

# Financial Stability Report

November 2013 | Issue No. 34



BANK OF ENGLAND







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The Financial Policy Committee (FPC) was established under the Bank of England Act 1998, through amendments made in the Financial Services Act 2012. The legislation establishing the FPC came into force on 1 April 2013. The objectives of the Committee are to exercise its functions with a view to contributing to the achievement by the Bank of England of its Financial Stability Objective and, subject to that, supporting the economic policy of Her Majesty's Government, including its objectives for growth and employment. The responsibility of the Committee, with regard to the Financial Stability Objective, relates primarily to the identification of, monitoring of, and taking of action to remove or reduce systemic risks with a view to protecting and enhancing the resilience of the UK financial system.

The FPC is established as a sub-committee of the Bank of England's Court of Directors. An interim FPC operated from 2011 until March 2013, holding its first policy meeting in June 2011, with the aim of shadowing as far as possible the future statutory FPC's macroprudential role.

The legislation requires the FPC to prepare and publish a *Financial Stability Report* twice per calendar year. The *Report* covers the Committee's view of the current stability of the UK financial system at the time of preparation of the *Report* and an assessment of developments that have influenced this view; an assessment of the strengths and weaknesses of the system and the risks to stability; and the Committee's view on the outlook for the stability of the UK financial system. The *Report* also summarises the activities of the Committee over the reporting period and the extent to which policy actions taken have succeeded in meeting the Committee's objectives.

The Committee has a number of duties, as specified under the Bank of England Act 1998. In taking decisions, the Committee is required to set out an explanation of its reasons for deciding to use its powers in the way they are being exercised and why it considers that to be compatible with such duties. Section 5 of this *Report* sets out the decisions taken by the Committee in the light of its assessment of the outlook for financial stability.

## The Financial Policy Committee:

Mark Carney, Governor

Jon Cunliffe, Deputy Governor responsible for financial stability

Andrew Bailey, Deputy Governor responsible for prudential regulation

Charles Bean, Deputy Governor responsible for monetary policy

Martin Wheatley, Chief Executive of the Financial Conduct Authority

Clara Furse

Andrew Haldane

Donald Kohn

Richard Sharp

Martin Taylor

Charles Roxburgh attends as the Treasury member in a non-voting capacity.

This document was delivered to the printers on 26 November 2013 and, unless otherwise stated, uses data available as at 19 November 2013.

The *Financial Stability Report* is available in PDF at [www.bankofengland.co.uk](http://www.bankofengland.co.uk).



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# Executive summary

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Economic recovery in the United Kingdom, and in some other advanced economies, has strengthened and UK banks' capital positions have improved. That has boosted confidence in financial stability, as evident in the Bank's recent *Systemic Risk Survey*.

But financial stability risks remain, including from the high indebtedness of some sovereigns, corporates and households. These vulnerabilities have been kept in check by low interest rates and other policy interventions. A sharp rise in interest rates, especially if not associated with a strengthening in incomes, could test financial system resilience. There are also signs of a deepening 'search for yield' in some markets, which could become a concern if they were to broaden and intensify into a more general mispricing of risk.

UK housing market activity is picking up from a low level and inflation in house prices — which is already above historical averages on some metrics — appears to be gaining momentum. At present, activity remains below long-term trends and underwriting standards are materially higher than before the crisis. There is little evidence of an immediate threat to stability. But risks may grow if stronger activity is accompanied by further substantial and rapid increases in house prices and a further build-up in household indebtedness, which is already elevated for some households. These risks would be accentuated if underwriting standards on mortgage lending were to weaken as has been the case in previous house price cycles. In addition, the pace of increased mortgage lending may place greater reliance on short-term wholesale funding.

Several actions are in train that will guard against a build-up in vulnerabilities, including higher capital at banks. The Bank's stress-testing initiative will look at bank resilience to housing and other shocks, and tighter underwriting standards are being introduced as part of the Financial Conduct Authority's Mortgage Market Review. In addition, the Prudential Regulation Authority (PRA) has decided to end its temporary capital relief on new household lending from the beginning of next year. Moreover, the Bank and HM Treasury have decided to modify the Funding for Lending Scheme to remove direct incentives to expand household lending in 2014. The Financial Policy Committee (FPC) welcomed both these decisions. As a further proportionate and preparatory step, the Committee agreed the following recommendation to enhance the range of tools available to authorities:

- The Financial Conduct Authority (FCA) should require mortgage lenders to have regard to any future FPC recommendation on appropriate interest rate stress tests to use in the assessment of affordability.

The Committee has an extensive toolkit that it could deploy, as part of a proportionate and graduated response to evolving housing market risks, should that become necessary. These tools include recommendations on underwriting standards, the Help to Buy scheme and the availability of higher-risk loans, as well as recommendations or directions on bank capital requirements. Some of these measures are already in use in several countries.

The Committee also responded to a request by the Chancellor to set out medium-term issues that it will pursue as a priority. The FPC's priorities are to act to influence the medium-term bank capital framework, ending 'too big to fail' and identifying and addressing any risks in shadow banking, while working to support diverse and resilient sources of market-based finance (as set out on pages 65–68). The FPC also discussed some broader issues relevant to the Parliamentary Commission on Banking Standards recommendation on the leverage ratio as set out on pages 69–70.

## Key financial developments

### Macroeconomic and financial developments

- Perceived tail risks diminished and economic recovery gained traction in some advanced economies (pages 7–8).
- With shifting monetary policy expectations, yield curves in advanced economies steepened and equity prices rose (page 8).
- Capital flowed out of some emerging economies amid short-lived volatility in some financial markets (pages 8–10).
- Over the period there was evidence of falling risk premia and a 'search for yield' in some markets (pages 10–11).

### Banking sector resilience and credit conditions

- The largest global banks made progress on recapitalisation (pages 11–12).
- The ECB announced plans for a comprehensive assessment of the largest euro-area banks (pages 12–13).
- UK banks' resilience improved, particularly for weaker banks, and credit conditions eased (pages 13–15).

## Medium-term policy priorities

### Medium-term capital framework for banks

- The medium-term capital framework for banks is a vital component for ensuring the resilience of the UK financial system (pages 34–38).
- The FPC agreed that it should ensure that prospective changes to regulatory capital requirements for UK banks are, when taken together, appropriately calibrated and phased in from a macroprudential perspective, and that they fit together to deliver a stable, prudent and coherent package, which takes account of the broader impact on the financial system (pages 37–38).

### Ending 'too big to fail'

- The disorderly failure of systemically important financial institutions (SIFIs) can cause widespread disruption to the financial system (page 38).
- The FPC agreed that one of its medium-term priorities should be to review and, where necessary, influence the design and implementation of reforms to address the 'too big to fail' problem, subject to where policies have been settled internationally (page 42).

### Shadow banking and diverse and resilient sources of market-based finance

- The provision of finance from outside the traditional banking system can play an important role in the financial system and wider economy but it can also be a source of systemic risk (pages 42–43).
- The identification and management of potential systemic risks from shadow banking is one of the FPC's medium-term priorities, in line with its statutory responsibilities (page 43).
- The FPC will also seek to improve the diversity and robustness of market-based financing in the United Kingdom and globally (pages 46–48).

## Conjunctural risks to financial stability

### Balance sheet vulnerabilities

- Highly levered and income-constrained borrowers continue to hold a large share of debt (pages 16–18).
- Some euro-area borrowers remain vulnerable to shocks (pages 16–17).
- Government debt levels remain high (pages 16–17).

### Global risks to UK financial stability

- Market concerns remain over the level and growth of government debt in some advanced economies (pages 18–20).
- Financial markets remain vulnerable to an abrupt rise in interest rates (pages 20–22).
- Operational vulnerabilities, including from cyber attack, remain a concern (page 23).

### Domestic risks to UK financial stability

- Rising property prices could increase households' vulnerability to shocks and lead to renewed risks to banks' resilience (pages 23–30).

## Mitigating risks from the housing market

### Actions already in train

- Implementation of March 2013 FPC recommendations to raise banks' capital and other international capital reforms (page 61).
- 2014 Bank stress test of the UK banking system, including resilience to housing market stress (page 61).
- Mortgage Market Review implementation (page 61).

### Additional steps

- Capital relief on new household lending — PRA to end its temporary capital relief on new household lending qualifying for the Funding for Lending Scheme from the beginning of next year (page 62).
- Funding for Lending Scheme — Bank and HM Treasury to modify Scheme to remove direct incentives to expand household lending in 2014 (pages 62–63).
- FCA should require mortgage lenders to have regard to any future FPC recommendation on appropriate interest rate stress tests to use in the assessment of affordability (page 62).

### Potential future tools

- Recommendations to FCA or PRA on underwriting standards (pages 63–64).
- Recommendations to HMT regarding the Help to Buy scheme (page 63).
- Recommendations or directions to PRA on bank capital requirements on residential real estate lending (page 63).
- Decisions regarding the countercyclical capital buffer (page 63).
- Recommendations on maximum loan to value ratios, loan to income ratios, debt to income ratios or mortgage term (pages 63–64).



# 1 Global financial environment

This section reviews developments in the global financial environment over the past six months. Section 1.1 examines macroeconomic developments and their impact on financial markets. Section 1.2 describes associated changes in bank resilience and credit conditions. During the period, perceived tail risks diminished, the resilience of the banking system improved and, despite some short-lived market volatility, there was evidence of a deepening 'search for yield' in some markets (Table 1.A).

**Table 1.A** Key financial developments

## Macroeconomic and financial developments

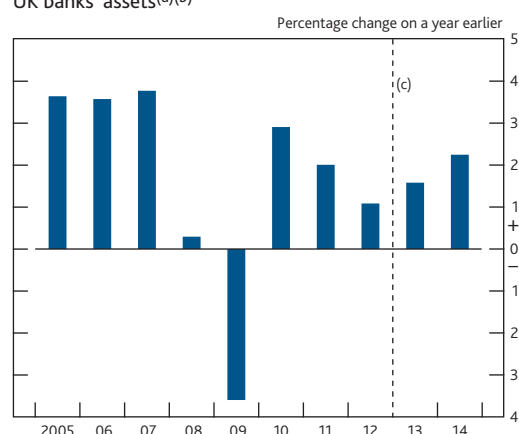
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## Banking sector resilience and credit conditions

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**Chart 1.1** Growth was forecast to strengthen in countries where UK banks have the greatest exposures

Past and projected global growth weighted by location of UK banks' assets<sup>(a)(b)</sup>



Sources: Bank of England, BIS, IMF *World Economic Outlook (WEO)* and Bank calculations.

(a) Actual and projected global growth data are based on the October 2013 *WEO* and include the United Kingdom.

(b) Weights are based on 2011–12 averages of UK monetary financial institutions' (MFIs') non-UK assets, as estimated from BIS consolidated banking statistics that cover non-UK assets held by UK MFIs' worldwide offices, and UK MFIs' UK assets, as estimated from balance sheet data reported by the UK entities of UK MFIs.

(c) Forecasts from 2013 onwards.

## 1.1 Macroeconomic and financial developments

*Global growth was expected to be increasingly driven by advanced economies...*

During the period since the *June Report*, growth prospects at the global level were broadly stable. But International Monetary Fund (IMF) forecasts showed the composition of global growth was expected to shift, with stronger growth in advanced economies and weakening prospects for emerging economies. In general, growth was forecast to strengthen in countries where UK banks have the greatest exposures (Chart 1.1).

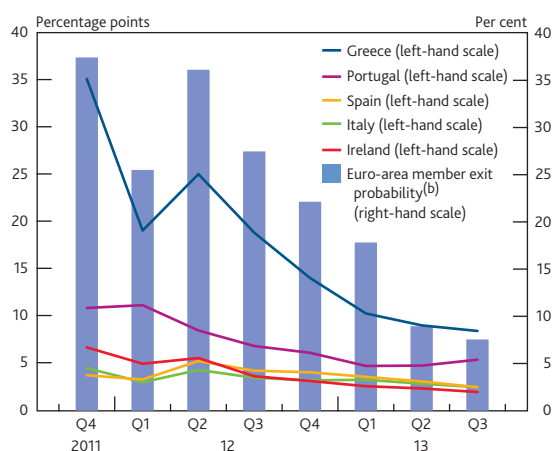
In the major advanced economies, data outturns and near-term indicators strengthened. In the United Kingdom, output growth increased to 0.8% in 2013 Q3 and surveys suggested that Q4 output growth would also be strong. Following six quarters of contraction, euro-area output rose in both 2013 Q2 and Q3. Growth in the United States was estimated to have increased to 0.7% in 2013 Q3, though the IMF judged the near-term outlook may have deteriorated slightly. Japanese output also expanded strongly this year, in part reflecting stimulus measures.

*...where tail risks were thought to have diminished.*

Perceived tail risks from the euro area receded, reflecting actions by the European Central Bank (ECB) and progress on steps to strengthen banking systems (Section 1.2), and the economic outlook improved. While euro-area output expanded at a slower pace in 2013 Q3 than the previous quarter, indicators suggested that activity was close to stabilising in some periphery countries. And spreads between periphery-country government bonds and German bunds generally narrowed, as the perceived tail risks associated with a country leaving the euro area continued to recede (Chart 1.2).

### Chart 1.2 Perceived euro-area tail risks declined

Perceived probability of euro-area member exit and spreads over bunds for selected euro-area sovereigns<sup>(a)</sup>

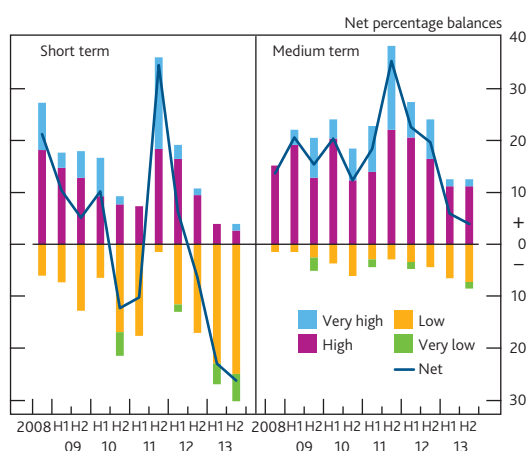


Sources: Deloitte CFO Survey, Thomson Reuters Datastream and Bank calculations.

- (a) Ten-year government bond spreads over bunds, average taken over Deloitte CFO Survey window.  
 (b) Average probability assigned by UK chief financial officers (CFOs) to the likelihood of any existing euro-area member exiting the single currency within the next twelve months.

### Chart 1.3 Expectations of UK financial instability diminished further

Perceived probability of a high-impact event in the UK financial system<sup>(a)</sup>



Sources: Bank of England Systemic Risk Surveys and Bank calculations.

- (a) Respondents were asked for the probability of a high-impact event in the UK financial system in the short and medium term. From the 2009 H2 survey onward, short term was defined as 0–12 months and medium term as 1–3 years. The net percentage balance is calculated by weighting responses as follows: very high (1); high (0.5); medium (0); low (-0.5); and very low (-1). Bars show the contribution of each component to the net percentage balance.

Against that backdrop, the perceived probability of a high-impact event in the UK financial system fell to its lowest since the financial crisis, according to the Bank's 2013 H2 *Systemic Risk Survey* (Chart 1.3). And while sovereign risk and a deterioration in the economic outlook remained the most common concerns, they were cited by fewer respondents as 'key risks' than in the previous survey.

### Yield curves steepened and equity prices rose in advanced economies...

The more positive economic outlook in advanced economies coincided with steepening government bond yield curves. During the period since early May, the implied cost of UK and US government borrowing for five years in five years' time rose markedly, by around 120 basis points and 150 basis points respectively (Chart 1.4). That was consistent with markets pricing in an improved outlook for these economies and perceptions of reduced tail risks.

Rising equity prices suggested that market participants believed that the recovery was gaining traction. For example, the S&P 500 reached a level 25% higher than at the start of the year — a record high in nominal terms (Chart 1.5). This appeared to reflect improved earnings expectations and a fall in equity risk premia towards long-term average levels (Chart 1.6). Equity prices rose elsewhere, albeit by less in Europe than in the United States, in part reflecting the more challenging economic outlook in the euro area and remaining tail risks. Corporate bond spreads in some advanced economies tightened slightly as well, with spreads on sterling corporate bonds reaching their narrowest since 2010.

### ...though indicators of long-term interest rates remained below historical norms.

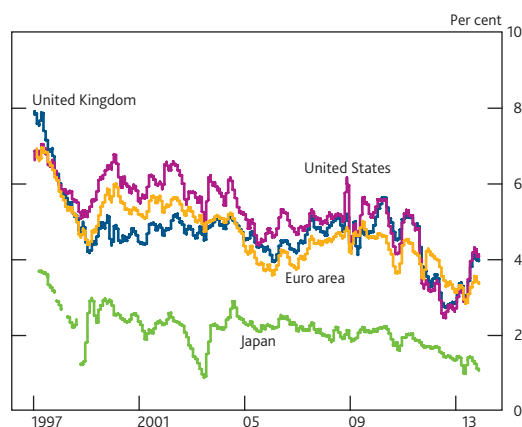
Over the period as a whole, while risky asset prices were supported by an improved near-term growth outlook in some advanced economies, some indicators suggested medium-term growth prospects remained subdued. In the United Kingdom, the market-implied five-year real yield in five years' time, a possible indicator of medium-term growth prospects, was around 0.6%, about 1 percentage point below its average level over the past fifteen years. In the United States, this measure has also remained below pre-crisis levels, albeit at a higher level than in the United Kingdom (Chart 1.7).

