas of unmet demand, hence promoting greater competition. Finally, following a consultation the government plans to require banks to refer details of SMEs that have been rejected for loans to smaller banks and other providers of finance.

Information sharing could be further improved in line with the recent proposals of the BoE (2014c). To enhance competition, credit information collected by the CRAs should be shared, in appropriate form, with all non-direct lenders, including trade credit providers and investors in securitised credit. Furthermore, banks should be able to have access to pooled data, which would provide a level playing field for small and large banks when setting risk weights. Risk weights are about 60% higher under the standardised approach used by small banks, than under internal risk-based approach which is derived from a model and is used by large banks (Le Leslé and Avramova, 2012). Allowing access to CRA data by small banks would help them to switch to the internal risk-based approach that requires long-term data on a large number of borrowers to build risk models.

Another welcome measure would be to allow the BoE to have access to CRA data, which is important from the perspective of macro-prudential and monetary policies. Alternatively, the authorities could consider establishing a central credit registry, as has recently been proposed (BoE, 2014b). Creating a business register would also be beneficial

to uniquely identify a business and match information from different data sources. This would further reduce informational asymmetries about borrowers' creditworthiness and be an additional step forward to improve credit availability.

Lending support to households has contributed to housing market recovery

The introduction of the FLS coincided with a pickup in net lending growth and larger credit availability to households (Figure 2.3, Panel A; Figure 2.8, Panel B). It is probable that the FLS helped to reduce bank funding costs and boosted household lending. The BoE finds the latter by comparing current credit developments with a counterfactual credit development if the FLS had not been introduced (BoE, 2014a). In late November 2013, the FLS programme for household lending was discontinued.

Help to Buy programme has further relaxed credit conditions

In March 2013, the government announced the Help to Buy programme to boost the housing market (Box 2.3). The programme consists of two key schemes: the government provides either a mortgage guarantee to the lender or an equity loan to the borrower for the amount of 20% of the price of a dwelling. Both schemes allow households to take out a mortgage with 95% loan-to-value (LTV) ratio to buy a house with a purchase price up to GBP 600 000. Equity loans are available for newly built dwellings (until 2020), while government guarantees apply to existing and new homes (until the end of 2016).

Box 2.3. **Help to Buy programme**

In March 2013, the government announced the Help to Buy programme. It has two elements: equity loans and mortgage guarantees. The equity loan scheme was implemented in April 2013, while the mortgage guarantee scheme started in October 2013. The government also maintained a NewBuy scheme that was launched in March 2012.

Equity loans

The equity loan scheme is open to both first-time buyers and home movers for new dwellings in England with a purchase price up to GBP 600 000. The property cannot be sub-let and it must be the only property of the borrower. With an equity loan, the borrower has to contribute at least 5% of the property price as a deposit, the government provides a loan for up to 20% of the price and the rest of 75% is covered by a mortgage. The equity loan is interest free for the first five years. After that, the borrower pays a fee of 1.75%, rising annually by the increase (if any) in the Retail Price Index plus 1%. The loan must be repaid after 25 years or when the borrower sells his or her home – whichever is earliest. The amount of repayment depends on the market value of the property at the time of repayment (Table 2.2).

Table 2.2. **Equity loan scheme of Help to Buy: an example**

Market value of home (GBP)	Equity loan taken out (%)	Amount of equity loan (GBP)
Bought for 200 000	20	Borrowed 40 000
Sold for 250 000	20	Pay back 50 000
Sold for 150 000	20	Pay back 30 000

Box 2.3. **Help to Buy programme** *(cont.)*

Mortgage guarantees

The mortgage guarantee scheme helps to buy a home with a deposit of 5% of the purchase price. It is open to both first-time buyers and homeowners for new and existing dwellings in the United Kingdom with a purchase price up to GBP 600 000. The guarantee is provided to a mortgage lender. To qualify, the home must not be a shared ownership or shared equity purchase, not be a second home and not be sub-rented.

NewBuy

NewBuy lets the borrower buy a newly built home with a deposit of only 5% of the purchase price. To be eligible for NewBuy, the new home must be priced at GBP 500 000 or less, be the main home of the borrower, be fully owned by the borrower and built by a builder taking part in the scheme. Developers put 3.5% of the value of eligible home sold to an indemnity fund to protect the lender in the case of default, with the government guaranteeing a further 5.5% of the sales price if the fund is emptied. The borrower does not have to be a first-time buyer and there is no limit on the level of income.

The use of the Help to Buy programme has so far been consistent with the authorities' plans. There were almost 38 000 completions for equity loans as of the end of November 2014 and around 30 000 completions for the mortgage guarantee scheme by the end of September 2014, representing together around 3% of all mortgage approvals for house purchase during the last 19 months until September 2014.

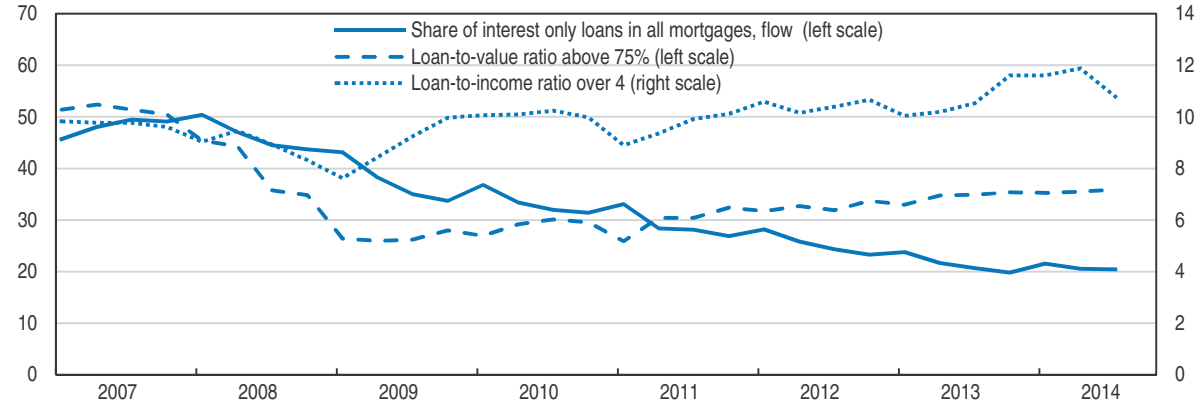
Although Help to Buy has not spurred lending, it may have had strong effects on the housing market. The introduction of the programme has coincided with greater credit availability (Figure 2.8, Panel B) and the weakening of some underwriting standards (Figure 2.9). The share of loans with loan-to-income (LTI) ratios above 4 is higher than before the crisis and the amount of loans with LTV ratios above 95% trebled over the year to May 2014 (BoE, 2014c). Many lenders attributed this to participation in Help to Buy programme (BoE, 2014c). The price cap for eligibility has been set significantly above average house prices, including in London, which may have stimulated house price expectations. In October 2014, the BoE's Financial Policy Committee requested new powers from the government to cap loan-to-value and debt-to-income ratios for mortgages (see below), but also assessed that the mortgage guarantee scheme did not pose material risks to financial stability and was not a material driver of house price growth.

The equity loan scheme has an interesting feature. It shares the house price risk between the government and households by linking the amount of repayment to the price of the house. This limits the risk of negative equity when house prices fall, but also reduces capital gains when house prices rise (Box 2.3). This is similar to a recent proposal of Mian and Sufi (2014) to render household financing more equity-like, with equity participation taken by the private lender. In contrast, in Help to Buy loan equity scheme this participation is taken by the government. The taxpayer could be better able to bear house price risks, but its exposure to negative shocks has increased as house prices look increasingly overvalued based on simple indicators (Figure 2.10).

Beyond improving access to finance for households, providing affordable dwellings requires making housing supply more responsive. Further efforts are needed to relax regulatory constraints imposed by the planning system. As discussed in the previous

Figure 2.9. **Underwriting standards developments have been mixed**

Per cent[1]



1. Share of interest only loans in all (i.e. regulated and non-regulated) mortgages to individuals.

Source: Bank of England (2014), "Mortgage Lenders and Administrators Statistics – 2014 Q3", Prudential Regulation Authority, December.