### There were capital flows out of some emerging economies...

During the summer months, alongside slowing growth across major emerging economies, there was speculation that monetary policy in the United States was close to a turning point. A strong expectation built up that the US Federal Open Market Committee would announce the 'tapering' (or slowing down) of its programme of asset purchases at its September meeting. These developments prompted investor outflows and marked declines in emerging-economy asset prices, accompanied by strong flows into developed-economy assets,

**Chart 1.4 Market-implied measures of future UK and US interest rates rose**

Forward nominal yields on selected government bonds<sup>(a)</sup>

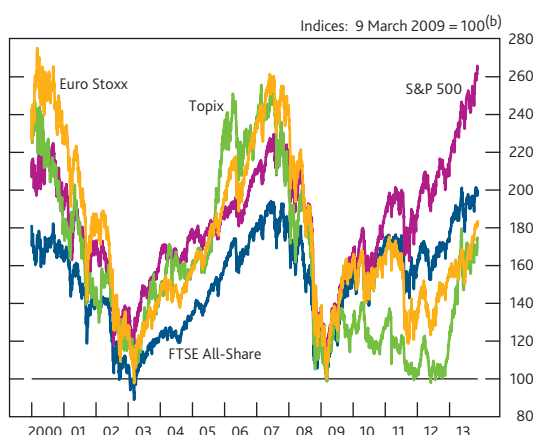


Sources: Bloomberg and Bank calculations.

(a) Five-year nominal interest rates five years forward, derived from the Bank's government liability curves. One-month moving averages.

**Chart 1.5 Advanced-economy equity prices rose**

International equity indices<sup>(a)</sup>



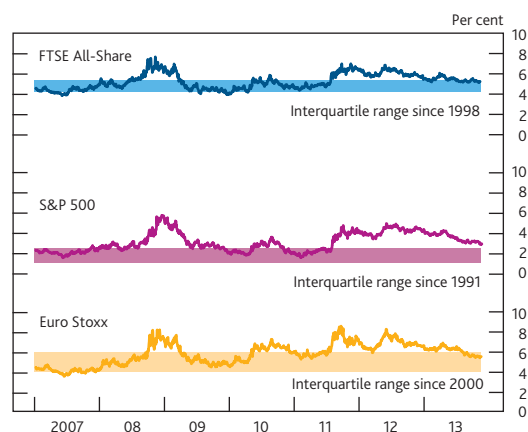
Sources: Thomson Reuters Datastream and Bank calculations.

(a) Denominated in units of local currency.

(b) This corresponds to the lowest value in the S&P 500 across the time period shown.

**Chart 1.6 Equity risk premia fell but remained above historical averages**

International equity risk premia<sup>(a)</sup>



Sources: Bloomberg, Thomson Reuters Datastream and Bank calculations.

(a) As implied by a multi-stage dividend discount model.

particularly equities (**Chart 1.8**). Emerging-economy currencies also depreciated.

Capital outflows were initially broad-based and partly reflected investors exiting carry trades — borrowing in one currency at a low interest rate and investing in another currency at a higher rate — that had been based on expectations that developed-economy interest rates would remain low for some time. There was some evidence from indices linked to the performance of currency carry-trade strategies that such trades may have made losses during 2013 Q2. One example is the Deutsche Bank Global Currency Harvest Index, which tracks a portfolio that is systematically long high-yielding and short low-yielding currencies. This index fell as much as 10% between May and August (**Chart 1.9**). Over time, the outflows became more discriminate with a particular focus on those countries with large imbalances.

### *...and volatility in some financial markets...*

As bond yields rose during the summer months, volatility in fixed-income markets increased (**Chart 1.10**). Illiquidity was most noticeable in markets for corporate and emerging-economy bonds, with some evidence of widening bid-ask spreads. And exchange-traded funds — investment funds listed on exchanges — that were tracking these assets also saw reduced liquidity.

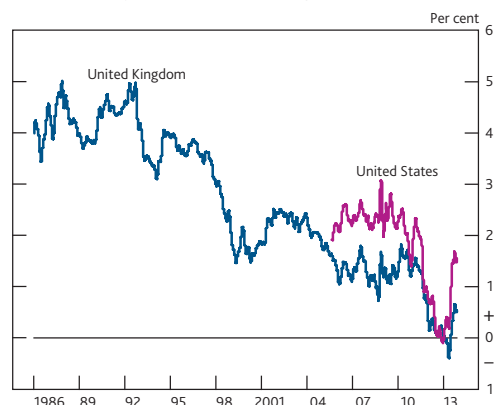
US Treasury markets, typically among the most liquid, also experienced a reduction in liquidity. One measure of market depth is the maximum trade size for the best quotes available in the interdealer market on the ten-year US Treasury bond. JPMorgan estimates suggested that this fell below US\$100 million in June, around half its level in 2012.

Some market contacts saw this period of volatility as highlighting a structural reduction in market liquidity, as banks pulled back from market-making. By 2012, aggregate bond market turnover was about 40% lower than in 2006. Market contacts partly attributed this structural change to regulatory developments designed to increase the resilience of the banking system — for example, higher capital requirements on trading book assets, leverage ratio limits, and the Volcker Rule restrictions on proprietary trading. Others suggested that trading flows had become harder to intermediate as the fund management industry had become concentrated in similar investment strategies. Section 5 discusses the Financial Policy Committee's (FPC's) priorities, including on market liquidity.

### *...that returned briefly amid concerns about the US debt ceiling.*

In October, the US government shut down following an impasse in negotiations to approve a federal government budget. As this stand-off continued, concerns grew that if the US Treasury borrowing limit were not raised, the federal government would default on its debt — though this was seen

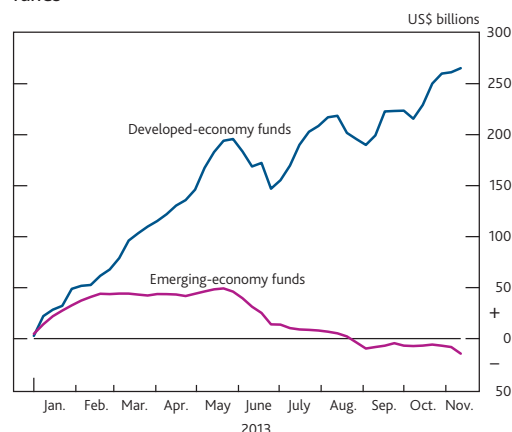
**Chart 1.7 A market indicator of medium-term growth expectations remained subdued in the United Kingdom**  
Forward real yields on UK and US government bonds<sup>(a)</sup>



Sources: Bloomberg and Bank calculations.

(a) Five-year real interest rates five years forward, derived from the Bank's index-linked government liability curves. One-month moving averages.

**Chart 1.8 Capital inflows to emerging economies reversed**  
Cumulative net flows into emerging and developed-economy funds<sup>(a)</sup>



Sources: Emerging Portfolio Fund Research Global and Bank calculations.

(a) Cumulative weekly net flows into dedicated equity and bond funds. Net flows are calculated as investor contributions less redemptions, excluding portfolio revaluations.

**Chart 1.9 Carry trades may have made losses**  
Deutsche Bank Global Currency Harvest Index<sup>(a)</sup>



Sources: Bloomberg and Bank calculations.

(a) Deutsche Bank Global Currency Harvest Index is quoted in excess return terms net of transaction costs from investment in a portfolio that is long the five highest-yielding currencies and short the five lowest-yielding currencies from a pool of ten advanced-economy currencies and ten emerging-economy currencies. The portfolio is constructed by investing in three-month currency forwards and rebalanced quarterly.

as generating uncertainty about when, rather than if, payments on US Treasury securities would be made.

Some investors undertook limited contingency measures. There was reported selling of close to maturity US Treasury securities seen as being at risk of default. These assets were removed from schedules of eligible collateral for repo and derivatives transactions. And their yields rose along with the cost of protection for default by the US government (Chart 1.11). There were also precautionary sales by, and outflows from, some US money market funds (MMFs) that invest in these assets or use them as collateral. MMF assets declined by US\$65 billion in a single week, the largest decline since mid-2011.

While the borrowing limit was subsequently raised, the cost of default protection remained elevated, indicating lingering concerns around the risks from a US government default. The recent episode highlighted the important role of US Treasuries in the global financial system. This is explored in more detail in Box 1.

#### *But measures of market risk drifted down...*

Nevertheless, market dislocations in the summer and early autumn were relatively short-lived, affected a narrow set of markets and there was little sign that they created serious issues for individual financial institutions. Indeed, measures of market volatility returned close to historical lows (Chart 1.10), market liquidity improved, and some measures of risk premia remained compressed.

#### *...accompanied by signs of increased risk appetite...*

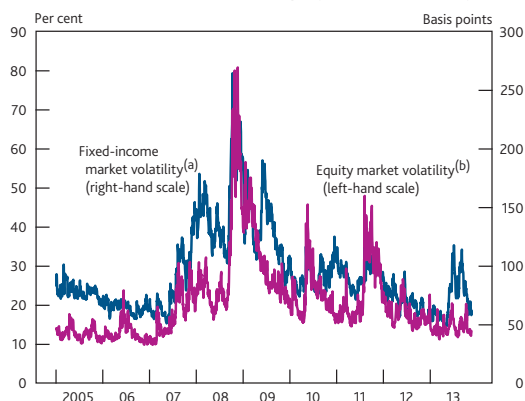
Market contacts reported that the period of increased market volatility had left investors more discerning, with a greater focus on differences in the riskiness of different assets, rather than risk-averse. Indeed, some investors saw a window of opportunity to invest in risky assets before monetary conditions tightened.

Corporate bond issuance remained buoyant. A US\$49 billion bond issue by Verizon, a US telecommunications company, was nearly three times the size of the previous largest bond issue. And while corporate bond spreads remained above pre-crisis levels, estimates of the premia that investors require to compensate for liquidity risk fell (Chart 1.12), with implied premia for some types of bonds below their long-term average level. This was despite the period of volatility demonstrating the potential for corporate bond markets to become illiquid.

In repo markets, market contacts reported a willingness to accept lower-quality collateral and reduced demand for central clearing. This was supported by a survey of European financial institutions by SIX, the Swiss exchange group, that showed a third of respondents were willing to accept 'low-quality, complex and opaque' collateral.

**Chart 1.10 Fixed-income volatility increased in the summer before falling close to historical lows**

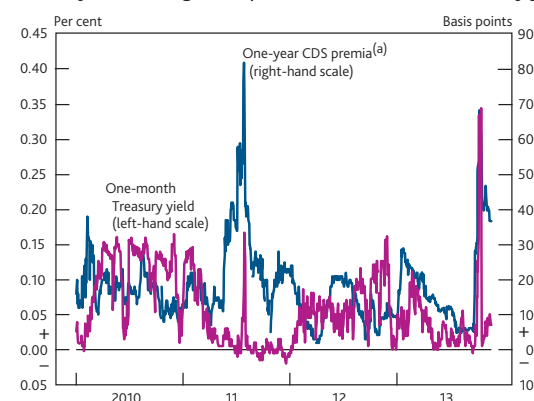
Measures of fixed-income and equity market volatility



Source: Bloomberg.

- (a) Merrill Option Volatility Estimate (MOVE) Index is a yield curve weighted index of the normalised implied volatility on one-month Treasury options.  
 (b) VIX is a measure of market expectations of 30-day volatility as conveyed by S&P 500 stock index option prices.

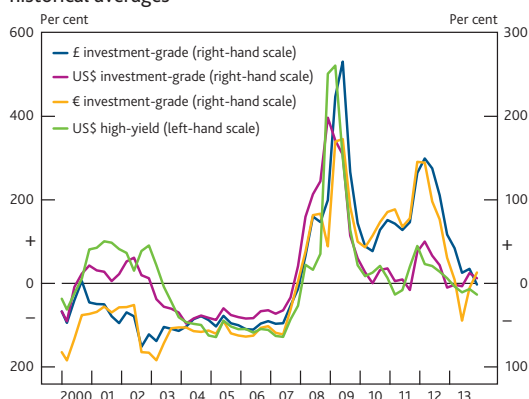
**Chart 1.11 In late September, the cost of protection against a US default rose and remained elevated**  
 US one-year sovereign CDS premia and one-month Treasury yield



Sources: Bloomberg and Markit Group Limited.

- (a) One-year senior sovereign credit default swap (CDS) premia denominated in euros.

**Chart 1.12 Liquidity risk premia fell for some types of corporate bonds**  
 Deviations of estimated corporate bond liquidity risk premia from historical averages<sup>(a)(b)(c)</sup>



Sources: BofA Merrill Lynch Global Research, Bloomberg, Thomson Reuters Datastream and Bank calculations.

- (a) Implied liquidity risk premia are estimated using a Merton model as in Leland, H and Toft, K (1996), 'Optimal capital structure, endogenous bankruptcy, and the term structure of credit spreads', *Journal of Finance*, Vol. 51, pages 987–1,019, to decompose corporate bond spreads.  
 (b) Quarterly averages of deviations of implied liquidity risk premia from sample averages.  
 (c) Sample averages are from 1999 Q4 for € investment-grade and 1997 Q1 for £ investment-grade, US\$ investment-grade and US\$ high-yield corporate bonds.

There was also evidence of increased risk appetite in the shadow banking sector. The composition of prime US MMF holdings shifted towards unsecured bank debt, rather than secured. And, in 2013 H1, maturity mismatch increased for funds that invest cash collateral received from lending securities on behalf of institutional investors.

### ...and evidence of a 'search for yield'.

With the low interest rate environment mostly intact and volatility measures returning close to historical lows, there continued to be evidence of a 'search for yield', particularly in US assets. US high-yield loan issuance reached record levels with half of loans characterised by limited covenants ('cov-lite') (Chart 1.13). Debt levels in US leveraged buyouts rose to six times earnings in 2013 Q3, the highest level since 2007. In Europe, issuance of European bonds with 'payment in kind' (PIK) features, which allow interest to be paid in the form of additional bonds, reached €3.1 billion — greater than the total issuance of PIK bonds over the period 2006–12.

There were tentative signs of investor willingness to take on more complex forms of risk. Market contacts expected issuance of collateralised loan obligations — loan securitisation structures — in the United States to reach US\$75 billion–US\$80 billion this year, close to the pre-crisis peak. There were signs of innovation in US asset-backed securities markets, with securitisation of peer-to-peer loans and residential rental income. And the investor base in recent issues of European bank contingent capital instruments, which convert to equity or are written down under specified conditions, broadened to institutional investors. At the same time, there were concerns that investors were placing insufficient weight on the likelihood of such a conversion being triggered.

## 1.2 Banking sector resilience and credit conditions

### Global banks continued to recapitalise...

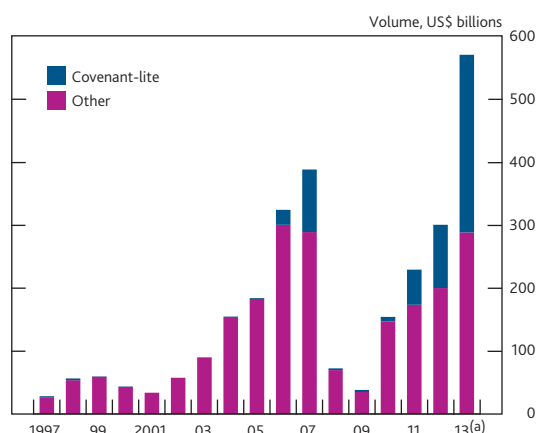
Against a backdrop of strengthening activity, reported bank capital ratios continued to improve during the period since the *June Report*. The US and European banks identified by the Financial Stability Board as needing to hold the highest levels of loss absorbency<sup>(1)</sup> all reported estimates of 'fully loaded'<sup>(2)</sup> Basel III common equity Tier 1 (CET1) capital ratios above 9% in their most recent disclosures (Chart 1.14). Research by the Bank for International Settlements (BIS), looking at a wider range of banks over a longer time period, found that retained earnings had accounted for the bulk of the increase in regulatory capital ratios over the period 2009–12, with

(1) Designated as global systemically important banks (G-SIBs) as of November 2013 and in the buckets that correspond to additional loss-absorbency requirements of at least 1.5% of risk-weighted assets when those requirements are introduced from 2016.

(2) 'Fully loaded' means based on the rules that will apply at the end of the transition period in 2019.



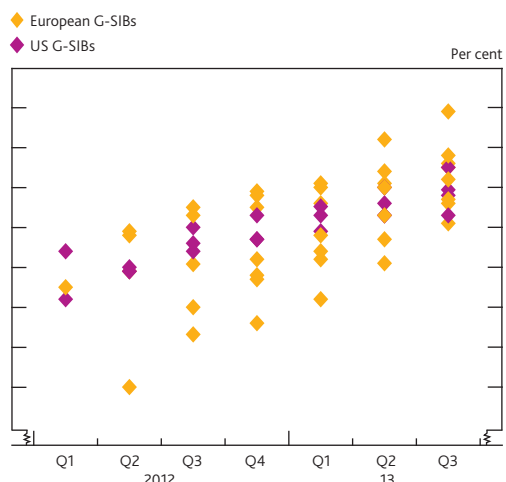
**Chart 1.13 US high-yield loan issuance reached record highs, with covenant-lite issues increasingly prevalent**  
Covenant-lite and other US high-yield loan issuance



Source: JPMorgan Chase & Co.

(a) Volume as of 15 November 2013.

**Chart 1.14 Major global banks recapitalised further**  
Reported 'fully loaded' Basel III CET1 ratios<sup>(a)(b)</sup>



Sources: SNL Financial, company announcements, published accounts and Bank calculations.

(a) Self-reported Basel III 'fully loaded' (see footnote (2) on page 11) CET1 ratios for European and US banks (as defined in footnote (1) on page 11), excluding Morgan Stanley.

(b) 2013 Q3 capital ratio for Barclays includes the impact of its October 2013 rights issue.

reductions in risk weights playing a lesser role.<sup>(1)</sup> Consensus forecasts suggested further scope for capital generation through profit retention, with retained earnings expected to rise in 2014 and 2015 at many major global banks.