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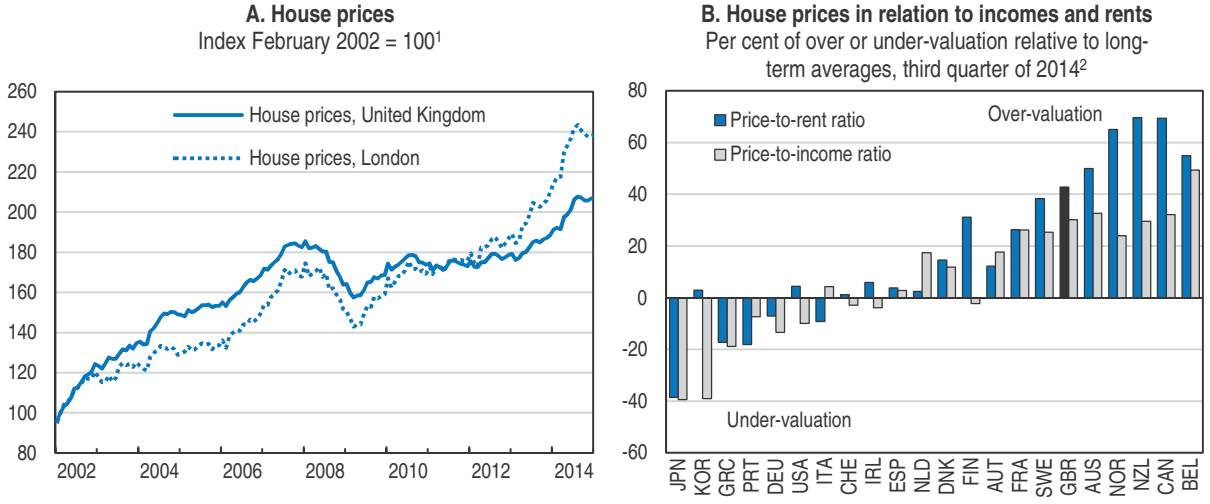
Figure 2.10. **House prices have been buoyant and are high relative to incomes and rents**



1. Nominal house prices.
2. Countries are ranked by the average of the two indicators, from lowest to highest. The long-term average covers the period from 1980 (or earliest available date) to the latest available quarter.

Source: ONS (2015), "House Price Index, December 2014", Office for National Statistics, February and OECD (2015), *OECD Housing Prices Database*, Economics Department, February.

StatLink http://dx.doi.org/10.1787/888933189590

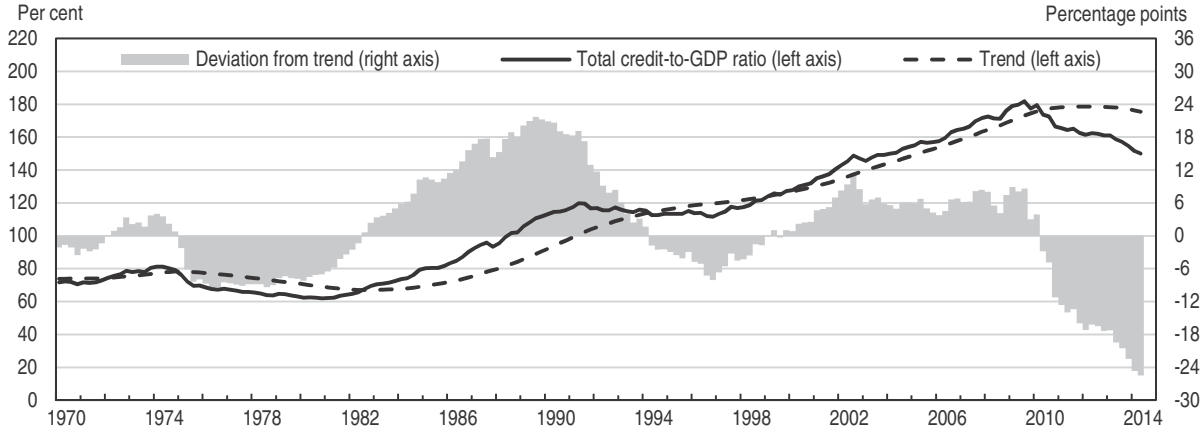
Surveys, it is essential to make some protected lands available for building houses and to ease skyline restrictions in some cases (OECD, 2011, 2013a). In particular, reviewing the boundaries of the Green Belt – introduced in 1955 to prevent urban sprawl around historical towns and cities on close to 12.5% of England – would free up land for development. Additional structural reforms would help to balance the housing market (OECD, 2011; André, 2011). Higher provision of social housing could enhance housing supply where private sector activity is insufficient, while updating property valuation of

the council tax would damp large swings in house prices. The government has announced a reform of the residential stamp duty land tax, which should lower transactions costs on most properties and encourage labour mobility, but may also create upward pressure on house prices in the short term (OBR, 2014).

Macro-prudential regulation should prevent imbalances and help smooth the credit cycle

Although government programmes are important to support short-run loan supply, in the long run macro-prudential policy should sustain the resilience of the financial system by preventing the build-up of imbalances, such as excessively volatile credit growth (Figure 2.11). In line with this objective, the BoE has obtained a responsibility for financial stability with a number of powers and macro-prudential tools, which are complemented by its powers over monetary policy and micro-prudential supervision (Box 2.4). Strong accountability and transparency are necessary about decision-making, supported by robust communication (IMF, 2014a). In this respect, joint meetings of the Financial Policy Committee (FPC) and the Monetary Policy Committee (MPC) are welcome to ensure smooth co-ordination between monetary and macro-prudential policies (Shakir and Tong, 2014). Current internal reform of the BoE to ensure a better flow of information and centralisation of multiple data sources collected separately by different departments is also a step in the right direction.

Figure 2.11. **UK credit to GDP ratio has been volatile**[1]



1. Credit is defined as debt claims on the UK private non-financial sector. This includes all liabilities of the household and not-for-profit sector and private non-financial corporations' (PNFCs) loans and debt securities excluding derivatives, direct investment loans and loans secured on dwellings. Long-term trend of credit-to-GDP ratio is based on a one-sided Hodrick-Prescott filter with a smoothing parameter of 400 000.

Source: Bank of England (2014), "Financial Stability Report, December 2014", Issue No. 36, December.

StatLink http://dx.doi.org/10.1787/888933189605

Risks in the housing market are being addressed with macro-prudential tools

With rapid increases in house prices over the recent past and signs of overvaluation (Figure 2.10), housing market developments have been identified as the largest risk to financial stability by the FPC (BoE, 2014c). At the same time, accommodative monetary policy needed to support economic activity may also increase risk-taking by banks while loans issued during periods of low interest rates become impaired more often once interest rates rise (Jiménez et al., 2014). Hence, while very low interest rates reduce interest payments and create conditions for declines in household indebtedness, macro-prudential

Box 2.4. **Recent reforms of the supervisory framework**

In the wake of the crisis, the institutional structure of the UK financial regulation and supervision has been revamped by the Financial Services Act, which came in force in April 2013. The Act discontinued the Financial Services Authority and has expanded the responsibilities of the Bank of England (BoE) with regards to financial stability, which rests on three pillars.

The Prudential Regulatory Authority (PRA) is responsible for the prudential regulation and supervision of banks, building societies, credit unions, insurers and major investment firms.

The Financial Policy Committee (FPC) is in charge of taking action to reduce systemic risks with a view to protecting and enhancing the resilience of the UK financial system. It can make recommendations on "comply or explain" basis to the PRA and the FCA (Financial Conduct Authority), and so far most of these recommendations have been made to the PRA. Moreover, the FPC can impose specific macro-prudential tools, such as sectoral capital requirements and countercyclical capital buffers. The FPC can adjust sectoral capital requirements for banks' exposures to three broad sectors (residential property, including mortgages; commercial property; and other parts of the financial sector), as well as more granular subsectors (for example, to mortgages with high loan-to-value or loan-to-income ratios at origination). In its 2014 policy statement, the FPC explains under which conditions these tools might be activated (FPC, 2014).