#### *...driving improved perceptions of bank resilience...*

As the outlook for economic recovery and bank profits improved, shifting investor perceptions were generally reflected in higher price to book ratios. Improved perceptions of banking sector resilience were also reflected in continued falls in the cost of default protection. During the period since the *June Report*, the cost of default protection fell across advanced-economy banking systems and in aggregate was more than 100 basis points lower for banks in euro-area periphery countries (**Chart 1.15**).

This improved perception of bank resilience was despite conduct-related costs that remained a material downside risk to global banks' profitability. In recent weeks, preliminary settlements were agreed by some US banks — such as JPMorgan which agreed settlements totalling US\$18.6 billion with the US authorities and institutional investors — over misrepresentations on mortgage-related securities. Other banks active in the United States could also be implicated in due course. And further headwinds to profitability may arise from regulatory fines and litigation costs relating to alleged manipulation of Libor, benchmark measures for interest rate swaps and foreign exchange rate fixings.

Credit conditions improved in some advanced economies. Access to credit increased further in the United States and there were signs that the pace of tightening in the euro area was slowing (**Chart 1.16**).

#### *...but market concerns over some euro-area banks remained...*

While bank resilience was generally perceived to have improved, doubt was cast over banks' estimates of their fully loaded Basel III capital ratios. The Basel Committee on Banking Supervision noted that some differences across banks could be attributed to interpretations of capital standards, rather than underlying differences in risk. In euro-area periphery countries the outlook for banks' profitability remained hampered by weak projected economic recovery. Their use of ECB facilities for funding also remained elevated. These factors were reflected in low price to book ratios for some banks in euro-area periphery countries (**Chart 1.17**).

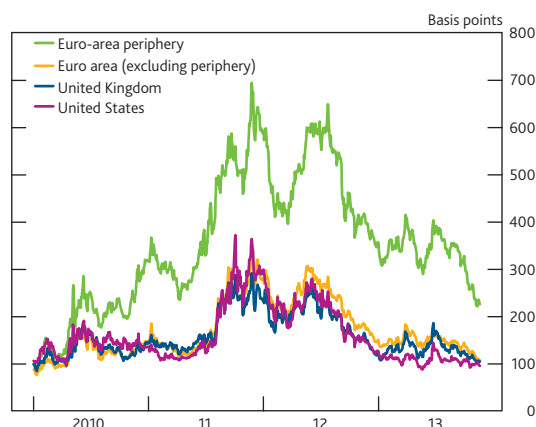
#### *...highlighting the importance of the upcoming ECB asset quality review...*

In October, the ECB announced details of a comprehensive assessment of banks due to come under its supervision in Autumn 2014, including an asset quality review and stress test.

(1) Cohen, B (2013), 'How have banks adjusted to higher capital requirements?', *BIS Quarterly Review*, September, pages 25–41.

**Chart 1.15 Perceptions of banking systems' resilience improved**

Cost of default protection for selected banking systems<sup>(a)</sup>

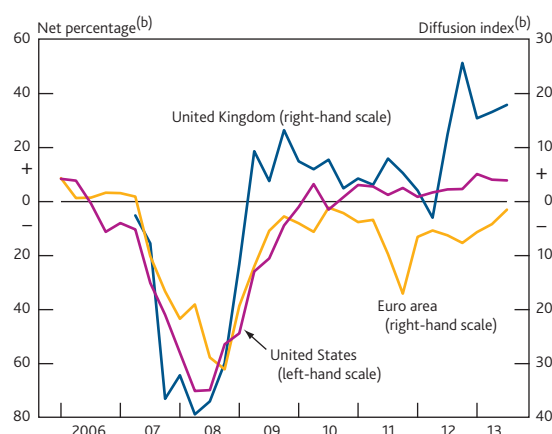


Sources: Markit Group Limited, SNL Financial, Thomson Reuters Datastream and Bank calculations.

(a) Average five-year senior CDS premia of selected banks, weighted by assets as at 2013 H1.

**Chart 1.16 Credit conditions stabilised in the euro area and eased in the United Kingdom**

Credit conditions in major advanced economies<sup>(a)</sup>



Sources: Bank of England Credit Conditions Survey, ECB, Federal Reserve and Bank calculations.

(a) Survey indicators of credit standards on loans to firms and households (mortgages and consumer credit), weighted by amount of loans outstanding. Data up to 2013 Q3, with the exception of US weights (data up to 2013 Q2).

(b) Net percentage refers to the fraction of lenders that reported having loosened less the fraction of lenders that reported having tightened. Diffusion index weights the fractions according to the intensity of loosening/tightening. A positive (negative) level indicates a loosening (tightening) in standards.

By improving transparency and, where necessary, prompting balance sheet repair, this has the potential to improve confidence in euro-area banks. Indeed investors drew some comfort from the fact that the ECB would be keen to begin its supervisory role with a credible process; according to surveys, investors typically thought that the assessment would require around €20 billion–€100 billion of new capital to be raised, mainly by German, Italian and Spanish banks (Chart 1.18).

But there remained uncertainty around the outcome of the exercise, including the sources to meet any identified capital shortfalls. In the first instance, shortfalls were expected to be met through private sources of capital, such as liability management exercises or equity raising. If private sources were to prove to be insufficient, Member States could turn instead to public backstops, though only after subordinated creditors had been bailed in as set out in EU state aid rules. Yet the difference between the cost of default protection on European financials' subordinated and senior debt continued to narrow in the period since the announcement. While this may suggest that bail-in of subordinated debt was not expected to be necessary, it could also indicate that bail-in was underpriced or was not perceived to be credible. And with uncertainty around the role of an area-wide backstop, there were concerns around the potential for renewed sovereign funding issues should public funds be required for bank recapitalisation.

*...which could ultimately support euro-area credit conditions.*

While credit conditions stabilised in the euro area (Chart 1.16), this came against a backdrop of weak lending growth in euro-area periphery economies. But an investor survey by Goldman Sachs found that twice as many respondents thought a credible process for the ECB's comprehensive assessment of banks would improve loan growth rather than harm credit supply.

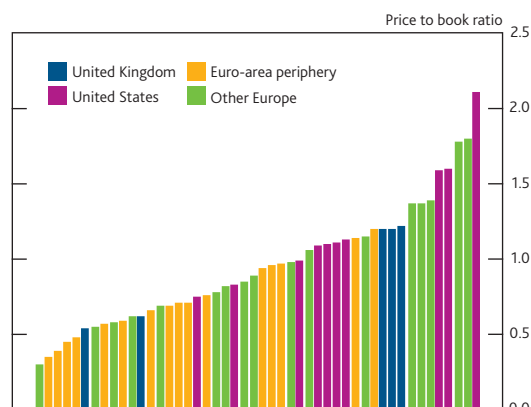
*UK bank resilience continued to improve...*

There was further evidence of an improvement in UK bank resilience. UK banks continued to implement plans agreed with the Prudential Regulation Authority (PRA) to rectify the capital shortfalls identified in response to an interim FPC recommendation in March (Section 4). By September, banks for whom a shortfall had been identified by the exercise had taken actions to address around three quarters of this shortfall; those banks in aggregate had raised their capital ratios by 1.5 percentage points. Further actions, equivalent to £9 billion of capital raising since the start of the year, were made by banks beyond their identified shortfalls and by those for which no shortfall had been identified. The latter in aggregate raised their capital ratios by 0.5 percentage points.

Capital had been raised through retained earnings, disposals and equity issuance. For example, Barclays raised £5.8 billion

**Chart 1.17 Market concerns around some euro-area banks persisted**

Price to book ratios for selected banks<sup>(a)</sup>

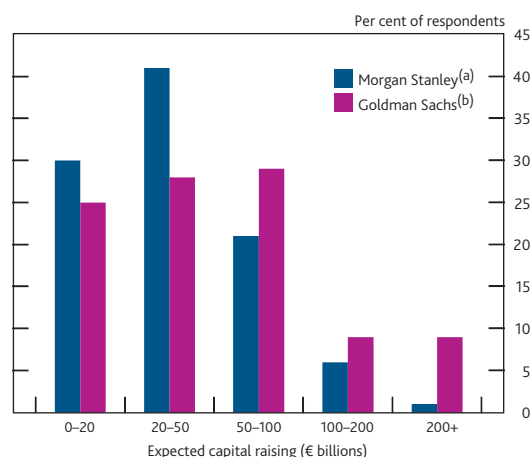


Source: Thomson Reuters Datastream.

(a) The price to book ratio is the ratio of the market value of shareholders' equity to its value as calculated for accounting purposes.

**Chart 1.18 The ECB's asset quality review and stress test were expected to identify capital shortfalls**

Proportion of survey respondents expecting capital raising of different magnitudes



Sources: Goldman Sachs Global Investment Research and Morgan Stanley Research Asset Quality Review Survey.

(a) Expected total equity raisings for banks participating in the ECB's asset quality review/bank stress test (146 respondents).

(b) Expected capital raisings required for stress-test credibility (117 respondents).

of equity via a rights issue in October. And the PRA had also asked banks to ensure that their plans to meet capital shortfalls did not adversely affect lending to the real economy.

In June 2012, the FPC recommended banks act to mitigate risks to their balance sheets stemming from the euro area. UK banks' exposures to vulnerable euro-area periphery economies were around £140 billion, equivalent to 62% of UK banks' reported core Tier 1 capital, at the end of 2013 H1. This was around £11 billion lower than at the time of the FPC recommendation (Section 4).

#### *...with underlying profits rising...*

The improvements in UK banks' resilience were supported by a rise in pre-tax, pre-provision profits, as well as a continued fall in impairment charges. But banks recorded £3 billion of conduct costs in 2013 H1 (£20 billion since 2011). And, as with banks in other advanced economies, prospective conduct costs remained a headwind to future UK bank profitability.

#### *...and funding and liquidity metrics strong...*

UK banks continued to reduce their reliance on wholesale debt funding. This partly reflected robust deposit growth despite falling interest rates, as competition among banks for household deposits eased. During 2013 H1, households allocated two thirds of the financial assets they accumulated to bank deposits (compared with a longer-term average of less than half).

In October, the Bank announced changes to its liquidity facilities.<sup>(1)</sup> These changes were designed to increase the availability and flexibility of those facilities, by providing liquidity at longer maturities, against a wider range of collateral, at a lower cost and with greater predictability of access. The Bank, in co-ordination with five other central banks, also announced that the current network of temporary bilateral liquidity swap arrangements would remain in place until further notice.<sup>(2)</sup> These changes reduce the need for banks to self-insure against liquidity risk, supporting their ability to extend credit to good borrowers. This is consistent with the FPC's June liquidity recommendation, which is examined in Section 4 of this Report.

#### *...supporting an improvement in credit conditions.*

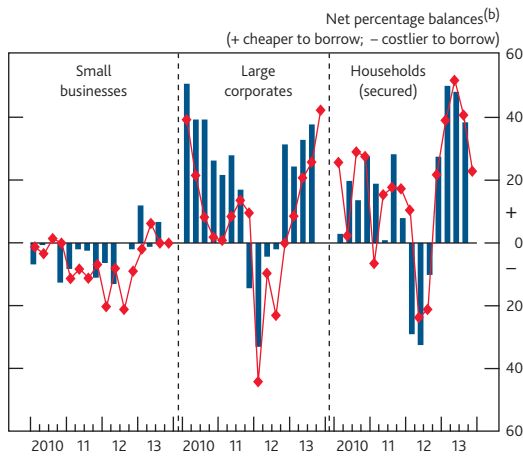
The continued recovery of the banking sector was accompanied by a further easing in credit conditions (Chart 1.16) in the United Kingdom. Lenders responding to the Q3 *Credit Conditions Survey* reported a further easing in corporate credit conditions: overall credit availability to the corporate sector was reported to have increased slightly across businesses of all sizes. Conditions improved most for larger

(1) 'Developments in the Bank's approach to liquidity insurance', 24 October 2013, [www.bankofengland.co.uk/publications/Pages/news/2013/124.aspx](http://www.bankofengland.co.uk/publications/Pages/news/2013/124.aspx).

(2) 'Central banks announce standing swap arrangements', 31 October 2013, [www.bankofengland.co.uk/publications/Pages/news/2013/125.aspx](http://www.bankofengland.co.uk/publications/Pages/news/2013/125.aspx).



**Chart 1.19 Credit spreads fell for households and large corporates but were little changed for small businesses**  
Spreads over reference rates on lending to corporates and secured lending to households<sup>(a)</sup>



Source: Bank of England Credit Conditions Survey.

- (a) Spreads are over Bank Rate for variable-rate mortgages and the relevant swap rate for fixed-rate mortgages. Spreads are over Libor for large private non-financial corporations and Libor or Bank Rate for small businesses. The bars show the responses over the previous three months. The corresponding lines with diamonds show expectations over the next three months. Expectations balances have been moved forward one quarter so that they can be compared with the actual outcomes in the following quarter.
- (b) A positive (negative) balance indicates that spreads have fallen (risen) such that, all else being equal, it is cheaper (costlier) to borrow.

corporates, with significant reductions in corporate lending spreads being reported (**Chart 1.19**).

By contrast, the *Credit Conditions Survey* reported lending spreads to smaller businesses, which are generally more dependent on banks for external finance, were little changed in Q3.<sup>(1)</sup> Nevertheless, a survey by the Federation of Small Businesses found that the cost of credit had fallen since mid-2012 and that the availability of credit had improved over the past year or so, albeit from a low base. The *Credit Conditions Survey* also reported that demand for credit from small and medium-sized businesses had picked up.

Credit conditions for households continued to ease markedly. According to the *Credit Conditions Survey*, the availability of secured credit increased in Q3, with mortgage borrowing spreads falling significantly for the fourth consecutive quarter (**Chart 1.19**). This came against a backdrop of increased demand for lending for house purchase and remortgaging. In October, the Government introduced the Help to Buy mortgage guarantee scheme to increase the availability of high loan to value mortgages. In the first four weeks, over 2,000 offers were supported by the scheme, equivalent to £365 million of potential lending. Developments in the UK housing market are examined in Section 2.3.

(1) The full cost of credit facing these businesses also includes fees or cashback deals.

## 2 Short-term risks to financial stability

This section examines the conjunctural outlook for UK financial stability. Section 2.1 discusses the vulnerabilities of borrowers. Section 2.2 outlines the main global risks that could expose these vulnerabilities. And Section 2.3 explores domestic risks, in particular from the housing market. Deleveraging has continued in aggregate but many borrowers remain highly indebted. And while risks to UK financial stability appear to have become less immediate, their ultimate likelihood and impact remains largely unchanged (Table 2.A).

**Table 2.A** Conjunctural risks to financial stability

### Balance sheet vulnerabilities

- Highly levered and income-constrained borrowers continue to hold a large share of debt (pages 16–18).
- Some euro-area borrowers remain vulnerable to shocks (pages 16–17).
- Government debt levels remain high (pages 16–17).

### Global risks to UK financial stability

- Market concerns remain over the level and growth of government debt in some advanced economies (pages 18–20).
- Financial markets remain vulnerable to an abrupt rise in interest rates (pages 20–22).
- Operational vulnerabilities, including from cyber attack, remain a concern (page 23).

### Domestic risks to UK financial stability

- Rising property prices could increase households' vulnerability to shocks and lead to renewed risks to banks' resilience (pages 23–30).

### 2.1 Balance sheet vulnerabilities

*Exceptional policy support in advanced economies has helped some borrowers to delever in an orderly way...*

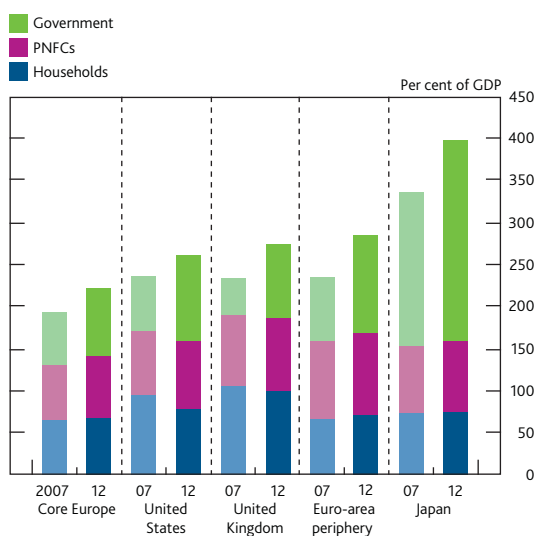
Global debt levels increased rapidly before the global financial crisis. In the decade before 2007, non-financial sector debt to GDP ratios in advanced economies rose by an average of 40 percentage points. Since then, low interest rates have reduced borrowing costs and supported the values of financial and physical assets. Some borrowers have used this period to delever. But low interest rates have also encouraged some private sector borrowers to increase their debt levels. And government debt levels have increased materially. As a result, non-financial sector debt to GDP ratios in advanced economies have risen since 2007, by 55 percentage points on average (Chart 2.1).

*...but private sector debt levels remain high...*

Borrowers in Europe remain highly levered. Borrowing by private non-financial corporations (PNFCs) in euro-area periphery economies is particularly high, and has risen since 2007. In October, the IMF estimated that borrowing by PNFCs in Italy, Portugal and Spain was around 20% above its long-run sustainable level. As well as increasing PNFCs' vulnerability directly, this debt burden could constrain future investment and growth. Weaker growth would, in turn, exacerbate vulnerabilities in these countries' household sectors, where debt levels remain high and income growth constrained.

Deleveraging in the United States has occurred more quickly than in Europe. Since 2007, the US household debt to GDP ratio has fallen by 15 percentage points, to less than 80%. And while the US PNFC debt to GDP ratio has risen, it remains lower than in most other advanced economies.