Finally, the Resolution Directorate within the BoE is responsible for planning and implementing resolutions of failing UK banks and building societies.

In addition, the Financial Services Act established an independent FCA to ensure consumer protection and to promote effective competition in the interest of consumers. Hence, the FCA is responsible for the conduct supervision of all regulated financial firms and the prudential supervision of those not supervised by the PRA.

tools should head off risks of a credit boom driven by households becoming even more indebted. Further progress in deleveraging would reduce household exposure to interest rate hikes and smooth consumption, as it has recently been assessed that 60% of borrowers would cut spending in response to a hike in the policy rate to 2% (Anderson et al., 2014).

Regulatory authorities have been taking appropriate action to prevent a further deterioration in underwriting standards and an increase in highly indebted households. In April 2014, the FCA took action following a review of the mortgage market with a view to encourage stricter affordability checks, stress-testing, mortgage advice and to prevent self-certification mortgages. In June 2014, the FPC and the Prudential Regulatory Authority (PRA) enforced the need for all banks to decline loans to borrowers who fail to withstand a 3 percentage-point increase in the benchmark rate over the first five years of the loan. The FPC also introduced a limit of the proportion of mortgages at 4.5 times income to no more than 15% of banks' new home loans. In parallel, the government decided that all mortgages taken out under the mortgage guarantee scheme of Help to Buy will be capped at 4.5 times income. The percentage of mortgages greater than 4.5 times income was close to 10% across the country, although it reached nearly 20% in London in 2013. The introduction of some of these measures was followed by a tightening of credit availability indicators for households in the third quarter of 2014 (Figure 2.8, Panel B).

The BoE's approach to introduce macro-prudential gradually is appropriate, but it should stand ready to undertake new steps if vulnerabilities persist. The authorities could lower the 15% ceiling for loans with high income multiple and/or to broaden coverage to

more types of loans or lenders (for example by including buy-to-let properties) (IMF, 2014a). In October 2014, the FPC requested from the government new regulatory powers to strengthen financial stability by capping LTV ratios and debt-to-income (DTI) ratios for residential mortgage lending (owner-occupied and buy-to-let). This is a welcome step as caps on high DTI and LTV ratios appear effective in reducing mortgage credit growth and/or house price inflation and the effectiveness of macro-prudential policies is maximised when several tools are used simultaneously (IMF, 2014a; Claessents et al., 2013; Kuttner and Shim, 2013). More generally, macro-prudential policies appear to be better suited than monetary policy to tackle property prices imbalances, with monetary policy being the last line of defence if macro-prudential tools prove to be insufficient (Crowe et al., 2011).

Activating countercyclical capital requirements

Countercyclical capital requirements should be based both on a range of indicators and judgment. Such multifaceted approach is currently being developed, which is welcome and should be continued. Exclusive reliance on discretion in decision-making could lead to time-inconsistency problems (Crowe et al., 2011; Haldane, 2013). History suggests that attitudes towards risk change over time and are subject to myopia, and periods before crisis are characterised by "irrational exuberance" and the belief that "this time is different" (Reinhart and Rogoff, 2009). This phenomenon is particularly important because credit cycles are much longer than business cycles (Haldane, 2010; Haldane, 2014). Models and indicators cannot be applied mechanically or automatically and ultimately it is the key task of the FPC to make a judgement based on all available information.

Pro-cyclicality and systemic risk could also be mitigated when setting risk weights. Banks' annual reports show that risk weights are very low for government bonds (less than 10%) and retail mortgages (around 15%), but higher for business loans (around 40%) and particularly high for SME lending (around 60%). Hence, lending to SMEs appears to be much more costly in terms of capital requirements than lending to households. Although these weights reflect higher probabilities of SME failure, they may not take sufficient account of systemic risk associated with household or government debt. For example, UK risk weights are indexed to LTV ratios. Therefore, they decline for existing mortgages during property booms, contributing to the pro-cyclicality of the financial sector.

Addressing interest-only mortgages

The repayment of interest-only mortgages (principal redemption is postponed to the maturity of the loan) is a concern. Although their flow has declined substantially to about 20% of total (Figure 2.9), the total stock still accounted for almost 40% of the UK's total balances in 2014 (according to the Mortgage Lenders and Administrators statistics of the Bank of England). Buy-to-let interest-only mortgages, which account for half of the flow and a third of the stock, could represent a lower risk for financial stability for loans with low LTV ratios. In May 2014, the FCA concluded that 600 000 borrowers will see their mortgage mature before 2020. Around 10% had no plan to repay their debts, just under half will face potential repayment shortfalls that may reach over GBP 50 000 in a third of cases (GfK, 2013; FCA, 2013). Over the next 30 years, 2.6 million interest-only mortgages will fall due and 10% of borrowers do not have a strategy to repay their loan. Banks were required to contact borrowers whose mortgage will be due before 2020 and, more recently, lenders have been asked to check repayment plans of borrowers for the full loan instead of relying on increased house prices as the only plan for principal reimbursement. These are

welcome steps and should be continued. Additionally, increasing risk weights on interest-only loans would increase capital buffers against future credit risk and prevent a weakening of underwriting standards should the risk appetite for such loans increase.

Reducing risks posed by the financing system via sound regulation

The large size of UK banks poses a risk

Market pressure on rewarding higher capital ratios could be waning

Before the crisis, banks' funding was not priced in accordance with their level of risk. Due to implicit government guarantees and under-pricing of risk, global systemic banks with lower leverage ratios had the same cost of funding as well-capitalised global systemic banks (Figure 2.12, Panel A). This has changed in the wake of the crisis as markets have started to price risk better and the relationship between the risk premium on external funding and bank capital has become more dispersed (Figure 2.12, Panels B and C). However, recent data shows that with low spreads and low risk aversion this relationship is flattening again (Figure 2.12, Panel D). Although lower average spreads reduce the cost of financial intermediation, it is important that markets exert discipline on banks that are poorly capitalised, inefficient, or excessively risky, and charge them higher risk premiums on debt. This could be achieved by continuing to enforce tighter regulatory capital requirements and further strengthening banks' resolvability.

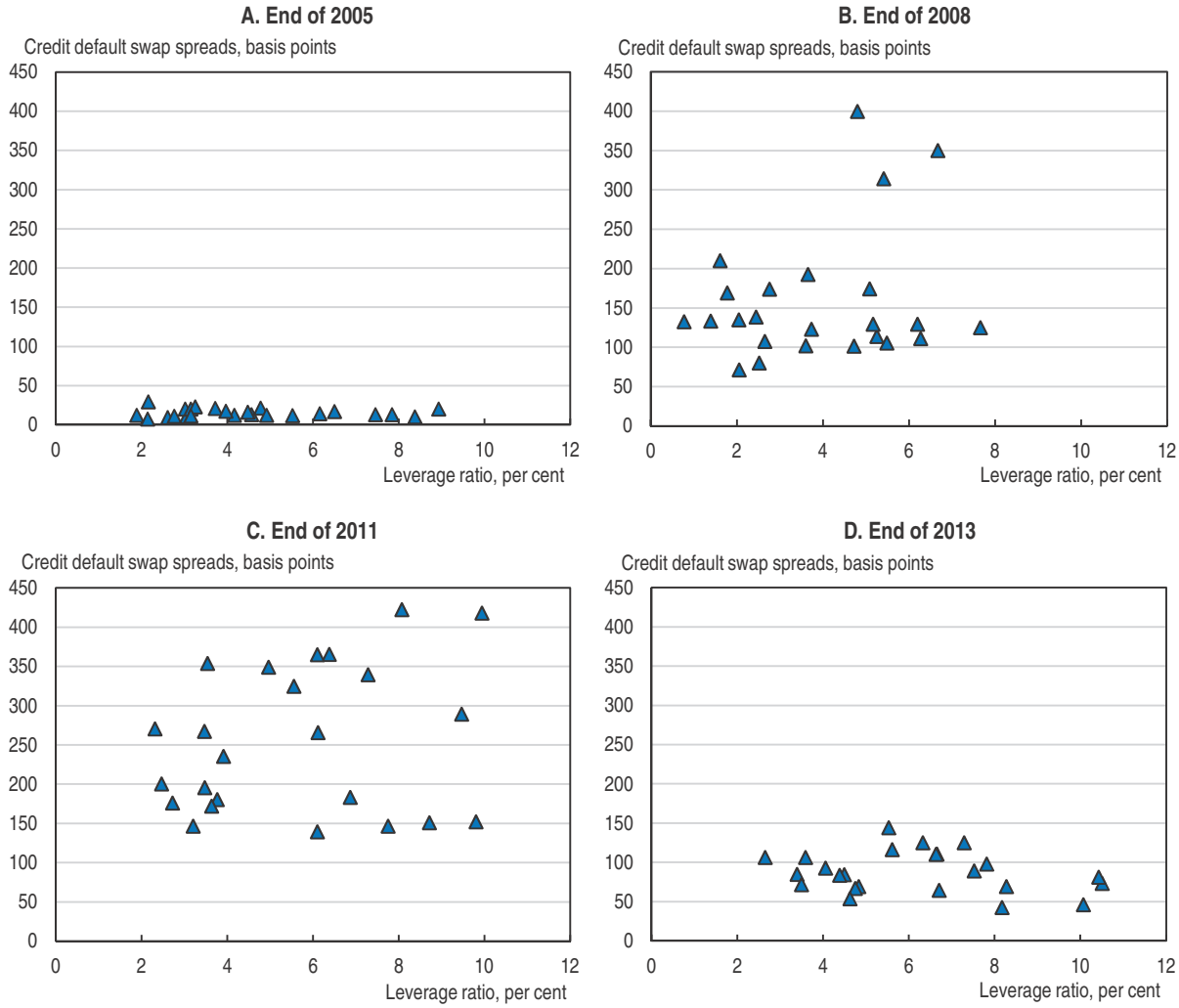
Despite important reforms the problem of systemic banks remains

The assets of the two largest UK banks amounted to about 180% of GDP in 2013, against almost 160% of GDP in 2007 (Figure 2.13). A lack of market pressure to reward higher capital ratios for systemically important banks could pose risks as the UK banking sector is still dominated by big banks. The UK banking sector is deleveraging as measured by total banks' assets and loans (Figure 2.14). This is consistent with other large banking industries before the crisis, and which have been reduced afterwards such as in Switzerland, Ireland and Belgium. The situation varies between individual banks, as banks that had received government support have been selling their non-core assets, while other banks have significantly increased their asset size.

Despite the large size of the UK banking sector measured by total assets to GDP (Figure 2.14), loans to residents amount only to 30% of banks' balances sheets (Table 2.3). Large parts of assets and liabilities represent relationships with non-residents (around 40% of assets and liabilities) and monetary financial institutions (nearly 10% of assets and liabilities). Such structure of banks' balance sheets explains why, despite having one of the largest banking sectors in the world, firms experience credit constraints and the ratio of loans to enterprises to GDP remains below the OECD average (Figure 2.15). The low ratio would also be partly driven by more developed non-bank finance. However, as UK banks appear to be good in transactional lending to large enterprises and non-residents, and in providing standardised mortgages to households, they appear less specialised in establishing relationships with SMEs.

The recent global crisis has demonstrated that banks which are too big to fail benefit from implicit government guarantees. Despite important regulatory reforms since the last crisis, in 2013 markets still expected state intervention in the event of another crisis. The International Monetary Fund (IMF) has estimated that mean implicit subsidy for UK systemically important banks ranged from 20 to 60 basis points in 2013 and almost

Figure 2.12. **Relationship between leverage ratio and funding costs of global systemic banks**[1]



1. Data refer to 24 out of the 29 global systematically important banks (G-SIBs) as defined by the Financial Stability board. Credit default swap (CDS) refers to five-year senior debt, mid-rate spreads. Leverage ratio refers to the share of total common equity in total assets.

Source: Datastream and Bloomberg.

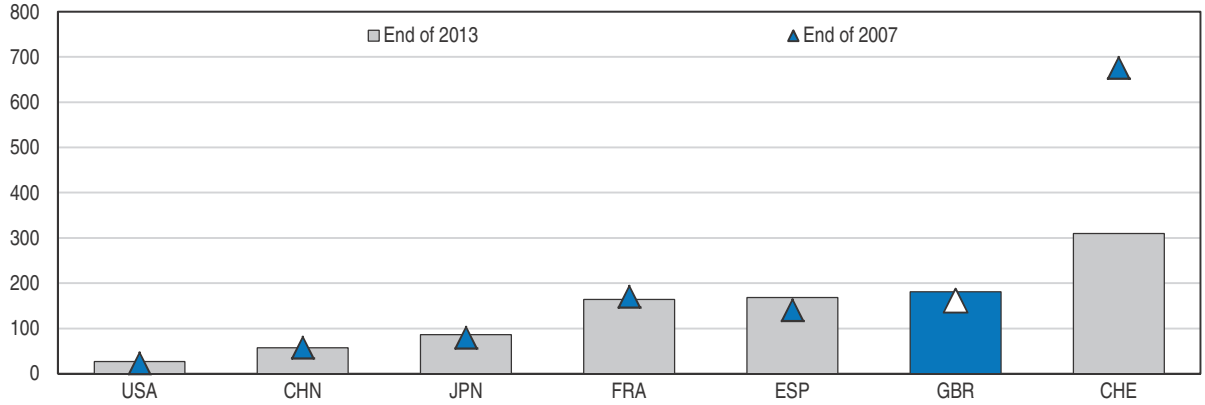
StatLink http://dx.doi.org/10.1787/888933189612

75 basis points for large distressed banks (IMF, 2014b). This estimate is lower than during the immediate post-crisis period and lower than in the euro-area (60 to 90 basis points), but higher than in the US (15 basis points).

Implicit government guarantees could be contained through high capitalisation, and credible bail-in and other resolution regimes. The UK was one of the first countries in the world to put in place a Special Resolution Regime (SRR) for failing banks in 2009 and this regime has most recently been amended in accordance with the Bank Recovery and Resolution Directive (adopted by the European Parliament in April 2014). The BoE has bail-in and other resolution powers and is responsible for the development of resolution strategies and plans and their execution for all banks (Gracie et al., 2014). To complement Basel III capital requirements, progress has been made at the international level with the

Figure 2.13. **Size of two major banks remains large**

Total assets, per cent of GDP[1]



1. Total assets refer to the sum of cash and bank balances, Fed funds sold and resale agreements, investments for trade and sale, net loans, investments held to maturity, net fixed assets, other assets, customers' acceptances and liabilities.

Source: Bloomberg and OECD (2015), *OECD National Accounts Statistics* (database), January.

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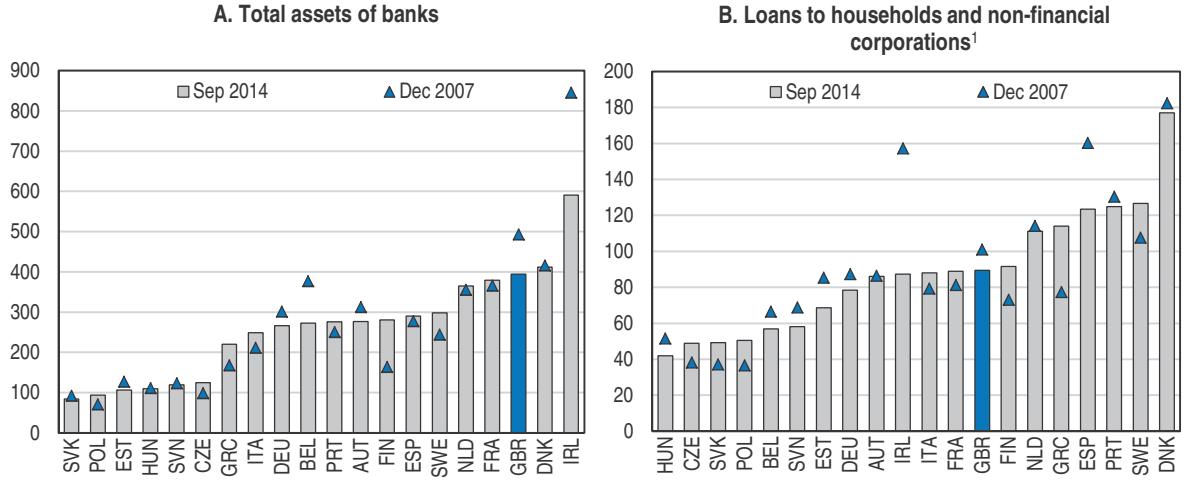
Figure 2.14. **UK banks are deleveraging their total assets and loans**

Per cent of GDP



1. Outstanding stock of domestic loans of monetary financial institutions excluding European System of Central Banks (ESCB). Households include non-profit institutions serving households. January 2008 instead of December 2007 for Estonia.