**Chart 2.1** Debt levels in advanced economies have risen  
Debt to GDP ratios of selected advanced economies<sup>(a)</sup>



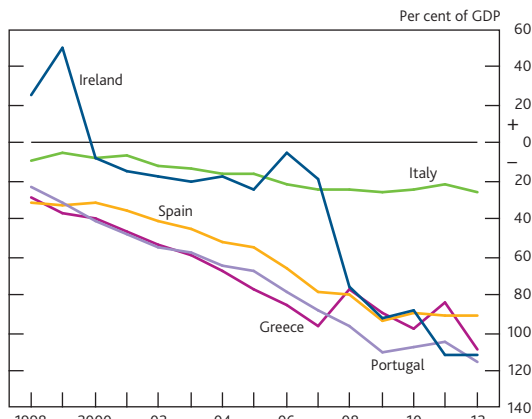
Sources: Bank of Japan, Eurostat, Federal Reserve Bank of St. Louis, IMF WEO and Bank calculations.

(a) Euro-area periphery includes Greece, Ireland, Italy, Portugal and Spain. Core Europe includes Austria, Belgium, Finland, France, Germany and the Netherlands.

Low long-term interest rates have eased debt burdens and helped to support borrowers' incomes. But high levels of debt

**Chart 2.2** Some euro-area countries have large external imbalances

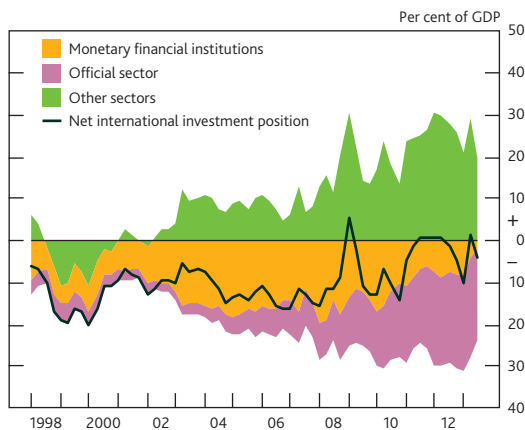
Net international investment positions of selected euro-area countries



Source: Eurostat.

**Chart 2.3** UK net external imbalances have narrowed

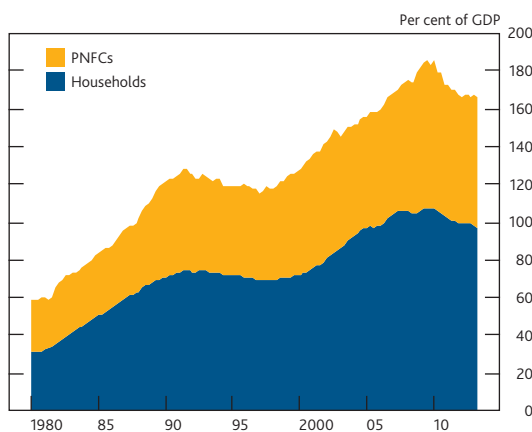
Composition of the UK net international investment position



Sources: ONS and Bank calculations.

**Chart 2.4** UK private sector borrowing remains high

UK non-financial private sector debt to GDP<sup>(a)</sup>



Sources: Bank of England, ONS and Bank calculations.

(a) ONS data are not available before 1990. Before then, ONS household and PNFC debt series are assumed to grow at the same rate as the Bank of England's household and PNFC lending series.

remain a source of vulnerability. For example, highly indebted borrowers would be less able to withstand a fall in their incomes or an increase in their borrowing costs.

*...and government borrowing has increased materially.*

Gross government debt to GDP ratios have risen in advanced economies since 2007, by over 35 percentage points on average (**Chart 2.1**). High and rising levels of government debt have increasingly led to concerns about the political and financial sustainability of further borrowing. For example, concerns about US borrowing have caused disruptions in financial markets in the past six months, despite US debt levels being lower than in many other countries.

Governments in some euro-area periphery economies have been supported by international policy actions since 2010 but continue to face financial constraints. While these countries' current account positions have improved in recent years, most remained in deficit until very recently. As a result, these countries' net external imbalances have deteriorated, from already weak positions (**Chart 2.2**). In addition, the economic outlook for these countries remains challenging.

*Debt levels in the United Kingdom remain high...*

In the United Kingdom, official data suggest that the net external position has improved in recent years (**Chart 2.3**). But this improvement has been due to a revaluation of external assets rather than a closing of the UK current account position, which has remained in deficit.

The gross external liabilities of UK borrowers remain large. Gross external debt rose from 200% of GDP in 1997 to 400% in 2007 and remains close to this level. While the UK financial sector's external balance sheet has shrunk, the gross external debts of the non-financial sector have risen to 160% of GDP — an increase of 40 percentage points since 2007. This was driven mainly by private sector borrowers.

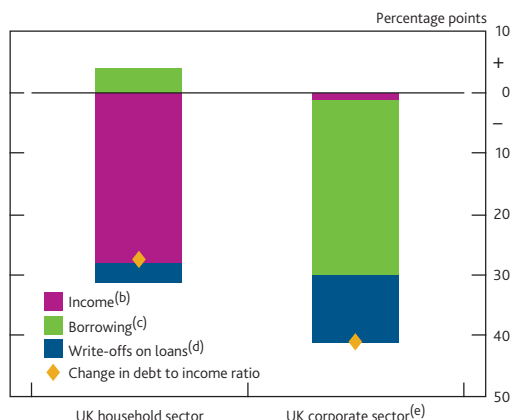
*...and many borrowers remain highly indebted, in particular in the household sector...*

UK household and PNFC debt levels remain historically high in aggregate, at around 165% of GDP (**Chart 2.4**). As discussed in the *June Report*, the UK household debt to income ratio has fallen by around 30 percentage points since 2008, as nominal incomes have increased more rapidly than household debt (**Chart 2.5**). But the UK household debt to income ratio, of 140%, remains higher than comparable ratios in the euro area and the United States.

Survey data suggest that UK households' aggregate income expectations have improved during the past year. For example, surveys conducted by GfK indicate that households' expectations about their own financial position improved gradually during 2012 and 2013 Q1, and have risen markedly since mid-2013. But some households remain uncertain about their incomes. For example, one fifth of respondents to

**Chart 2.5 UK PNFCs have delevered more, and more actively, than UK households**

Contributions to change in debt to income ratios since 2008 Q3<sup>(a)</sup>

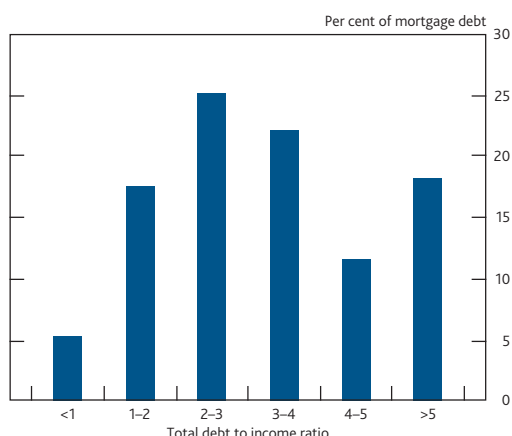


Sources: Bank of England, ONS and Bank calculations.

- (a) Contributions are approximate so may not sum to totals.  
 (b) Income is gross disposable income for households, gross operating surplus for corporates; both adjusted for financial intermediation services indirectly measured (FISIM).  
 (c) Includes UK MFIs' lending and, for the household sector only, lending by other lenders.  
 (d) Write-offs on UK MFIs' sterling loans to individuals and PNFCs.  
 (e) Corporate sector refers to PNFCs as defined in *Bankstats*.

**Chart 2.6 Borrowers with high debt to income ratios account for a large share of mortgage debt**

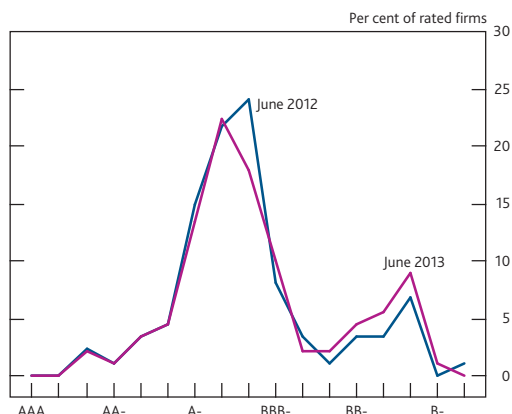
Distribution of mortgage debt



Sources: NMG Consulting and Bank calculations.

**Chart 2.7 The proportion of UK PNFCs with weaker credit ratings has risen**

Distribution of UK PNFCs' credit ratings<sup>(a)</sup>



Source: Fitch Ratings.

- (a) PNFCs incorporated in the United Kingdom and rated by Fitch Ratings.

the 2013 household survey carried out for the Bank by NMG Consulting thought it was quite likely that their income would fall sharply over the coming year.

While UK household incomes have risen in aggregate, households with high debt to income ratios account for a large share of total mortgage debt. The 2013 NMG Consulting survey indicated that UK households with debts that exceed four times their income accounted for around 30% of UK mortgage debt (**Chart 2.6**). And households with debts that exceed five times their income accounted for nearly 20% of UK mortgage debt. Partly as a result of these high debt to income ratios, some borrowers have limited income available to absorb shocks. For example, according to the survey, 16% of mortgage debt is owed by households with less than £200 of income remaining per month after housing costs and essential expenditure. And nearly a third of households have less than £300 of income remaining per month after these costs.

### ...and the commercial real estate sector.

Borrowing by UK PNFCs has fallen considerably since 2008. The UK PNFC debt to income ratio fell from 180% in 2008 to 140% in June 2013. In contrast to the household sector, around three quarters of this reduction was due to loan repayments (**Chart 2.5**). Like households, however, PNFCs have not delevered evenly and some remain vulnerable to shocks. For example, the proportion of PNFCs with weaker credit ratings has risen since 2012 (**Chart 2.7**). In the leveraged loan market in particular, weaker-rated companies have been less able to obtain long-term finance, so remain vulnerable to shocks, including from rising interest rates.

Leverage remains high in property-related industries. On average, property-related companies' leverage is more than 50% higher than for non property-related companies, and has risen since 2008 for the most levered. While UK banks have disposed of some loans to commercial real estate (CRE) companies, these still comprise around 40% of banks' UK corporate loans. Previous work by the microprudential supervisor (at the time the Financial Services Authority) indicated that a third of British CRE loans by value had received forbearance. While rising prime CRE prices should improve the financial position of some CRE companies, many remain vulnerable.

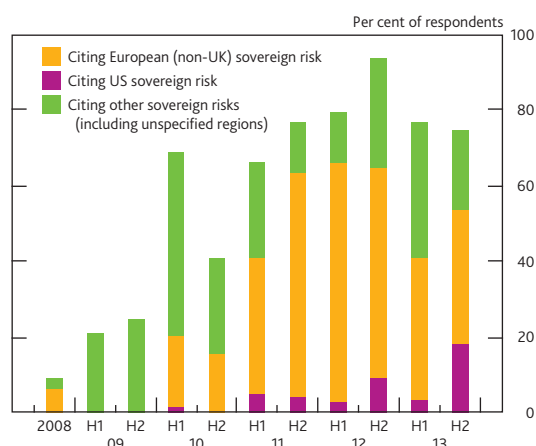
## 2.2 Global risks to UK financial stability

### Concerns about sovereign debt remain...

Concerns about the level and growth of government debt have increasingly led to financial and political constraints on government balance sheets. These constraints could reduce the amount of policy support available in the face of new shocks, in turn leading to losses on private sector loans and disruptions in financial markets. Around 75% of respondents

**Chart 2.8 US sovereign debt concerns have risen**

*Systemic Risk Survey: respondents highlighting sovereign risk as a key risk<sup>(a)(b)</sup>*



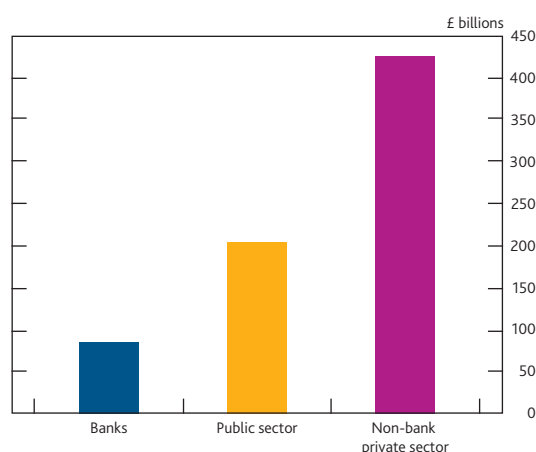
Sources: Bank of England *Systemic Risk Surveys* and Bank calculations.

(a) Respondents who cited sovereign risk at least once, when asked to list the five risks that they thought would have the greatest impact on the UK financial system were they to materialise.

(b) The composition of risks shown is based on the proportion of responses that explicitly cited sovereign risk in Europe and the United States or other closely related terms.

**Chart 2.9 UK banks have large US exposures**

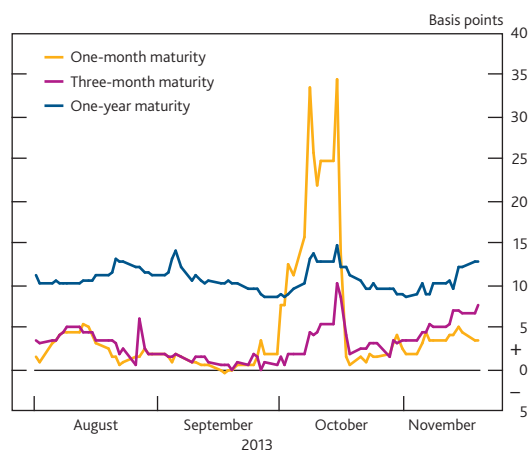
*Composition of UK banks' US exposures at 2013 H1*



Sources: Bank of England, BIS consolidated banking statistics and Bank calculations.

**Chart 2.10 Yields on US Treasury securities rose sharply in October**

*Yield to maturity on US Treasury securities*



Source: Bloomberg.

to the Bank of England's 2013 H2 *Systemic Risk Survey* cited sovereign risk as one of the main risks to UK financial stability (**Chart 2.8**). And responses citing US sovereign risk rose sharply.

*...including in the United States...*

In October, authorities in the United States deferred their decision to reach agreement on the US budget and federal government's borrowing authority until February 2014. Failure to agree a long-term solution could affect financial stability materially, through several channels.

Failure to agree the budget could reduce US GDP growth. For example, delays in transfer payments and the temporary closure of government departments would reduce the incomes of some households. US households' and businesses' confidence to spend and invest would also be expected to fall. Weaker growth could affect banks directly by increasing loan losses. At end-June 2013, UK banks had over £700 billion of exposures to US borrowers, including £425 billion to non-bank private sector borrowers (**Chart 2.9**).

Delayed payments on US Treasury securities could disrupt financial markets. If an agreement to extend the debt ceiling had not been reached in October, over a quarter of marketable US government debt would have entered into technical default within a month. While relatively few investors would be required to sell securities in technical default, many could choose to do so. This would increase yields on bonds that are vulnerable to default, as occurred in October (**Chart 2.10**). At the same time, investors would most likely become more risk-averse, which could cause a generalised fall in the value of other assets. Around 40% of UK banks' assets are held at fair value, so losses would be recognised immediately if asset values fell. As Box 1 on pages 31–33 discusses, these effects could be amplified by the central role of US Treasury securities in the global financial system.

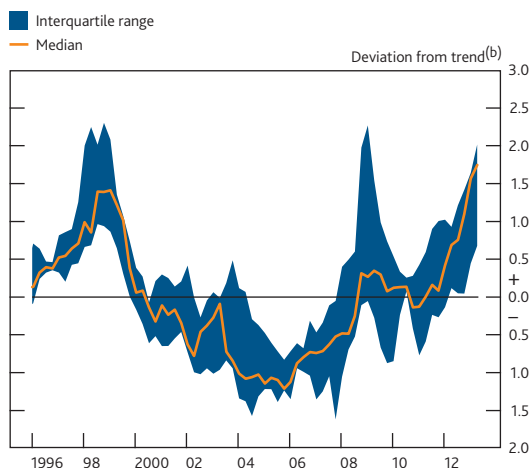
A technical default could also impair banks' funding and liquidity positions. Concerns about the US debt ceiling have previously led to withdrawals from US money market funds, which provide around US\$115 billion of short-term funding to UK banks. As a result, the supply of US dollar funding available to banks could fall rapidly in the event of a technical default. In addition, US Treasury securities are often used as part of banks' liquid assets. In the event of a technical default, banks' ability to run down their liquid asset buffers in response to a temporary funding shock might be impaired.

*...and euro-area periphery economies.*

Some euro-area economies remain particularly vulnerable to further shocks. For example, while Ireland and Spain are due to exit their official support programmes in the next few months, the economic outlook for euro-area periphery economies remains challenging. In addition, while the ECB's

**Chart 2.11 Debt levels in emerging economies have risen sharply**

Credit to GDP gaps in selected emerging economies<sup>(a)</sup>



Sources: BIS, IMF *International Financial Statistics*, Thomson Reuters Datastream, national sources and Bank calculations.

(a) Includes Brazil, China (from 2000), Hong Kong, India, Indonesia (from 2000), Russia, Singapore, South Africa and Turkey (from 1998).

(b) Deviation of the credit to GDP ratio from its trend measured using a Hodrick-Prescott filter, divided by its standard deviation.

asset quality review should improve confidence in euro-area banks, in the short term banks could respond to identified capital shortfalls by reducing their assets, which could lower growth (Section 1).

#### *Risks from low interest rates remain material...*

Interest rate risks could materialise for many reasons, including concerns about sovereign debt. Over 40% of respondents to the Bank of England's 2013 H2 *Systemic Risk Survey* highlighted interest rate risk as one of the main risks to UK financial stability. Around 60% of these responses cited risks from continued low interest rates.