Source: ECB (2015), "MFI Balance Sheets" *Statistical Data Warehouse*, European Central Bank, January and OECD (2015), *OECD Economic Outlook: Statistics and Projections* (database), January.

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recent proposals of the Financial Stability Board to strengthen the total loss absorbing capacity (both capital and certain liabilities) which could be used for the resolution of global systemic banks (BoE, 2014d). Arrangements for deposit protection and resolution will be met through an existing levy on financial institutions, with the money raised not being accrued in a specific fund (as in most other European countries) but in the general government budget.

Table 2.3. **The structure of the UK banks' balance sheets**

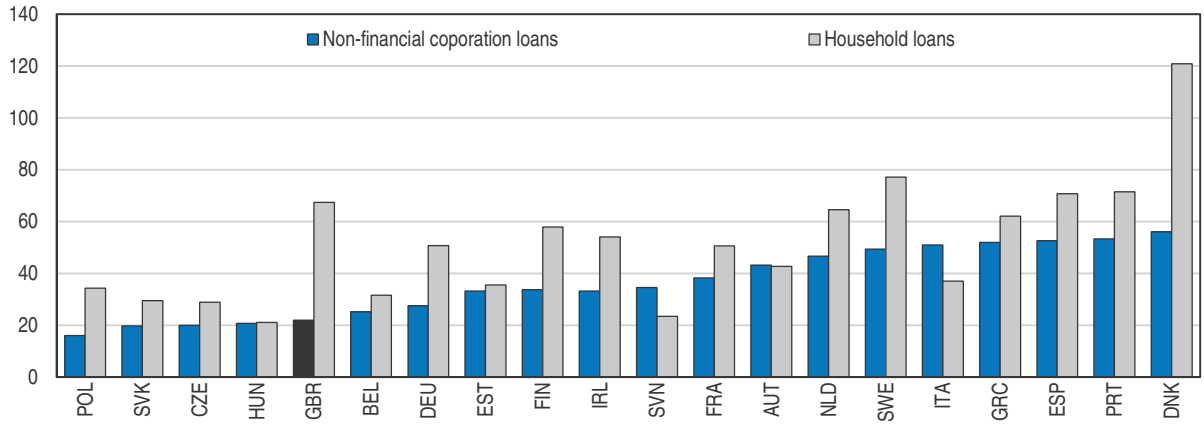
September 2014

Assets	GBP billion	%	Liabilities and capital	GBP billion	%
Cash and central bank	304	4	Deposits from MFIs	441	6
Loans to monetary financial institutions (MFIs)	439	6	Resident deposits	2 143	30
Loans and advances to residents	2 039	29	Non-resident deposits	2 086	29
Loans and advances to non-residents	1 888	27	Repos	939	13
Bills including Treasury bills	46	1	*of which:* UK MFIs	161	2
Repos	1 057	15	UK residents	229	3
of which: UK MFIs	153	2	Non-residents	550	8
UK residents	268	4	CDs and other paper issued	649	9
Non-residents	636	9	Capital and other internal funds	587	8
Investments	993	14	Other	268	4
of which: UK public sector	124	2			
UK MFIs	63	1			
Residents	273	4			
Non-residents	533	7			
Other	347	5			
Total assets	7 113				

Source: Bank of England (2015), "Monetary and Financial Statistics", *Bankstats*, January.

Figure 2.15. **Loans to non-financial corporations are low and are high for households**

Per cent of GDP, September 2014[1]



1. Outstanding stock of domestic loans from monetary financial institutions excluding European System of Central Banks (ESCB). Households include non-profit institutions serving households.

Source: ECB (2015), "MFI Balance Sheets", *Statistical Data Warehouse*, European Central Bank, January and OECD (2015), *OECD Economic Outlook: Statistics and Projections* (database), January.

StatLink http://dx.doi.org/10.1787/888933189276

There is growing discussion about the optimal size of the banking sector

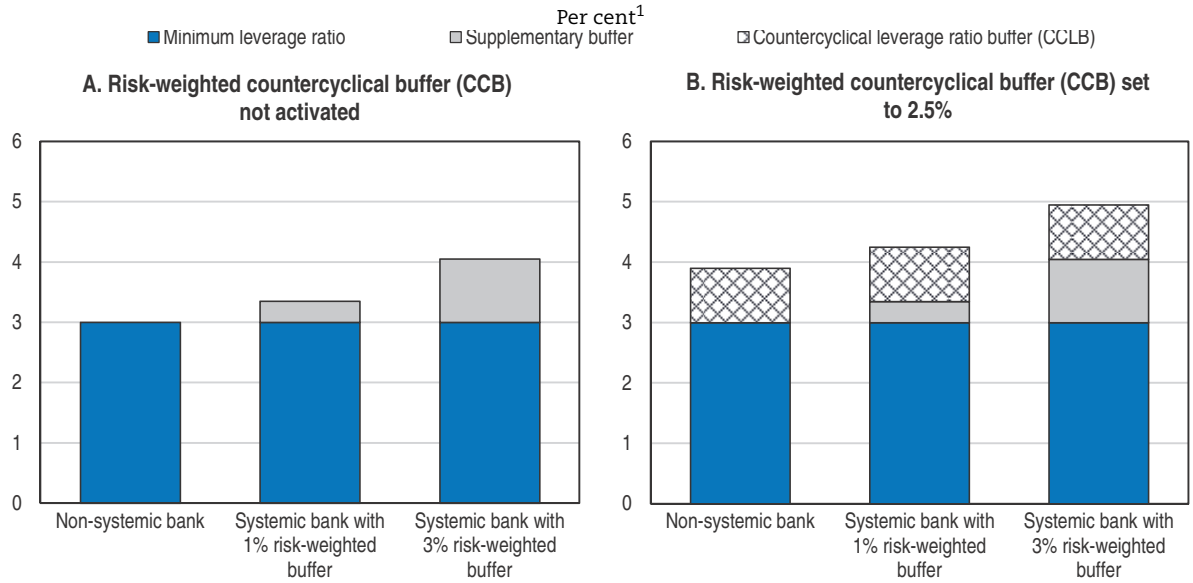
The UK banks' assets could double in size and exceed nine times GDP by 2050 (Carney, 2013; Bush et al., 2014), which would require tight supervision and regulation to offset potential risks. There is a growing discussion about the optimal size of the banking sector and its impact on economic growth and inequality. Recent studies suggest that although finance enhances growth, there is a turning point somewhere between 80% and 100% of private credit to the real economy to GDP (Cecchetti and Kharroubi, 2012; Arcand et al., 2012).

A recent OECD study has also identified a marginal negative relationship between large intermediated credit and growth for a range of countries, including the UK (Schich et al., 2014). A potential explanation for the negative link between finance and growth after a certain threshold could be related to decreasing returns, misallocation of credit and an increase of macroeconomic or systemic risks (Bijlsma and Dubovik, 2014; Schich et al., 2014). There is also some evidence that financial sector development could reflect a misallocation of skilled labour to the financial sector at the expense of other sectors that require skilled workers (Cecchetti and Kharroubi, 2014). Moreover, recent empirical evidence suggests that only credit to enterprises may benefit growth, while credit to households may have no impact on growth (Beck et al., 2012). A large share of household lending that is related to high house prices might crowd out enterprise lending (Chakraborty et al., 2014).

Enhancing capital buffers of large banks

To contain risks posed by big banks, the FPC has proposed to strengthen capital requirements of UK banks by raising the leverage ratio (capital to unweighted assets) from 3% to 4.05% for large banks (Figure 2.16), to be enforced for global systemically important banks from 2016 and for other major banks from 2019. Also, regulatory authorities have requested from the government the power to impose a counter-cyclical leverage buffer, which would bring the overall leverage ratio for global systemic banks to almost 5% in a boom when applying Basel III standards. However, there is no limit to the level the FPC might wish to set this buffer.

Figure 2.16. **The leverage ratio framework in the United Kingdom**



1. Countercyclical leverage ratio buffer (CCLB) show an example of the size of the CCLB for a bank with UK exposures only.

Source: Bank of England (2014), "The Financial Policy Committee's Review of the Leverage Ratio", October.

StatLink http://dx.doi.org/10.1787/888933189307

The proposed leverage ratio would go beyond Basel III regulations and complement risk-weighted capital ratios. In particular, a leverage ratio would insure against the risk of meeting regulatory ratios by lowering risk weights that often appear to be inconsistent and

subject to manipulations (Le Leslé and Avramova, 2012; Haldane, 2012; FSA, 2010; ICB, 2011). The problem of low risk-weighting of some assets was already addressed by the asset quality review of the PRA. As a result, floor loss-given defaults (the share of an asset that is lost when a borrower defaults) were imposed on residential and commercial real estate lending and sovereign lending, which should increase risk weights. Nevertheless, it is important for the PRA to undertake further analysis of banks' internal models and data sources to assess their robustness and their impact on risk measures.

The proposed leverage framework would represent significant progress, but systemically important banks would need to have a higher leverage ratio than 3-5% to withstand a shock of the magnitude of the recent crisis. The FPC has announced that it will review the proposed leverage framework in 2017, to reflect progress in enforcing the international standard for a minimum leverage ratio expected in 2018. During the global crisis, total write-downs in the UK amounted to more than 5% of total assets (Miles et al., 2013) and the cost of the Treasury support reached 17% of banks' total balances sheet at the peak, including state guarantees. Global systemically important banks would have needed between three to four times more capital before the crisis to obviate the need for capital injections by private and public investors and liquidity support on a massive scale by the world's central banks (Blundell-Wignall et al., 2014).

The BoE's earlier research has shown that a stable banking sector requires a leverage ratio between 4% and 7% (Haldane, 2012) or between 7% and 10% (Miles et al., 2013). In particular, Miles et al. (2013) evaluate the cost and benefits of a higher leverage ratio by taking into account a range of factors including its impact on average cost of bank funding, probability of banking problems and the scale of the economic costs generated by banking sector problems. Following the crisis, international experts advocate leverage ratios with values around or even much higher than 10% (Admati and Hellwig, 2013; Ratnovksi, 2013; Wolf, 2014). Aiyar et al. (2015) propose a 10% book equity-to-asset ratio with a further requirement to issue 10% of assets in contingent capital (CoCos) that could be converted from debt into equity if the market value of equity relative to assets falls below a critical ratio. Finally, Blundell-Wignall and Roulet (2013) propose a leverage ratio of 5%, but this level of ratio is conditional on a credible reform of ring-fencing retail banking and withdrawing all implicit government subsidies for investment banking (Blundell-Wignall et al., 2014). Yet, systemic banks continue to benefit from implicit government guarantee (IMF, 2014b). Further progress in strengthening banks' financial buffers and resolvability – including an ambitious and full implementation of the FPC's leverage framework in 2019, total loss-absorbing capacity requirements for major banks, and a ring-fencing regime (see below) – should further lower implicit government subsidies. Ultimately, if these reforms prove insufficient, capital should be increased until the implicit government subsidy disappears.

Stricter capital requirements raise concerns that this could be costly for banks and economic growth. In the face of higher post-crisis capital requirements, banks have decreased their supply of loans and divested non-core activities (Aiyar et al., 2014; Bridges et al., 2014). This has happened despite the PRA request to ensure that all plans to address capital shortfalls do not reduce lending to the real economy. Since lending to non-financial corporations other than real estate companies amounts to only about 3.5% of banks' assets, the fall in lending cannot be explained by higher capital requirements. Banks could have shielded lending to firms from deleveraging by reducing non-core banking activities instead.

Higher capital requirements might support medium-term growth by reducing risks. Simulations by the Bank for International Settlements indicate that each 1 percentage point increase in the capital ratio raises loan spreads by 13 basis points, but the net impact on growth is positive due to enhanced resilience of the financial sector and lower crises probability (BIS, 2010). In the same vein, Miles et al. (2013) show that doubling of leverage from 5% to 10% would increase funding costs by around 10-40 basis points as capital is more expensive than debt, but substantially higher capital requirements would reduce the probability of systemic banking crises – crises which are very costly (Reinhart and Rogoff, 2009).

Beyond regulatory requirements to boost banks' capitalisation, equity financing could be made less costly. Recent cuts in the corporate income tax from 30% in 2007 to 20% in 2015 have significantly reduced the cost of capital. A further step would be to review tax advantages related to debt financing as is proposed by the Mirrlees Review (Mirrlees et al., 2011) and is operational in Belgium, Brazil and Latvia (Haldane, 2011b; De Mooij, 2012). This could be achieved either by reducing the tax deductibility of debt interest or by allowing firms to deduct from profits an allowance for corporate equity, provided the reform is implemented in a way that does not lead to tax base erosion and profit shifting from other countries (OECD, 2013). The fiscal cost of an allowance for corporate equity could reach 0.5% of GDP if applied to all firms and not only banks (De Mooij, 2012), but it could be reduced in the short run by granting the allowance only on new capital.

Better provisioning and prudent stress-testing are needed

Sufficient provisioning for problem loans would further strengthen financial buffers of banks. As in many OECD countries, there is no standard definition of non-performing loans. However, the European Banking Authority (EBA) issued a definition for regulatory reporting in 2014. The regulator should provide guidance on the implementation of the new definition and strengthen data collection for different types of borrowers and loans. More generally, supporting international efforts for the creation of a common regulatory scale for asset classification system (beyond the classification of non-performing loans) would be an additional step forward. It is also necessary to collect information about restructured loans and to design requirements to write-off non-performing loans after a specified period to prevent forbearance and insufficient provisioning. Provisioning for losses is made in accordance with International Accounting Standards (i.e. on the incurred losses basis), which does not take into account expected losses on still performing or restructured loans. The regulator should also encourage banks to make preparations for the adoption of the forward-looking "expected loss" impairment model in international accounting standards, which is expected to come into force in 2018. Once the new accounting standards apply, subjecting banks to a minimum level of specific and general provisions for loans would further support adequate appraisal of risk.

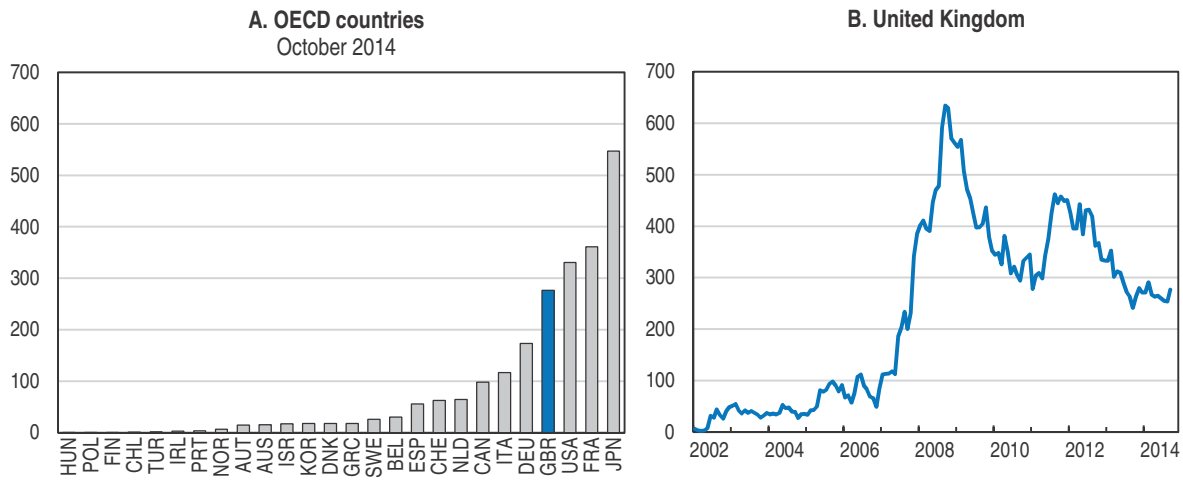
In 2014, four major UK banks were stress-tested within the European Union-wide exercise and they all withstood the tests, although one bank was very close to the threshold. Also, the BoE undertook another stress-test of eight major UK banks and building societies as a variant of the EBA stress-testing exercise (BoE, 2014e). The stress scenario implemented by the UK authorities was based on end-2013 balance sheets, covered the period between 2014 and 2016 and involved housing and commercial real estate price declines (respectively by 35% and 30%) and a rise in the bank rate (to 4% in 2016), accompanied by a decline in equity prices (almost 30%) and GDP (real GDP troughs at about 3.5% below its last quarter 2013 level in

late 2015), as well as a sharp rise in the unemployment rate (to 12%), inflation (to 6.5%) and depreciation of sterling (by 30%).