Low interest rates have inflated the value of assets that are perceived to be safe. For example, yields on ten-year UK government bonds have halved since mid-2007. Despite a temporary rise in global long-term interest rates during the summer, government bond yields remain close to historically low levels (Section 1).

Investors' search for higher yield has increased demand for riskier assets in recent years, including assets in emerging economies. Large capital flows into emerging economies have enabled credit levels in these countries to rise sharply. While credit growth in these economies has been less rapid than before the Asian financial crisis in the late 1990s, estimated credit to GDP gaps in most of these economies are large and, in many cases, higher than at the peak of the Asian crisis (Chart 2.11). In particular, corporate leverage has increased sharply. While the temporary rise in long-term interest rates during the summer caused a partial reversal of these capital flows, cumulative inflows since 2011 have still been large.

In response, several emerging economies have used macroprudential policies to slow credit growth, in particular for property-related lending. A shock to these economies could nevertheless cause losses on banks' loans to rise. At end-June 2013, UK banks' exposures to emerging economies were equal to more than two times their core Tier 1 capital.

#### *...and while losses from a moderate, orderly rise in interest rates may not pose a direct threat to financial stability...*

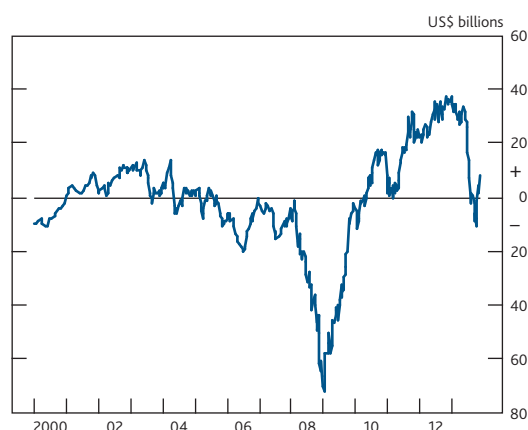
In June 2013, the FPC recommended that the FCA and PRA, with other Bank staff, assess the vulnerability of borrowers and financial institutions to sharp upward movements in long-term interest rates and credit spreads. Preliminary work has suggested that the UK banking sector would be resilient to direct losses caused by the impact of a moderate increase in long-term interest rates on banks' loans and fixed-income portfolios.

Losses could nevertheless be large, including on banks' fixed-income portfolios. For example, as interest rates rose between May and September, unrealised gains on US banks'



**Chart 2.12** Some asset values are sensitive to changes in interest rates

Net unrealised gains on US banks' available-for-sale assets<sup>(a)</sup>



Source: Federal Reserve Bank of St. Louis.

(a) Includes large domestically chartered banks.

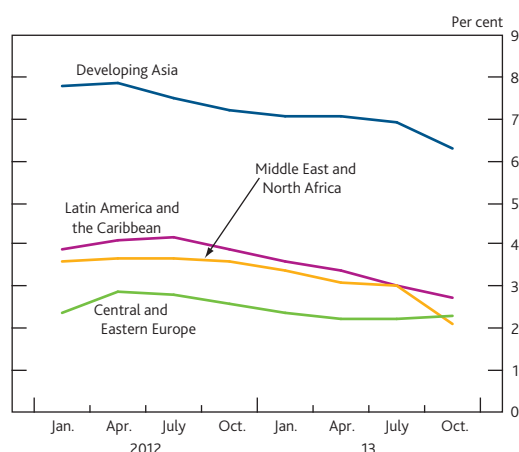
available-for-sale assets fell by US\$43 billion (**Chart 2.12**). The value of these assets subsequently increased, by US\$16 billion, as interest rates fell back.

As part of the response to the FPC's recommendation, major UK banks modelled the impact of a rise in interest rates on their available-for-sale portfolios. While losses were sensitive to the scale, nature and duration of the shock, they were generally manageable. In part, this reflected UK banks' existing capital requirements for these risks. Banks' estimates also suggested that higher net interest income and hedging income would partially offset these losses over a longer period.

Higher interest rates could also cause losses on banks' loans. These losses would be smaller if borrowers' incomes were to strengthen alongside rising interest rates. But losses could be larger if the recovery is uneven. For example, borrowers in the United States have delevered more than those in Europe (Section 2.1). If interest rates were to rise due to stronger US growth, before European borrowers' incomes have recovered, then losses on banks' European loans could increase. These losses could be mitigated by banks' continued progress in implementing plans agreed with the PRA, rectifying capital shortfalls identified in response to an interim FPC recommendation in March 2013.

**Chart 2.13** Growth forecasts for some emerging economies have been revised down

Forecasts of selected regions' 2013 GDP growth<sup>(a)</sup>



Source: IMF WEO.

(a) Forecasts shown are taken from quarterly WEO growth projections.

Banks could also experience losses if higher long-term interest rates led to weaker growth in emerging economies. Rising long-term interest rates in advanced economies during the summer caused some emerging-economies' currencies to depreciate which, combined with above-target inflation, prompted these countries to tighten monetary policy. In October, the IMF revised down its forecasts for 2013 GDP growth in emerging economies (**Chart 2.13**). At the same time, it revised up its forecasts for the United Kingdom and some other European countries. Banks could experience larger losses on their loans to emerging-economy borrowers if growth prospects were to diverge further, in particular if accompanied by higher interest rates in emerging economies.

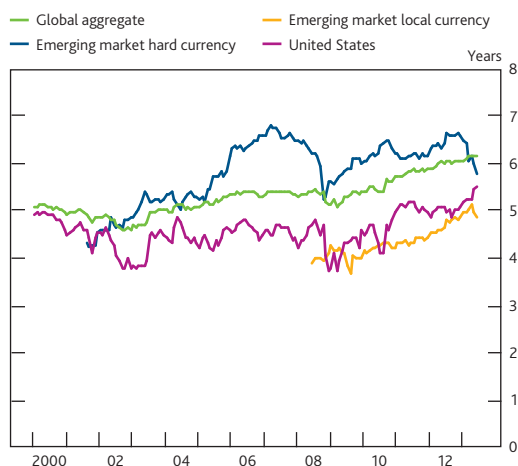
*...a shock to long-term interest rates could be amplified in financial markets, leading to disorderly losses...*

Interest rates could rise by more, and more abruptly, than banks typically considered in their responses to the FPC's June 2013 recommendation on interest rate risks. Larger shocks could also cause adverse indirect effects, which could amplify losses. It was not clear that firms had considered these risks or amplification channels in their responses to the FPC's recommendation, or as part of their risk management.

One possible channel of amplification is from forced asset sales. For example, exchange-traded funds (ETFs), which manage more than US\$2 trillion of assets globally, allow investors to redeem their investments daily but typically invest in longer-duration assets. Around 75% of these assets are equities and most of the remainder are fixed-income assets

**Chart 2.14 Longer bond durations may have increased investors' interest rate exposures**

Global bond portfolio durations<sup>(a)(b)</sup>



Source: Barclays Live.

(a) Durations measure the weighted-average time until bond payments are due.  
(b) Based on a Macaulay duration.

and commodities. A fall in asset prices could cause investor redemptions from ETFs to rise, which could force ETFs to dispose of assets rapidly and lead to larger falls in asset values. Similar problems could also affect hedge funds, which typically have high leverage, including through derivative exposures. In particular, the investment strategies used by some hedge funds can create highly cyclical liquidity demands.

The value of some asset classes may also have become more sensitive to rising interest rates. For example, the durations of global bond portfolios, which measure the weighted-average time until bond payments are due, have risen above their long-run average levels (**Chart 2.14**). Higher durations could reduce borrowers' short-term refinancing requirements, but investors in these bond portfolios would also experience larger losses if interest rates were to rise.

Changes to the structure of the financial system since the crisis could also amplify any initial change in asset values. For example, primary dealers' inventories of US corporate bonds have fallen in recent years, despite strong growth in this market. Market contacts also suggest that dealers' market-making capacity has fallen in a number of other markets.

#### *...and increased risks from counterparty exposures.*

Shocks could also be amplified through counterparty exposures. In particular, many levered ETFs, hedge funds, and mortgage real estate investment trusts (mREITs) obtain finance from repo markets, with the collateral they provide forming an important part of a US\$5.5 trillion repo chain involving money market funds and the core banking system.<sup>(1)</sup> Higher interest rates could cause the value of this collateral to fall, which could lead to collateral shortages for these borrowers, in particular for mREITs. As well as increasing counterparty risks in the financial system, this could force these investors to delever rapidly, leading to further falls in asset values.

Interest rate shocks could also be amplified as a result of initial or variation margin requirements on centrally cleared derivative or repo positions. A rise in interest rates could lead to substantial changes in the mark-to-market value of these positions, which would require some counterparties to post additional collateral. If this placed pressure on clearing members' liquidity, they could be forced to reduce or reprice clients' credit lines, which could transmit the shock to other financial institutions.

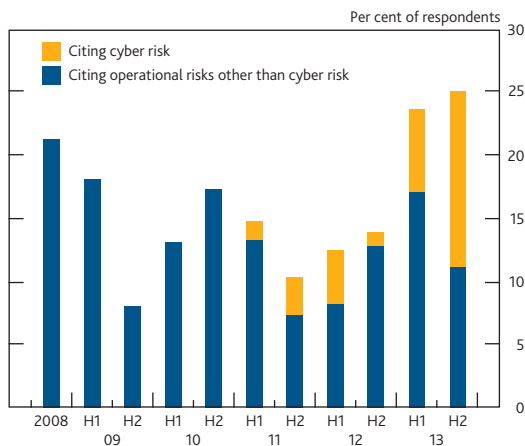
Given the potential importance of these indirect effects, the FCA and PRA, together with staff from across the Bank, continue to assess the mechanisms through which an abrupt rise in interest rates could be transmitted and amplified. For similar reasons, the 2014 comprehensive capital assessment review operated by the Federal Reserve will examine the consequences of a rise in long-term interest rates for major US banks.

(1) For clarification purposes this sentence has been amended slightly from the version initially published on 28 November.



### Chart 2.15 Perceived risks from cyber attack have risen strongly

*Systemic Risk Survey: respondents highlighting operational risk as a key risk(a)(b)*



Sources: Bank of England Systemic Risk Surveys and Bank calculations.

- (a) Respondents who cited operational risk at least once, when asked to list the five risks that would have the greatest impact on the UK financial system were they to materialise.  
 (b) The composition of risks shown is based on the proportion of responses that explicitly cited cyber risk or a closely related term.

### *Operational risks, including from cyber attack, remain a concern.*

Operational risks could also cause losses for banks and the financial system. For example, UK banks have incurred conduct redress costs of more than £20 billion since 2011. And in the past six months, further potential conduct issues have come to light (Section 1).

The June *Report* also highlighted potential operational risks related to financial institutions' information technology (IT) systems. A quarter of respondents to the Bank of England's 2013 H2 *Systemic Risk Survey* highlighted operational risk as one of the main risks to UK financial stability (Chart 2.15). Over half of these responses cited risks from cyber attack — where an individual or group seeks to exploit vulnerabilities in IT systems for financial gain or to disrupt services.

Cyber attack has continued to threaten to disrupt the financial system. In the past six months, several UK banks and financial market infrastructures have experienced cyber attacks, some of which have disrupted services. While losses have been small relative to UK banks' operational risk capital requirements, they have revealed vulnerabilities. If these vulnerabilities were exploited to disrupt services, then the cost to the financial system could be significant and borne by a large number of institutions. In response to the FPC's June recommendation, a programme of work has been developed to assess, test and improve the financial system's resilience to cyber attack (Section 4).

## 2.3 Domestic risks to UK financial stability

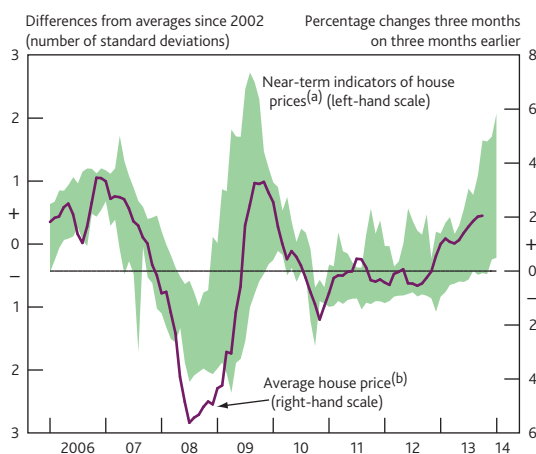
### *Property prices have been rising...*

As the economic recovery has picked up in the United Kingdom, domestic housing market conditions have strengthened. Average house prices rose nationally by 6.8% in the twelve months to October, according to the average of Halifax and Nationwide price indices. And a range of indicators point to acceleration in the near term (Chart 2.16). The HM Treasury panel of independent forecasters suggests further house price rises of up to 10% in 2014.

Over the past year, house prices have risen across most regions of the United Kingdom (Chart 2.17). And, since 2009, house price rises have been most rapid in areas (such as London) where the average level of house prices was already relatively high (Chart 2.18). At higher property values, housing transactions tend to be less reliant on high loan to value lending. So buyers may have been less constrained by the relative tightness of credit conditions in the aftermath of the financial crisis. In London, the housing market has received additional support from relatively strong growth in employment as well as demand from foreign buyers. Foreign inflows have been concentrated in 'prime' central London properties and new builds. But, overall, they appear to have

### Chart 2.16 Indicators point to further house price rises in the near term

House prices and near-term indicators of house prices

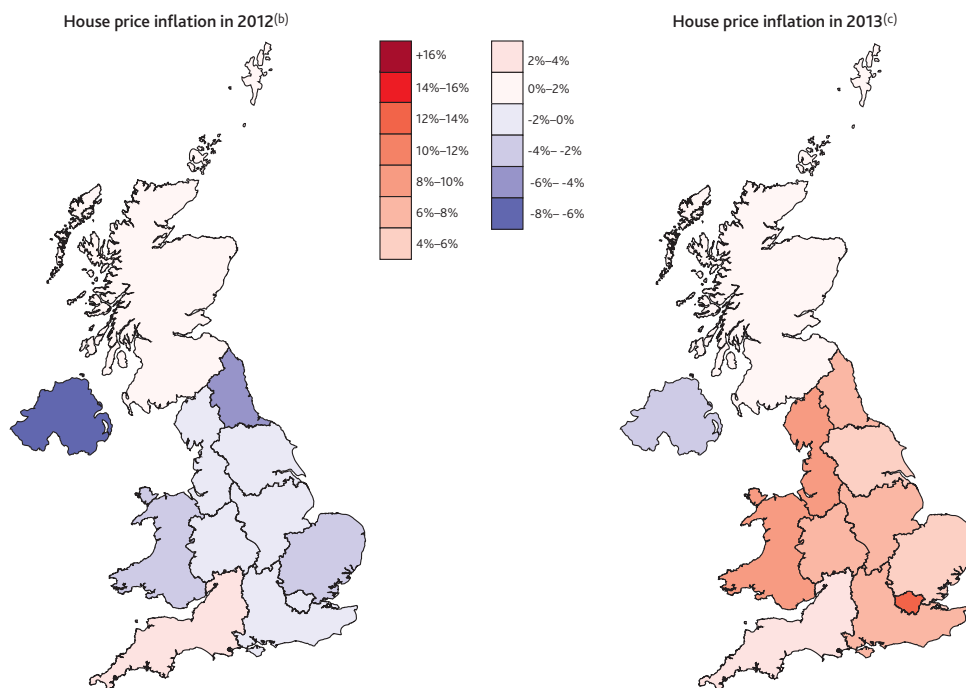


Sources: Halifax, Nationwide, Rightmove.co.uk, Royal Institution of Chartered Surveyors (RICS) and Bank calculations.

- (a) Includes the RICS house prices three months ahead net balance, the RICS new buyer enquiries less instructions to sell net balances, the RICS sales to stock ratio and the Rightmove index for asking prices posted on the Rightmove website. All series have been moved forward by three months. The Rightmove index has been seasonally adjusted by Bank staff.  
 (b) Average of Halifax and Nationwide measures. Latest observation is for October 2013.

### Chart 2.17 House price momentum appears to be building

Annual house price inflation in 2012 and 2013 across the United Kingdom<sup>(a)</sup>



Sources: Halifax, Nationwide and Bank calculations.

- (a) The stylised maps show the average of the Nationwide and Halifax regional house price series.  
 (b) The 2012 map shows house price inflation between 2011 Q4 and 2012 Q4.  
 (c) The 2013 map shows house price inflation between 2012 Q4 and 2013 Q3, scaled to an annual rate.

### Chart 2.18 Prices have risen most rapidly for higher-value properties

House price levels and inflation by regions<sup>(a)</sup>



Sources: Department for Communities and Local Government, Her Majesty's Land Registry and Bank calculations.

- (a) Each point represents a local authority.

accounted for only a small share of the London market — around 3% of all transactions, according to some estimates.<sup>(1)</sup>

#### ...including in commercial real estate...

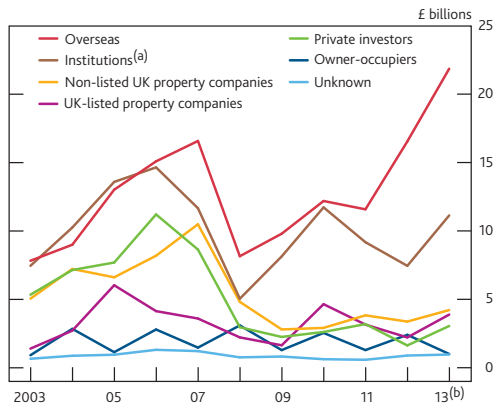
Foreign inflows have played a significant role in the resurgence in the CRE market (**Chart 2.19**), especially in the high-quality 'prime' CRE market where transactions have rebounded materially from the trough in 2009. While the pattern of recovering prices and falling yields has broadly matched that experienced in the London residential property market in recent years, prime CRE transactions have risen more strongly — by around a third since 2009 (**Chart 2.20**). That has led to a further widening in the gaps between property values and yields in the liquid prime CRE market and the relatively illiquid market for secondary CRE property, despite recent signs of increased demand for the latter.