The results of this 2014 stress-test, published in mid-December 2014, show that most UK banks can withstand above shocks. Three out of eight participating banks needed to strengthen their capital position, but given progress during 2014 and concrete plans to build capital further going forward, only one bank needed to submit a revised capital plan. Yet, the outcome of the stress-tests depends on the methodology and scenarios used. For instance, the BoE – in line with the approach taken by regulators internationally to conduct stress tests and set capital requirements – relies on the book value of bank equity. Using its market value and applying the methodology proposed by Acharya et al. (2012) shows that the UK financial system (including banks) could face an important capital shortfall in the case of another global crisis (Figure 2.17).

Figure 2.17. **Global systemic risk of the UK financial sector is large**

Capital shortage in case of 40% fall in stock prices, USD billion[1]



1. Global systemic risk (SRISK) is measured by the methodology proposed by Acharya et al. (2012). For the United Kingdom, financial sector includes major banks and the London Stock Exchange.

Source: New York University Stern School of Business, *The Volatility Laboratory (V-Lab)*.

StatLink http://dx.doi.org/10.1787/888933189642

In the future and consistent with the BoE's medium-term plans, stress tests should involve a larger number of banks, include large non-banks and comprise a wider set of stress scenarios. The scenario for the 2014 stress-testing exercise appears rather demanding for almost all variables when compared to the UK past experience (BoE, 2014e). Such hypothetical scenario could be usefully complemented by more adverse macroeconomic and financial conditions that followed more severe banking crises in other countries. Importantly, the sharp increase in bank rate is nominal, but the real interest rate remains negative, which is benign from a historical perspective. A larger set of scenarios should be considered that range from high real interest rates to a "Japanese" scenario of low growth and deflation. In addition, stress-testing of liquidity shocks should be undertaken, as the Federal Reserve does. Interconnectedness with other banks and non-banks should be addressed by creating a scenario in which a systemically important institution fails, or there is a run from other monetary financial institutions or the repo market. To reduce uncertainty, results of the stress-testing exercise should continue to be made publicly available on the individual bank level.

It is also important to consider second-round effects of different shocks. For instance, the impact of rising interest rates on banks' health should take into account the feedback effect on households. Household surveys show that an increase of interest rate by 1 percentage point would affect a quarter of households, while an increase of 4 percentage points would affect more than 60% of households (Bunn et al., 2013). In response to an interest rate increase in line with market expectations, the proportion of households spending more than one-third of their income on mortgage debt repayments (usually considered as a high leverage) would increase from about 15% to more than 25% (Blacklock and Whittaker, 2014). The increase would be the largest in London, from almost 20% to 35%. The BoE considers that rising the policy rate from its current low level will not have unusually large effects on household spending (Anderson et al., 2014).

Ring-fencing retail banking activities of large banks

The aim of the recent structural reform to ring-fence retail banking activities of large banks (with more than GBP 25 billion of core deposits) is to separate banks' core activities from their investment activities. This should increase bank resolvability as the supervisor will have a better picture of banks' core activities that need to be protected during a crisis and will have more options for how to resolve a bank that is facing problems (for example by making it possible to keep the ring-fenced bank running even if its wider group fails). The framework was set out in the Financial Services (Banking Reform) Act 2013 and the mechanism of its implementation is currently under consultations launched by the PRA. The Act defines which activities are considered as core and need to be ring-fenced (deposit taking from individuals and small enterprises) and which are risky activities (such as proprietary trading) that cannot be undertaken by ring-fenced bodies. A large part of activities, such as deposit-taking from high net worth individuals and medium and large businesses can be carried out by either part of the bank. Currently, the PRA is consulting on the height of the ring-fence that will determine the degree of separation between the ring-fenced entity and the rest of the group in terms of transfer of capital and funding.

The height of the ring fence will have implications on the amount of activities that will be conducted by the ring-fenced entity. The height of the ring-fence (the ease with which banks can transfer capital and funding between ring-fenced and non-ring-fenced entities) would be set at an appropriate level. A too low ring-fence would incentivise banks to carry most of their activities inside the fence if ring-fencing is perceived to be an implicit government guarantee. A too high ring-fence would render ring-fenced entities more risky because of less risk-diversification with an excessive focus on mortgages and vulnerability to swings in house prices. This is problematic because the aim of ring-fencing is to shield the ring-fenced bank from risk arising elsewhere in the financial system. Moreover, the height of the ring-fence will also determine the extent of the ring-fenced entity's exposure as a creditor to the non-ring fenced entity. Therefore, applying additional capital buffers similar to systemic banks subject to a 3% risk-weighted buffer (Figure 2.16) as decided by the authorities may be appropriate.

Improving banks' resolvability

The biggest banks are not only important as a share of GDP, but their structure is also extremely complex. The four largest UK banks have altogether more than 5 000 subsidiaries, a third of them located in offshore financial centres. Little public information exists about the nature of banking activities in these territories, and such

information is important to prevent that large risks migrate to jurisdictions with light supervision. However, following recent developments in European legislation (Capital Requirement Directive 4) banks have been required to disclose information on subsidiaries such as the name of establishment, nature of activities and geographical location, turnover, number of employees, profit or loss before tax, tax on profit or loss and public subsidies received from January 2015. Greater transparency would be ensured if banks also had to provide information on total assets held in offshore financial centres. It is important for the BoE to carefully consider the impact of complex banking structures on banks' resolvability and require banks to undertake action if needed.

Other supervisory challenges

Further extending regulatory oversight beyond the banking sector

New credit providers (peer-to-peer, crowdfunding and direct lending funds) offer new opportunities in terms of broadening access to finance, but they also create new risks for investors. There are a number of differences between these providers and traditional banks. The former do not perform maturity transformation as lenders/investors have to pre-commit their money for a certain period of time. They function without leverage and losses are imposed directly on investors. Hence, they differ from what is normally called "shadow banking" (Box 2.5). Some peer-to-peer platforms provide ratings to small businesses allowing a simpler match between lenders and borrowers, but risks and eventual losses are born by lenders, while the fee income of the platform depends on the volume of transactions. This could lead to agency problems and could result in inadequate client screening.

The appearance of direct lending funds could lead to new forms of credit intermediation that could be less fragile than banks. Asked about the future of direct

Box 2.5. **Definitions of shadow banking**

Definition of the Financial Stability Board (FSB, 2014)

The FSB provides two definitions of shadow banking. According to the broad measure definition, non-bank financial intermediation is measured by total financial assets held by Other Financial Intermediaries (OFIs), which include all non-bank financial intermediaries with the exception of insurance companies, pension funds and public financial institutions. In other words, this measure includes market funds, finance companies, structured finance vehicles, hedge funds, other investment funds, broker-dealers, real-estate investment trusts and funds.

The narrow measure definition focuses on the subset of non-bank credit intermediation which potentially poses systemic risks to the financial system. It includes financial assets of OFIs *minus* i) financial assets of non-bank financial entities not involved in bank-like credit intermediation; ii) financial assets related to those non-bank financial entities that are prudentially consolidated into a banking group; iii) financial entities whose activities do not exhibit risks associated with shadow banking including but not limited to maturity and liquidity transformation, and/or leverage.