So far, the recovery in the prime CRE property market does not appear to have been associated with signs of riskier lending by the major UK banks. Many investors have bought property without significant leverage. Lending standards have remained tight, with loan to value ratios at more conservative levels than pre-crisis. And the share of transactions characterised by very low yields remains modest. But market intelligence

(1) The 3% estimate is based on Knight Frank estimates on the size of foreign purchases in the new-build market, Savills estimates on the scale of foreign purchases in prime London, and assumptions about the scale of foreign purchases in the secondary market outside of 'prime' London.

**Chart 2.19 Foreign inflows into UK commercial property have been strong**

Gross investment into UK CRE

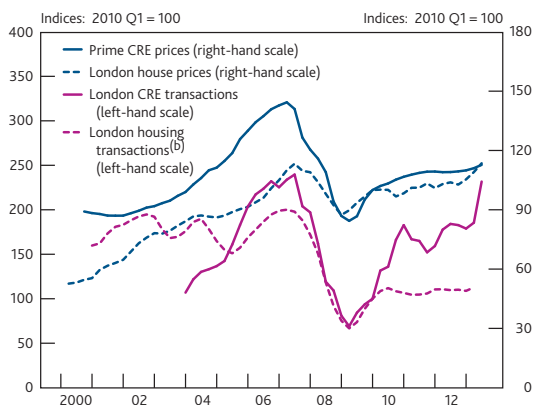


Sources: The Property Archive and Bank calculations.

(a) Includes UK insurers, pension funds and government.  
(b) Data for 2013 are annualised.

**Chart 2.20 Prime CRE and London residential property prices have behaved similarly since the crisis**

Prime/London CRE and London residential property<sup>(a)</sup>

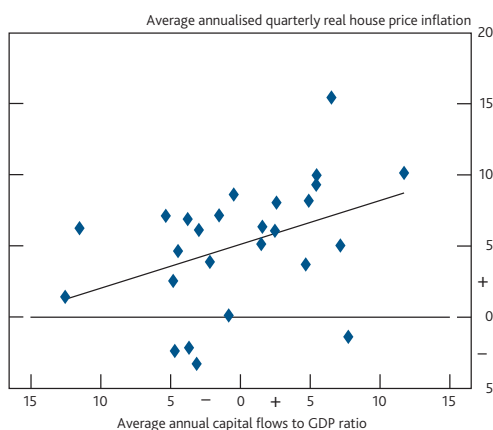


Sources: Halifax, Investment Property Databank, Her Majesty's Land Registry, Nationwide, The Property Archive and Bank calculations.

(a) Prime commercial properties are defined as those in the lowest-yielding quartile of commercial properties. Transactions are by value.  
(b) Series presented as a four-quarter moving average.

**Chart 2.21 Capital inflows to advanced economies have been associated with declining long-term interest rates and rising house prices**

Net capital flows and house prices of selected advanced economies (2001–07)



Sources: IMF WEO, OECD, Sá, F and Wieladek, T (2010), 'Monetary policy, capital inflows and the housing boom', Bank of England Working Paper No. 405 and Bank calculations.

suggests that compared with pre-crisis, borrowers are hedging the interest rate risk on CRE loans at shorter maturities, which may raise refinancing risks when interest rates normalise.

With the fall in prime CRE yields and the rise in investor risk appetite, there have been increasing signs of stronger activity in parts of the secondary and regional CRE markets. Secondary market prices rose in 2013 Q3 — including in most regional markets — for the first time since 2010. But they remain 50% below their level in 2007. And the secondary CRE market remains highly segmented: some asset values are benefiting from an improved occupier market, making it easier for banks to resolve their problem CRE loans; other parts of the market, for example some high street retail properties, continue to experience a structural decline in demand.

*...against the backdrop of persistently low interest rates...*

The recovery in property prices in the United Kingdom and many advanced economies has occurred against the backdrop of a relatively prolonged period of low interest rates globally. Theory and evidence suggest that low long-term interest rates and strong cross-border capital flows to advanced economies can act as important determinants of property price dynamics in the short run (Chart 2.21).

Low interest rates can also make it attractive for households to take on more debt. Indeed, as noted below, there is some evidence that this has already been happening in the current housing upturn with households using a longer mortgage term to enable them to afford larger loans. The extent to which house prices and the household debt burden appear sustainable, or vulnerable to correction, will depend on how likely it is that long-term interest rates remain near their current low levels.

*...and balance sheets that are highly sensitive to fluctuations in property prices...*

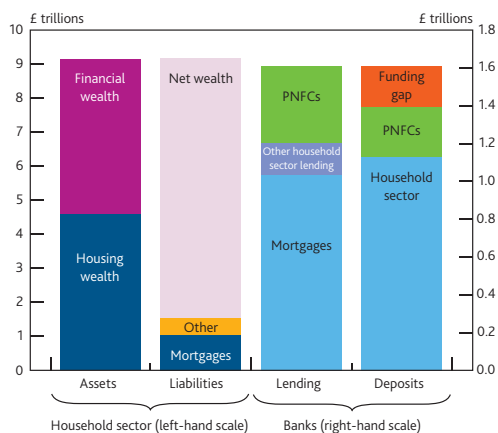
Households and corporate balance sheets in the United Kingdom are highly sensitive to fluctuations in the price of property and to the ability of households to service their debt. In the household sector, housing wealth makes up half of total gross wealth and mortgage debt accounts for three quarters of borrowing (Chart 2.22). In the corporate sector, 40% of all borrowing from banks is directly secured against commercial real estate. In total, property accounts for 70% of the value of non-financial assets in the United Kingdom.

*...and which have played a central role in many previous crises.*

Given its importance to balance sheets in the United Kingdom and many other economies, property has played a central role in many previous economic and financial crises. Work by the IMF finds that, for OECD countries from 1960–2007, recessions accompanied by property busts were more persistent and cumulative output losses were two to three times the size of

### Chart 2.22 Housing is central to UK private sector balance sheets

Stylised balance sheets of UK households and banks<sup>(a)</sup>

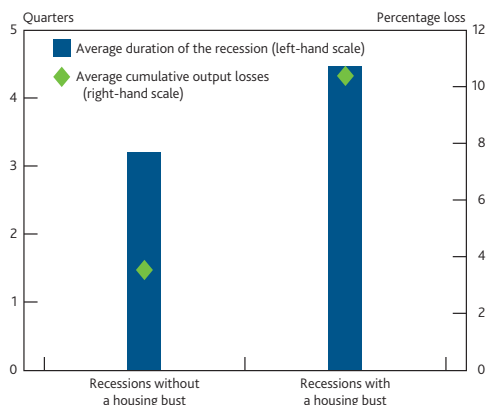


Sources: Bank of England, ONS and Bank calculations.

(a) These balance sheets are highly stylised and exclude, for example, lending and deposits of the public sector and financial corporations. Based on end-2012 data for sterling only, using data on MFIs, which include banks and building societies.

### Chart 2.23 Housing busts are associated with more severe recessions

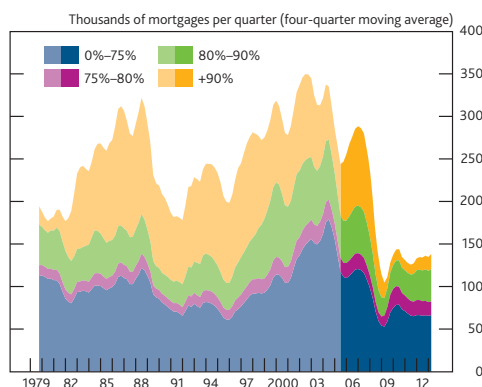
Duration and output losses of OECD recessions (1960–2007)



Sources: IMF *Global Financial Stability Report* (April 2011) and Claessens, S, Ayhan Kose, M and Terrones, M E (2009), 'What happens during recessions, crunches and busts?', *Economic Policy*, Vol. 24, pages 653–700.

### Chart 2.24 Banks' underwriting standards have materially tightened since the financial crisis

Flow of new mortgage lending by loan to value<sup>(a)(b)</sup>



Sources: Council of Mortgage Lenders (CML), FCA Product Sales Data (PSD) and Bank calculations.

(a) FCA's PSD are only available from 2005 Q2. Data from 1992 Q2 to 2005 Q1 are from the discontinued Survey of Mortgage Lenders and prior to 1992 Q2 are from the building societies sample of mortgage completions. The three data sources are not directly comparable and the loan to value split is illustrative, based on smaller samples, prior to 2005 Q2.

(b) See footnotes to Chart 2.28.

average losses in recessions without a property bust (Chart 2.23).

*Rising house prices in a low interest rate environment could increase household vulnerabilities...*

Since the recent financial crisis, banks' underwriting standards have materially tightened. For example, they have reduced the share of their lending made at high loan to value ratios (Chart 2.24). Mortgage lending growth has also remained subdued (Chart 2.25) though a recent pickup in mortgage approvals might presage some strengthening.

But there is some evidence of risks rising within the UK housing market. High loan to income ratios on new lending have become more common, particularly for high-value properties and those in London (Chart 2.26). The number of lenders offering mortgages with loan to value ratios at 95% has risen from 28 to 36 in the past year. And the number of mortgage products advertised by lenders at a 95% loan to value ratio has increased sharply, by more than 50% over the same period. Increased availability of mortgages with high loan to value ratios could support demand for house purchase most in those regions where price to income ratios for first-time buyers are relatively low (Chart 2.27) and hence where deposit size appears to be a greater constraint on house purchases. There is the risk that underwriting standards could ease, and loan to income ratios at origination rise further, as house prices increase. That has been the case in previous house price cycles.

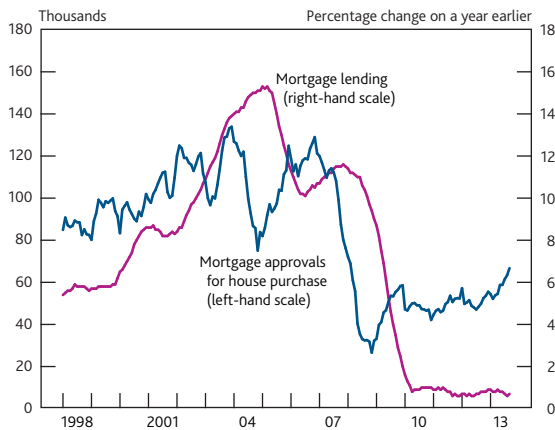
Borrowers may also extend the length of their mortgages in order to improve affordability and take out larger loans than would otherwise be the case. Recently, more than half of first-time buyers have been taking out a mortgage with a term exceeding 25 years (Chart 2.28). This may lead to increased vulnerability to interest rate rises.

Some of these risks might be mitigated by rules mandated by the FCA's Mortgage Market Review (MMR), which come into effect in April 2014. Under the MMR rules, banks will be required to verify fully borrowers' incomes and assess that the mortgage is affordable given borrowers' net income and essential expenditure, taking into account the impact of market expectations of future interest rate rises. For interest-only mortgages, lenders will be required to assess affordability on a capital and interest basis, unless there is a valid alternative source of capital repayment.

*...and the risk of a price correction and a housing downturn is likely to grow the higher house prices rise.*

While a number of valuation metrics remain below the levels reached prior to the financial crisis, some measures — such as the house price to income (Chart 2.29) and house price to rent ratios (see Core Indicator B10 in Table A.2 on pages 74–75) — currently lie above historical averages in the

**Chart 2.25 Mortgage lending has remained subdued**  
Sterling mortgage lending to UK households<sup>(a)</sup>

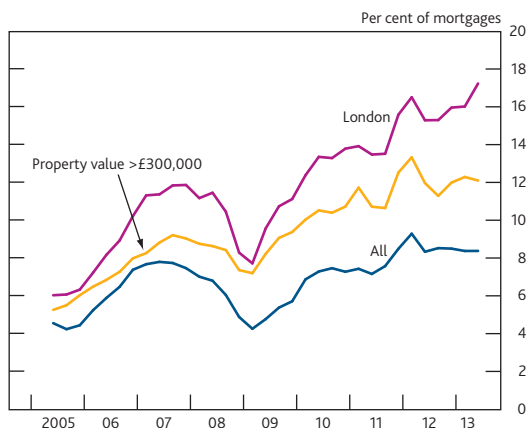


Source: Bank of England.

(a) Sterling lending by UK-resident monetary financial institutions and other specialist lenders.

**Chart 2.26 High loan to income ratios have become more common**

Share of new mortgages for house purchase with loan to income ratios greater than 4.5<sup>(a)</sup>

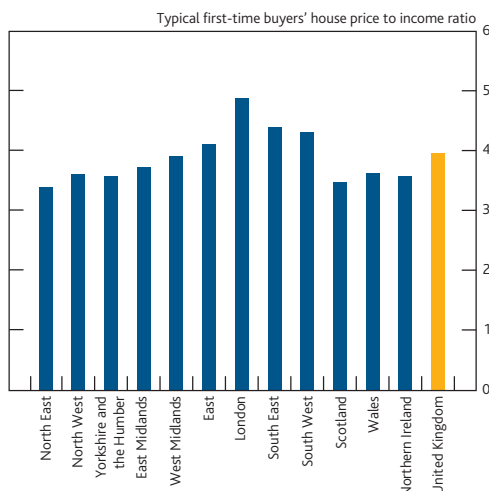


Sources: FCA Product Sales Data and Bank calculations.

(a) See footnotes to Chart 2.28.

**Chart 2.27 First-time buyers are already borrowing at relatively high multiples of income**

Regional house price to income for first-time buyers



Sources: CML and Bank calculations.

United Kingdom and many other advanced economies (Chart 2.30). Were UK house prices to rise further, in line with the path suggested by short-term indicators (Chart 2.16), the deviation might be greater still. In previous episodes, rapid gains in UK house prices have tended to be persistent, perhaps reflecting self-fulfilling expectations of future price rises.

Alternative valuation metrics, for example those directly affected by the current low level of interest rates, are at lower levels compared with historical averages. For example, income gearing (interest payments and regular repayments of mortgage principal as a proportion of disposable income) remains relatively low (Chart 2.29).

A rise in interest rates would challenge more vulnerable borrowers, particularly were it to occur against the backdrop of subdued economic activity and weak income growth. Households with mortgages at high loan to income ratios — who tend also to hold higher levels of unsecured debt (Chart 2.31) — may be particularly vulnerable. For example, a household with a capital repayment mortgage of 4.5 times their current gross income and 20 years still to run on their mortgage is typically spending about one third of their gross income on mortgage payments at current interest rates. Assuming no change in their income, such households would spend an additional 6% of gross income on mortgage payments if the mortgage rate they face were to rise by 2 percentage points.

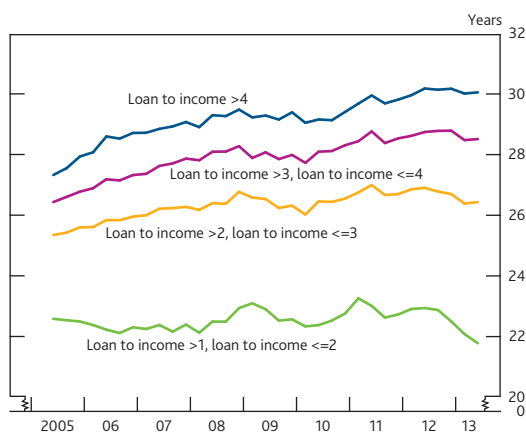
More generally, as house prices rise, the aggregate level of debt to be serviced by households might be expected to rise further over time. New entrants into the housing market typically buy properties with larger mortgages than sellers pay off, so the overall stock of mortgage debt may tend to increase. That is illustrated by Chart 2.32. It shows how household mortgage debt could increase over the next two decades, based on the assumptions that, in the medium term, house prices rise in line with earnings and the share of mortgage debt to housing wealth reverts to its long-run average of 30%. Were house prices also to rise strongly in the near term, in line with some external forecasts, the household debt to income ratio could rise above the previous peak, based on these illustrative estimates (see orange bar).

*A housing market downturn would pose direct risks to bank capital by increasing credit losses...*

Historically, losses on domestic residential mortgages have been low for the UK banking system relative to some other countries (Chart 2.33). For example, the losses made by the largest UK mortgage lenders in the most recent financial crisis were equivalent to 0.6% of their mortgage loans. The relatively low level of losses in part reflects specific features of the UK mortgage market. Full-recourse mortgages are the predominant form of mortgage in the United Kingdom. They reduce the financial incentives for borrowers to default and



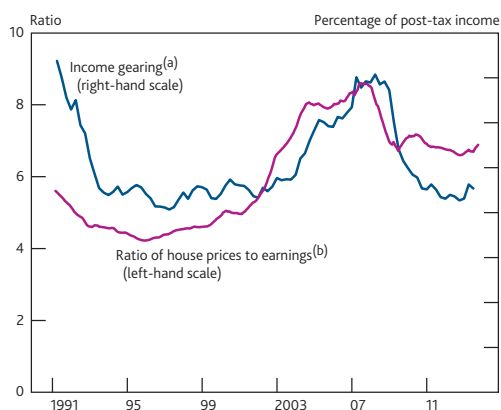
**Chart 2.28 More than half of first-time buyers have taken out mortgages with a term exceeding 25 years**  
Mean mortgage term for first-time buyers by loan to income ratio<sup>(a)(b)</sup>



Sources: FCA Product Sales Data and Bank calculations.