Definition of the International Monetary Fund (IMF, 2014c)

The definition of the IMF of the shadow banking is based on non-traditional (non-core) funding. In this "activity" concept, shadow banking is measured by the size of non-core liabilities both from banks and from "other financial corporations" (including money

Box 2.5. **Definitions of shadow banking** *(cont.)*

market funds, MMF), except insurance companies, pension funds, and non-MMF investment funds. The main financial instruments that are considered to be components of non-core liabilities are debt securities, loans, MMF shares, and a small portion of restricted deposits (that is, deposits excluded from broad money).

A narrow measure of non-core liabilities excludes those confined to the financial sector; it is thus a proxy for the intermediation between ultimate lenders and ultimate borrowers – that is, between the financial sector and the real economy. The difference between the broad and narrow measures represents an estimate of the amount of credit intermediation conducted within the shadow banking sector.

lending funds, some asset managers have in mind credit intermediation activities without maturity transformation or leverage, such as a loan fund that locks in investors for a few years and so is not subject to liquidity risk (IMA, 2012). Hence, these direct lending funds resemble a theoretical proposal of limited-purpose banking to reduce banks' fragility and moral hazard (Chamley et al., 2012). However, their net present value is uncertain because they invest in illiquid credit.

The authorities should watch closely if excessive risks migrate from regulated banks to other credit providers and prepare for possible spillover effects back to banks. Indeed, it appears that traditional banks may be shifting to less risky credit, while investment funds and peer-to-peer platforms may have been providing credit to riskier borrowers. Some banks have started engaging with alternative lenders, such as asset management firms, to bolster lending to riskier companies. One example includes provision of so-called "unitranche" debt, a blend of senior and more junior and riskier loans bearing a single interest rate. Although the borrower will face one loan with one interest rate, the bank will be reimbursed first, and hence, the investment fund will carry more risk. In this situation, investment funds benefit from banks' network of clients and their ability to provide ancillary services, such as hedging. Some banks also start to co-operate with peer-to-peer platforms.

Macro-prudential tools of the FPC should gradually be extended beyond the banking sector to support the effectiveness of regulatory instruments so as to prevent that credit demand and systemic risk are channelled outside regulated banks. In the first place, this should apply to financial institutions that have access to liquidity instruments of the BoE. Broker-dealers are an important part of the shadow banking sector (Box 2.5) and have recently been allowed such access, but they could be prone to liquidity runs due to high leverage and the use of short-term secured lending arrangements, such as repos. Moreover, it is important for the regulator of alternative finance providers and traditional institutional investors (FCA) to collect information about the size of lending, risk profile, underwriting standards or credit conditions. This should be done in co-operation with the BoE as the regulator of traditional banking.

Regulatory framework of the securitisation market should remain tight

Although the BoE and the ECB (2014) attempt to revive the securitisation market to boost lending, particularly to SMEs, its regulation should remain tight. In the run-up to the crisis, the securitisation offered substantial advantages but contributed to the

expansion of off-balance sheet activities of banks before the crisis (Figure 2.2) and contributed to the financial meltdown. A number of new regulations have been implemented recently to improve screening practices and to prevent regulatory arbitrage. First, banks are required to retain a part of their securitised loans to increase their incentives to adequately screen and monitor borrowers. This is important to prevent higher default rates on securitised loans in comparison to loans of the same risk profile, but which are held by banks on their balance sheets (Keys et al., 2010; Mian and Suffi, 2009). Second, capital requirements have been harmonised for loans on banks' balance sheets and in SPVs. This removes the possibility for regulatory arbitrage that was prevalent before the crisis when conduits were set up to avoid capital regulation. For example, Acharya et al. (2013) argue that due to SPVs, some British banks were able to reduce their capital requirements by up to 25%.

Improving corporate governance

Recently, the banking industry has paid large amounts of fines and litigation costs, pushing banks to significantly increase their provisions. Total costs and provisions amounted to around GBP 35 billion or close to 2% of GDP at the end of 2013 (Table 2.4). The Parliamentary Commission on Banking Standards (2013) describes banks' misconduct, such as miss-selling of interest rate swaps and payment protection insurance (PPI) products (insuring the repayment of loans) to small businesses and individuals, Libor manipulation, money-laundering and breach of sanctions. The largest part of these conduct costs are related to the PPI products and, according to the FCA, complaining customers have so far received GBP 15 billion (1% of GDP) between January 2011 and April 2014 (against GBP 50 billion worth of PPI policies sold over the last ten to fifteen years). Two recent reports have described the treatment of distressed SMEs by some banks after the crisis, suggesting banks may have maximised their profits by working sometimes against the best interests of financially distressed customers (Large, 2013; Tomlinson, 2013).

Table 2.4. **Fines and settlements as well as provisions for litigation costs of banks have been high**

GBP billion, 2009-13[1]

	Fines and settlement costs	Provisions as at 31 Dec. 2013	Total
United States	71.73	41.67	113.40
United Kingdom	22.30	13.99	36.29
Switzerland	5.08	2.68	7.76
Germany	3.87	1.75	5.62
Spain	2.42	1.14	3.57
Total	105.40	61.23	166.64

1. Data for the United Kingdom refer to four banks. Data for Germany refer to one bank. Data for Spain refer to one bank. Data for Switzerland refer to two banks. Data for the United States refer to four banks.

Source: Conduct Costs Project 2012-14.

A number of reforms have been implemented to improve banks' corporate governance and to align remuneration with risk. The PRA is introducing a "Senior Managers regime" for banks, which will replace the current "approved persons regime" and should ensure that key activities are tasked to individuals with direct responsibility for carrying them out.

A new remuneration code, introduced in 2010, compels senior staff at banks to have 50% of variable remuneration paid in non-cash instruments, 40% of variable remuneration deferred over a period of 3 to 5 years and allows for the cancellation of bonuses that have not yet been awarded to individuals. Finally, a new criminal offence (carrying a prison sentence of up to 7 years) for "senior managers" has been introduced for reckless misconduct in the management of a bank leading to its failure. This is in line with the recommendation of the Parliamentary Commission on Banking Standards (2013).

These reforms of remuneration go in the right direction and more proposals are under consideration. Following public consultations, the PRA is currently considering retrospective imposition of the clawbacks on variable pay in certain circumstances. There are also proposals to index remuneration to returns on assets and not on returns on equity to limit the impact of leverage on remuneration (Haldane, 2011b).

Policy recommendations to ensure sustainable lending and financial stability

Enhancing credit supply

Ensure comprehensive data collection of credit information by credit reference agencies and its sharing with all credit providers and the Bank of England. Alternatively, create a central credit registry run by the Bank of England.

Consider transforming the British Business Bank into a permanent instrument of SME financing.

Encourage the development of and collect information on alternative finance providers and direct lending funds, including borrower's risk and profile, and underwriting standards.

Mitigating credit cycles

Continue to observe underwriting standards in mortgage lending and, if needed, broaden the use of macro-prudential tools. Further relax regulatory constraints to boost housing supply, in particular by throroughly reviewing the boundaries of protected areas of the Green Belt.

Undertake further analysis of banks' internal ratings models (using data from credit reference agencies where appropriate) to ensure that risk weights adequately reflect systemic risks and are less pro-cyclical.

Gradually extend the Bank of England's regulatory oversight beyond the banking sector, notably by subjecting institutions that have recently been granted access to liquidity instruments (such as broker-dealers) to macro-prudential instruments of the Financial Policy Committee.

Enhancing financial stability

Consider higher leverage ratios for global systemic banks to complement risk-weighted capital ratios.

Encourage banks to start preparing for the adoption of the forward-looking "expected loss" impairment model from 2018. Support the development of a common regulatory scale for asset classification system at the international level.

Extend stress tests to a larger number of banks and other financial institutions and include a wider set of stress scenarios, such as a liquidity run and a collapse of a large institution.

Increase transparency about the presence of banks in off-shore financial centres by ensuring the publication of data on total assets.

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