- (a) Includes loans to first-time buyers, council/registered social tenants exercising their right to buy and homemovers.  
(b) Data include regulated mortgage contracts only, and therefore exclude other regulated home finance products such as home purchase plans and home reversions, and unregulated products such as second charge lending and buy-to-let mortgages.

**Chart 2.29 Some valuation measures lie above historical averages in the United Kingdom**  
Indicators of housing affordability



Sources: Bank of England, Halifax, Nationwide, ONS and Bank calculations.

- (a) National Accounts measure of household interest payments (which excludes the impact of Mortgage Interest Relief at Source) plus regular repayments of mortgage principal, as a percentage of nominal household post-tax income. Interest payments and income have been adjusted to take into account the effects of FISIM. Repayments data are non seasonally adjusted. Excludes payments associated with endowment policies. Data to 2013 Q2.  
(b) Average of the Halifax and Nationwide measures of average house prices divided by average annual earnings, based on average weekly earnings from 2000 onwards and average earnings index prior to that. Data are three-month moving averages, up to September 2013.

increase banks' ability to recover losses from those who do default.

Recent aggregate losses may not be a good guide to potential financial stability risks, however. Losses were higher in the early 1990s recession, for instance, reflecting the elevated interest rates and severe macroeconomic conditions during this period. The UK banking system suffered mortgage losses equivalent to an estimated 1.8% of total UK mortgage loans during the period 1991–95. The insurance industry also incurred significant losses, equivalent to an estimated 1.1% of total UK mortgage loans, through its provision of insurance on (typically higher loan to value) mortgages originated by the banking sector. With mortgage insurance currently less prevalent than in the early 1990s, the insurance industry would be less likely to play as significant a role in absorbing potential future losses. As in the past, losses might also vary significantly across financial institutions, for example reflecting differences in the quality of their loan books.

There are mitigants to such risks. Under normal conditions, losses on mortgage lending are absorbed from the income generated on that lending. For example, if banks' rate of return on their mortgage assets were 1%, this would over a five-year period provide sufficient income to absorb cumulative losses equalling around 5% of loans. But were losses to exceed income, they would need to be absorbed by capital.

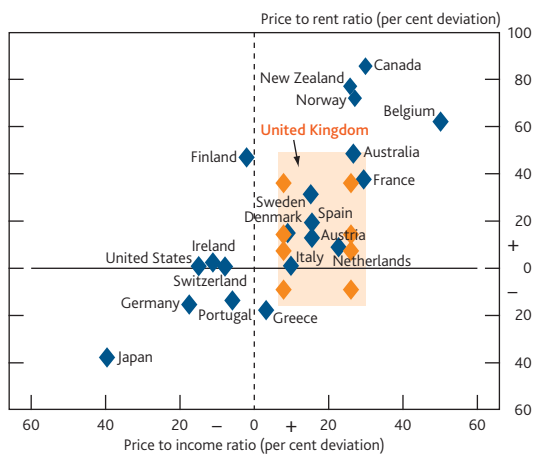
In recent years, banks have increased both the quantity and quality of their capital resources. These resources include capital required for unexpected losses in relation to banks' mortgage books — the 'Pillar 1' capital requirement. An illustration of the mortgage loss rates that could be absorbed by this Pillar 1 capital (for three different levels of mortgage risk weight) is shown in **Chart 2.34**. Banks also have additional capital requirements, as a means to ensure that they have adequate capital to support all the relevant risks in their business. Taking into account banks' total common equity Tier 1 capital resources, the loss rate that could be absorbed by banks' capital is much higher (green bar in **Chart 2.34**). But this capital is to cover risks across all banks' activities.

*...potentially on a wide range of bank assets...*

In a housing downturn, losses on mortgage assets are likely to coincide with large credit losses on other sections of lenders' books, reflecting the associated broader economic stress. This might be the case, for example, if high demand for housing during the preceding upturn were to generate an excessively sharp increase in construction activity, perhaps related to a relaxation in lending standards to construction firms. A subsequent housing downturn could then lead to an overhang of unsold properties and greater defaults.

**Chart 2.30 House prices remain above historical values on some metrics**

House price to income and house price to rent ratios<sup>(a)(b)(c)</sup>

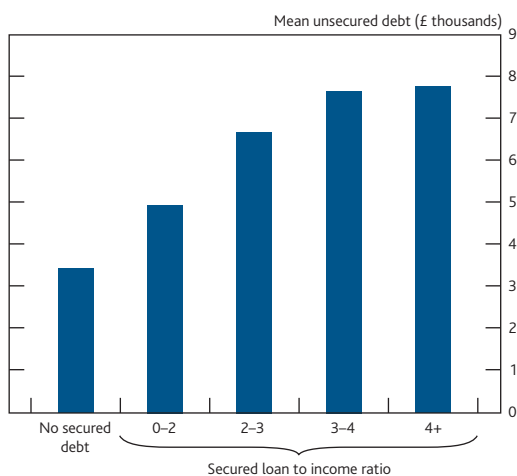


Sources: Halifax, Nationwide, OECD, ONS and Bank calculations.

- (a) Deviations from long-run averages (1970–2013).  
 (b) Figures not directly comparable across countries. Note that idiosyncratic factors may generate persistent deviations from long-run averages across countries, for example relating to population, growth and rigidities in the supply response to changes in demand for housing.  
 (c) The shaded area refers to the various UK measures of house price to income and house price to rent ratios. Measures vary according to different combinations of the house price index used (OECD or average of Nationwide and Halifax) and rent measure (OECD vs National Accounts).

**Chart 2.31 Households with high mortgages relative to income also tend to hold higher levels of unsecured debt**

Household unsecured debt by loan to income ratio<sup>(a)</sup>



Sources: NMG Consulting and Bank calculations.

- (a) Mean unsecured debt figure includes observations with zero unsecured debt.

A decline in house prices could also be associated with weaker residential investment and consumer spending, particularly among highly indebted borrowers,<sup>(1)</sup> which may further weaken macroeconomic activity. This in turn could lead to higher defaults, further amplifying the effects of the housing downturn on the banking system.

*...and, more significantly, bank funding risks...*

The recent financial crisis also demonstrated how some bank funding models, particularly those characterised by a heavy reliance on wholesale funding markets and increased leverage to finance domestic mortgages, could increase the banking system's vulnerability to funding and liquidity problems. Despite the historical experience of low credit risk from mortgages, a number of UK banks whose balance sheets were dominated by mortgages became distressed in 2007/08. These banks' reliance on short-term wholesale funding created large maturity mismatches and increased the opacity of their balance sheets, making them vulnerable to funding runs.

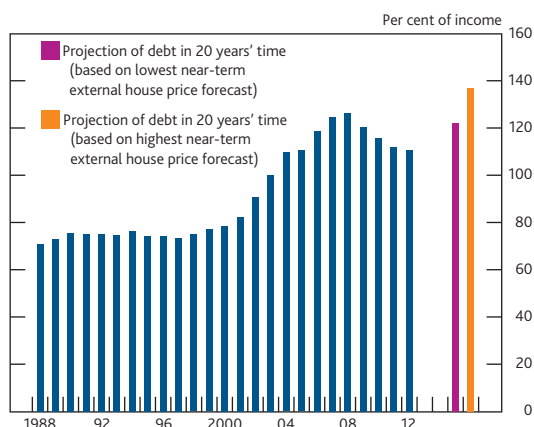
Since the crisis, UK banks have significantly reduced their reliance on short-term wholesale funding (Section 1). There also appears to have been a strategic shift in their funding strategies, reflecting both market pressure and actual and prospective regulatory requirements such as the Liquidity Coverage Ratio, the Net Stable Funding Ratio and the leverage ratio.

If household borrowing were to start outpacing household deposit growth as house prices rise, a customer funding gap could open up in the banking system — with customer loans exceeding deposits. There is a risk that banks would then resort to wholesale funding sources to finance the increase in mortgage credit, thereby reversing progress in reducing their customer funding gap. Given that mortgages represent a concentrated and correlated risk to the banking system, a housing downturn and a rise in defaults could generate liquidity problems across the financial system, particularly if wholesale funding were at short maturities.

Such risks would be particularly acute if funding in the form of complex instruments and instruments sold to a wide range of investors were to increase the risk of funding runs. Such problems could arise due to uncertainty about where losses in the banking system might be located and the extent of counterparty exposure to the housing market. This in turn might cause creditors to draw parallels between troubled institutions and the business models of similar institutions, leading them to withdraw funding to the banking system more widely.

(1) See the box on pages 22–23 of the May 2013 *Inflation Report* which discusses the role of debt in household saving decisions. A box on pages 20–21 of the November 2013 *Inflation Report* examines the macroeconomic implications of the housing market revival in more detail.

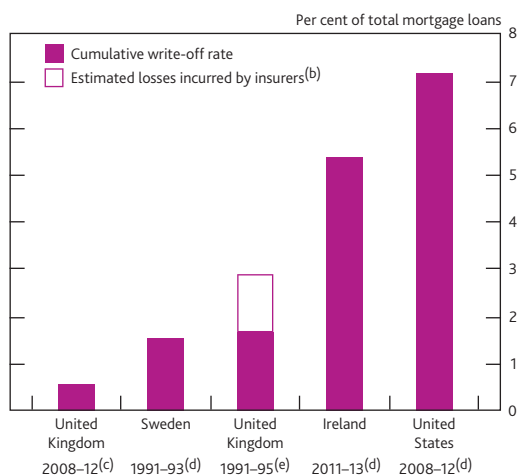
**Chart 2.32 Household debt could rise further over time**  
Household secured debt to income ratios<sup>(a)(b)(c)(d)</sup>



Sources: HM Treasury, ONS and Bank calculations.

- (a) Income is gross disposable income adjusted for FISIM.  
 (b) Mortgage debt includes loans by UK banks and other non-bank lenders.  
 (c) The two scenario projections assume that the ratio of mortgage debt to gross housing wealth returns to its long-run average. They assume that house prices rise at the upper or lower bound of external forecasts for 2013 and 2014, and beyond that at the average growth rate of whole-economy average weekly earnings over the past ten years. They further assume that the real net capital stock of dwellings grows at its estimated average growth rate over the past ten years of available data. External forecasts are from *Forecasts for the UK economy: a comparison of independent forecasts*, November 2013, as compiled by HM Treasury.  
 (d) Some pre-1997 ONS data are no longer available from the ONS. In such circumstances, we use Bank of England data originally sourced from the ONS.

**Chart 2.33 UK mortgage losses have been low historically**  
Estimates of cumulative loss rates on residential mortgages<sup>(a)</sup>



Sources: Bank of England, Building Societies Association, Central Bank of Ireland, CML, Federal Deposit Insurance Corporation (FDIC), Glas Securities, Halifax, MIAC-Acadametrics, Nordiska Ministerrådet, PRA, published accounts and Bank calculations.

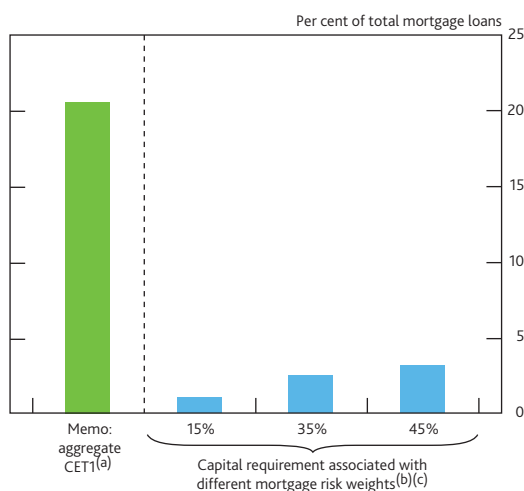
- (a) Cumulative losses are estimated as total write-offs incurred during the period shown on the chart divided by the starting stock of loans.  
 (b) Estimated losses incurred by the UK insurance industry on loans originated by banks and building societies in 1991-95. Based on data published by MIAC-Acadametrics.  
 (c) Estimated based on write-offs reported by a sample of the largest UK mortgage lenders as of end-2007. These estimates are based on calculations by Bank staff.  
 (d) Swedish losses based on housing credit institutions. Irish losses are from 2011 to mid-2013 at Bank of Ireland, Allied Irish Bank and Permanent TSB. US losses refer to all FDIC-insured institutions.  
 (e) Estimated losses incurred by UK banks and building societies based on Bank of England data, reported write-offs for a sample of UK building societies, and CML possessions data. These estimates are based on calculations by Bank staff and are subject to change.

...especially if accompanied by an increased reliance on external wholesale funding sources.

If banks were to finance an increase in new lending through foreign wholesale funding markets (as they partly did pre-crisis), this could lead to a build-up in the banking system's gross external debt position and an increase in its vulnerability to changes in external sentiment. It could also be associated with maturity and currency mismatches — if short-term foreign debt is used to fund domestic mortgages — and increased vulnerability to a decline in foreigners' willingness to refinance maturing debt. This 'rollover' risk could arise if sentiment among foreign investors in UK bank debt deteriorated.

Such risks could in principle be mitigated by resilient domestic securitisation markets. But securitisation markets remain subdued and, as with market-based finance more generally, are subject to a number of impediments (Section 3).

**Chart 2.34 UK banks' capital provides resources to absorb unexpected losses on their mortgage exposures**  
Losses that could be absorbed by indicative Pillar 1 minimum requirements



Sources: Bank of England, PRA and Bank calculations.

- (a) Common equity Tier 1 (CET1) capital (on a Basel III end-point basis) of the firms included in the PRA capital exercise discussed in Section 4 (excluding Standard Chartered), expressed as a proportion of the UK mortgage exposures of these firms at the end of September 2013.  
 (b) Loss-absorbing capacity provided by capital requirements associated with average mortgage risk weights of 15% (consistent with the level considered in the PRA capital exercise); 35% (consistent with a sub-80% LTV loan on the standardised approach); and 45% (consistent with a c.110% LTV loan on the standardised approach).  
 (c) The above capital requirements do not consider the possible impact of the Basel I Floor (which applies if a bank's minimum capital requirements are lower than 80% of Basel I requirements).



## Box 1

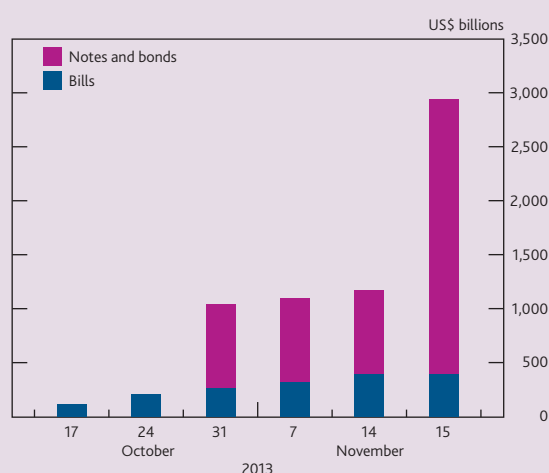
### The role of US Treasury securities in the global financial system

The central role of US Treasury securities in the global financial system has recently been highlighted by political disputes about the US debt ceiling. This box outlines the channels through which stress in the US Treasury securities market could transmit to other markets and institutions.

It is difficult to judge the precise impact of a shock to US Treasury securities. US Treasury securities do not include cross-default provisions — in which a delayed coupon on one bond leads to a sovereign default on all securities from the issuer. The potential impact on financial stability of a US default would crucially depend on the number and size of US Treasury securities whose coupons and principal payments were delayed. In the recent episode, delayed payments were due to affect around US\$3 trillion of US Treasury securities, equivalent to over a quarter of total marketable US government debt, in less than a month (**Chart A**).<sup>(1)</sup> This experience highlighted that the impact of stress in the US Treasury securities market could quickly become large.

**Chart A** Delayed payments would have affected a large amount of US Treasury securities quickly

Cumulative face value of US Treasury securities affected by a possible payment delay



Sources: US Department of the Treasury and Bank calculations.

### Possible transmission channels

In the event of a US default, risks to financial stability could materialise quickly through 'fast-burn' channels and more gradually through 'slower-burn' channels. This section examines each in turn.

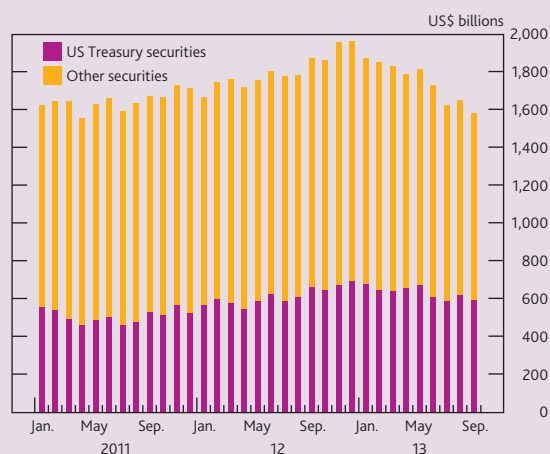
### 'Fast-burn' channels

#### Repo markets

US Treasury securities are the most common type of collateral used in repo transactions, in which one party receives cash from another by selling a security as collateral with the commitment to buy back the security at a pre-determined price at a future date. US primary dealers are large participants in the US repo market<sup>(2)</sup> and use around US\$1.5 trillion of US Treasury securities as collateral in repo transactions. In the US tri-party repo market alone, around US\$500 billion of these securities are used as collateral (**Chart B**).<sup>(3)</sup>

**Chart B** US Treasury securities are significant in the US tri-party repo market

Collateral used in the US tri-party repo market



Sources: Federal Reserve Bank of New York and Bank calculations.

US Treasury repo market functioning deteriorated in the recent period of heightened fears that the US federal government might default. There was a sharp rise in the cost of repo borrowing backed by US Treasury collateral, with the overnight repo rate peaking at 26 basis points on 16 October, 18 basis points higher than at the beginning of the month. A key concern of market participants related to the possibility that counterparties might provide defaulted Treasury securities as collateral in repo contracts and that, as a result, cash lenders would be unwilling to roll over maturing repo transactions. There were also reports of lenders substituting away from repo into unsecured markets in order to avoid the possibility of holding coupon-delayed securities. Indeed, US dollar Libor rates remained broadly stable throughout this period.

If the US federal government were to enter into a default, this would be likely to lead to wider impairment in market liquidity. US Treasury repo market liquidity would be expected to dry up rapidly. Illiquidity in repo markets would be amplified if lenders increased haircuts on other types of collateral in response to stress in the US Treasury securities market, for

example to protect against a broad-based fall in asset values or increased concerns about counterparties' credit risk. That might lead to forced sales of assets by investors no longer able to fund them via repo. Any ensuing impairment of market liquidity would exacerbate the initial price falls and could lead to further increases in haircuts.

#### *Money market funds*

US money market funds (MMFs) hold around US\$2.4 trillion of assets. These are typically short term and of high quality, including around US\$450 billion of US Treasury securities. In addition, around US\$200 billion is invested in reverse repo transactions backed by US Treasury securities. MMFs provide significant amounts of US dollar funding to banks globally, including around US\$110 billion to major UK banks.

A US default would be likely to affect negatively the funding and solvency positions of banks via their relationships with MMFs. Sharp falls in the value of US Treasury securities held by MMFs would reduce MMFs' net asset values and could lead to rapid investor redemptions, perhaps threatening the solvency of one or more US MMFs. This could adversely impact the solvency position of sponsoring banks if they were required to provide support to related MMFs for reputational reasons. The supply of US dollar funding from MMFs to banks might also fall in the event of MMFs selling assets to meet redemptions. European banks could find it difficult to obtain alternative US dollar funding in stressed market conditions. But the overall impact on US banks' funding might be limited via this channel if withdrawals from MMFs were deposited directly with US banks.

#### *Central counterparties and exchanges*

A sudden loss of confidence in US Treasury securities could create a shortage of collateral available to be posted against repo and derivatives contracts. In October, market contacts suggested that defaulted US Treasury securities would not be accepted as collateral by central clearers. This could have led to a further deterioration in market functioning if participants had been forced to sell US Treasury securities to purchase other eligible collateral. In addition, the Chicago Mercantile Exchange raised margin requirements — the deposit that investors must put down to cover their trading positions — by 12% for US interest rate swaps. And Hong Kong Exchanges and Clearing raised the discount (or haircut) on US Treasury securities held as collateral for futures trades. Such procyclical precautionary behaviour by central counterparties and exchanges has the potential to add to any collateral shortage.

#### *Mark-to-market losses on US bonds*

US banks hold a larger stock of US Treasury securities than any other countries' banking systems, so potential mark-to-market losses would be most relevant for US banks. Outside the United States holdings of US government securities are largest

(relative to banking system capital) in Japan, exposing Japanese institutions to sizable potential losses. Major UK banks hold around US\$50 billion of US Treasuries. The precise impact of a default on the value of banks' holdings of US Treasuries is difficult to ascertain, depending for example on differences in accounting treatment across jurisdictions and the capital charge that would result from moving to default.

#### *'Slower-burn' channels*

##### *Reduced lending to UK entities by US banks*

A potential stress in repo markets and MMFs would likely lead to a sharp increase in funding costs for US banks and global banks more generally. A rise in funding costs for US banks could, in turn, lower their lending to the UK real economy, whether cross-border or via their UK operations. US banks' claims on the United Kingdom amount to over US\$500 billion (or more than 20% of UK GDP), of which over US\$350 billion (or 70% of the total) is to the UK non-bank private sector. Reduced lending from US banks to UK banks might in turn lead the latter to lower their lending to the UK economy. In principle, non-US banks could step into the gap created by the withdrawal of US bank lending. But a sharp rise in uncertainty and risk aversion associated with a US default might lead to many banks pulling back from cross-border lending, as happened in the aftermath of Lehman Brothers' failure in 2008.

##### *Threat to reserve currency status of the US dollar*

The US dollar is the principal global reserve currency; and US Treasury securities are held as a safe and liquid asset by a wide range of official and private sector institutions. Within the US\$6 trillion of foreign exchange reserves for which the currency composition is known, the US dollar remains the dominant reserve currency at 62%, followed by the euro at 24%.<sup>(4)</sup> In the short term, any reappraisal of the US fiscal situation that impaired the safe-haven status of the US dollar might lead to a material divestment of foreign investors' holdings and a sharp reversal in yields. For example, yields of short-term US Treasury securities rose significantly in the run-up to the debt ceiling decision (**Chart 2.10** on page 19). Over the longer term, any loss of US creditworthiness would potentially accelerate the existing trend of reserve managers worldwide towards diversification of their holdings away from US dollar-denominated assets.

#### *Implications for UK financial stability*

Any default on US Treasury securities would lead to material stress across the global financial system. But if the default were short-lived, for example in the form of a short delay in coupon payments, the threat to financial stability would be commensurably smaller.

There are multiple channels through which UK banks would be exposed. For example, US MMFs represent around 15% of

major UK banks' total US dollar funding; public and private sector claims on the United States represent over 300% of major UK banks' core Tier 1 capital; and major UK banks' US Treasury security repos exceed US\$330 billion, though these are broadly matched with reverse repos. In addition to these direct channels, there would most likely be a significant negative shock to financial markets sentiment.<sup>(5)</sup>

In the recent episode, market participants took precautionary measures in response to heightened uncertainty about the US debt position, and similar measures could be expected if the episode were to repeat itself. UK-regulated central counterparties substantially reduced their exposure to short-dated US Treasury securities. Some US MMFs began to position against possible risks, with a number of large MMF sponsors reporting that their MMFs had sold their short-term Treasury debt. During the US government shutdown, the Prudential Regulation Authority was also in close contact with the major banks active in the United Kingdom to assess their state of readiness in the event of a default.

Finally, central banks have a number of facilities that could be deployed in the event of material stress. Current US dollar

swap lines between the Federal Reserve and a number of central banks, including the Bank of England, were converted from a temporary to a standing basis on 31 October; these can be deployed to offer dollar liquidity if needs be. The Federal Reserve discount window ensures a supply of dollars to US-resident deposit-takers, including agencies and branches of UK and other non-US banks. And the Federal Reserve might be able to take other remedial actions to help limit adverse financial market implications, such as accepting defaulted US Treasury securities in its liquidity operations.

- 
- (1) In the one-month period following 17 October when the federal government's debt ceiling was expected to be breached.
  - (2) Primary dealers are authorised to buy Treasury securities directly from the US government.
  - (3) The tri-party repo market is a subsector dominated by a handful of large primary dealers, where custodian banks intermediate repo transactions between parties.
  - (4) Just over half of the current stock of global FX reserves belongs to countries that report the reserve currency composition to the IMF COFER. These are classified as 'allocated', and can be split by currency. The share of 'unallocated' FX reserves, which cannot be split by currency, has increased overtime, reflecting in large part the accumulation of reserves by China, which is not a COFER reporter.
  - (5) Major UK banks here include Barclays, HSBC, Lloyds Banking Group and Royal Bank of Scotland.

# 3 Medium-term risks to financial stability

This section takes stock of the progress made through regulatory reforms in the Committee's priority areas and identifies remaining risks. The Committee's priority areas are the medium-term capital framework for banks; ending 'too big to fail'; and shadow banking and diverse and resilient sources of market-based finance. While progress has been made, considerable effort will be needed to complete reforms in these areas.

**Table 3.A** Medium-term policy priorities

## Medium-term capital framework for banks

- The medium-term capital framework for banks is a vital component for ensuring the resilience of the UK financial system (pages 34–38).
- The FPC agreed that it should ensure that prospective changes to regulatory capital requirements for UK banks are, when taken together, appropriately calibrated and phased in from a macroprudential perspective, and that they fit together to deliver a stable, prudent and coherent package, which takes account of the broader impact on the financial system (pages 37–38).

## Ending 'too big to fail'

- The disorderly failure of systemically important financial institutions (SIFIs) can cause widespread disruption to the financial system (page 38).
- The FPC agreed that one of its medium-term priorities should be to review and, where necessary, influence the design and implementation of reforms to address the 'too big to fail' problem, subject to where policies have been settled internationally (page 42).

## Shadow banking and diverse and resilient sources of market-based finance

- The provision of finance from outside the traditional banking system can play an important role in the financial system and wider economy but it can also be a source of systemic risk (pages 42–43).
- The identification and management of potential systemic risks from shadow banking is one of the FPC's medium-term priorities, in line with its statutory responsibilities (page 43).
- The FPC will also seek to improve the diversity and robustness of market-based financing in the United Kingdom and globally (pages 46–48).

## 3.1 Medium-term capital framework for banks

*A number of reforms to banks' capital framework have taken place since the crisis...*

The recent global financial crisis revealed that banks were not funding their assets with sufficient amounts of loss-absorbing high-quality capital. Basel III — a new globally agreed regulatory standard for capital adequacy for banks — seeks to address this problem in three main ways. First, banks will be required to fund their assets with more high-quality common equity capital (**Table 3.B**). Second, capital will be required for a broader set of risks, including a new capital requirement for the risk of losses arising from deterioration in the credit quality of banks' counterparties in over-the-counter (OTC) derivative transactions.<sup>(1)</sup> Third, Basel III introduces new capital buffers over the minimum capital requirements. These include a capital conservation buffer, which banks can run down during periods of stress, and a countercyclical capital buffer, which may be adjusted at the discretion of the macroprudential authorities to curtail systemic threats to financial stability. These capital buffers have an explicitly macroprudential dimension, aiming to enhance resilience while reducing procyclical balance sheet adjustments by banks.

Almost all G20 jurisdictions have now issued the final rules to implement Basel III. In the European Union (EU), the Basel III capital framework will be implemented through the EU legislative reforms known as CRD IV. This comes into effect on 1 January 2014 and sets the transition path towards full implementation of the Basel III capital framework by 2019 (**Chart 3.1**).<sup>(2)</sup>

(1) See page 42 of the June 2013 *Report* for a discussion of the so-called credit valuation adjustment charges, and the exemptions granted under CRD IV for EU banks that are broader than Basel III.

(2) See the PRA's consultation paper on CRD IV, available at [www.bankofengland.co.uk/prd/Documents/publications/policy/2013/ImplementingCRDIVCP513.pdf](http://www.bankofengland.co.uk/prd/Documents/publications/policy/2013/ImplementingCRDIVCP513.pdf). CRD IV consists of Capital Requirements Regulation (CRR) and Capital Requirements Directive (CRD).

**Table 3.B** Basel III increases the share of high-quality capital within the 8% total risk-weighted capital requirement<sup>(a)(b)(c)</sup>

Under Basel III, banks have to satisfy the following three minimum risk-weighted capital requirements:

- Common equity Tier 1 (CET1) capital ratio of 4.5%.
- Total Tier 1 capital ratio (CET1 + additional Tier 1) of 6% (Basel II minimum: 4%).
- Total capital ratio (CET1 + additional Tier 1 + Tier 2) of 8% (Basel II minimum: 8%).

Where:

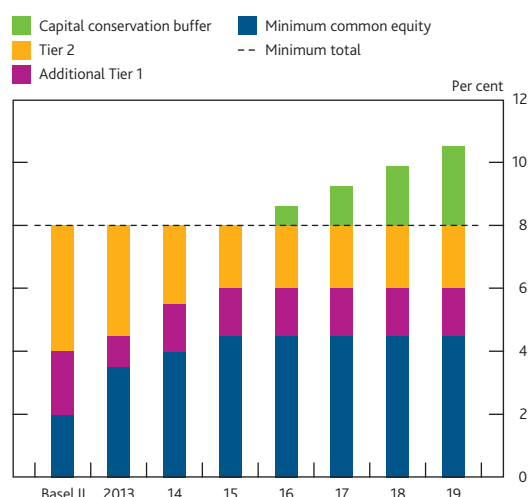
- **CET1 capital** is 'going concern' loss-absorbing capacity (eg common equity and retained earnings).
- **Additional Tier 1 (AT1) capital** is additional 'going concern' loss-absorbing capacity (eg contingent convertible instruments meeting certain criteria).
- **Tier 2 (T2) capital** includes specific types of 'gone concern' loss-absorbing instruments (eg subordinated debt meeting certain criteria) that can absorb losses once common equity and additional Tier 1 capital are depleted.

Sources: BCBS and BIS.

- (a) The table shows the requirements at full implementation of Basel III, which is envisaged in January 2019.  
 (b) The table only includes capital requirements that apply to all banks (Pillar 1) and not the firm-specific (Pillar 2A) requirement.  
 (c) 'Going concern' loss-absorbing capacity refers to a bank's capacity to absorb losses without becoming insolvent. 'Gone concern' loss-absorbing instruments included in Tier 2 capital are those that can absorb losses once a bank's Tier 1 capital is depleted (eg through debt restructuring and haircuts).

**Chart 3.1** Banks will be required to fund themselves with more 'high-quality' capital over time

Basel III Pillar 1 risk-weighted capital requirement<sup>(a)(b)(c)</sup>



Sources: BCBS, BIS and Bank calculations.

- (a) CRD IV allows countries to set the minimum CET1 ratio in the range of 4%–4.5% (Basel III: 4%) and the minimum Tier 1 ratio in the range of 5.5%–6% (Basel III: 5.5%) in 2014.  
 (b) Capital conservation buffer consists of CET1 capital.  
 (c) There is no explicit Basel II standard mandating a 2% minimum CET1 requirement, but it is generally understood that CET1 should form the predominant part of Tier 1 capital.

*...but international agreement over the definition of the Basel III leverage ratio is yet to be reached...*

Basel III contains plans to implement a 3% leverage ratio to supplement the risk-weighted capital requirement. The leverage ratio requires banks to fund their exposures, weighted equally, with at least a minimum amount of capital. This contrasts with the risk-weighted capital requirement, which requires banks to fund their exposures — weighted by 'risk weights' that are indicative of the riskiness of the exposures — with at least a minimum amount of capital. The two main aims of the leverage ratio are to constrain banks' ability to increase the overall size of their exposures relative to their capacity to absorb losses, and to guard against uncertainties over the calibration of risk weights used in calculating the risk-weighted capital ratios. International agreement over the definition of the leverage ratio is expected in early 2014. Public disclosure of the Basel III leverage ratio will start from 2015 with a view to making it a requirement from 2018.

Box 2 sets out the FPC's view on issues relevant to a leverage ratio recommendation by the Parliamentary Commission on Banking Standards. On 26 November, the Chancellor wrote to the Governor requesting that the FPC undertakes a review of the role for the leverage ratio within the capital framework for UK banks.

*...and other aspects of the capital framework are yet to be finalised.*

Other aspects of the capital framework are yet to be finalised. In particular, the Basel Committee on Banking Supervision (BCBS) published in October a consultation paper on capital requirements for the trading book.<sup>(1)</sup> The recent crisis revealed that banks were funding their trading book assets with insufficient capital for three main reasons. First, banks could minimise the required capital by shifting exposures between the trading and banking books, as the boundary was defined subjectively based on banks' intent to trade. Second, the capital requirement for trading book exposures did not take account of an important source of bank losses during the crisis: the possibility that banks may find it takes longer, and costs more, to sell certain exposures during periods of market stress. Third, there was excessive reliance on banks' own internal models in calculating capital requirements as the standardised approach did not provide a credible alternative method for capturing risks in banks' trading portfolios.

To address these deficiencies, the proposed trading book review seeks to limit banks' ability to engage in regulatory arbitrage by making the boundary between the trading book and the banking book more objective. In addition, it proposes to make capital requirements sensitive to the liquidity characteristics of different exposures. The reforms would also introduce a more credible standardised approach for

(1) [www.bis.org/publ/bcb265.pdf](http://www.bis.org/publ/bcb265.pdf).



**Table 3.C FPC and PRA can impose additional capital requirements and buffers**Capital requirements under full implementation of Basel III in 2019<sup>(a)(b)</sup>

Per cent of risk-weighted assets

	Total (CET1 + AT1 + T2)	of which minimum CET1
<b>Minimum capital requirement</b>		
Common minimum (Pillar 1)	8.0	4.5
Additional firm-specific (Pillar 2A)	PRA discretion	
<b>(1) Total minimum requirement</b>	<b>≥8.0</b>	<b>≥4.5</b>
<b>Capital buffers</b>		
Macroprudential capital buffers <sup>(c)</sup>	FPC discretion	
Capital conservation buffer	2.5	2.5
<b>Systemic buffers</b>		
– buffer for G-SIBs	1–2.5	1–2.5
– buffer for ring-fenced banks	3	3
Additional firm-specific (Pillar 2B)	PRA discretion	
<b>(2) Total buffer</b>	<b>≥2.5</b>	<b>≥2.5</b>
– (i) for G-SIBs	≥3.5–5	≥3.5–5
– (ii) for ring-fenced banks	≥5.5	≥5.5
<b>(3) Total capital requirements (1 + 2)<sup>(d)</sup></b>	<b>≥10.5</b>	<b>≥7</b>
– for G-SIBs (1 + 2 (i))	≥11.5–13	≥8–9.5
– for ring-fenced banks (1 + 2 (ii))	≥13.5	≥10

Sources: BCBS, BIS, HM Treasury, ICB and PRA.

(a) Under CRD IV, capital buffers are expected to consist of common equity (CET1).

(b) G-SIBs are global systemically important banks as identified by the FSB. The equity buffer for ring-fenced banks will be the higher of the G-SIB buffer and the ring-fence buffer (to be introduced through the CRD IV 'systemic risk buffer'). Domestic systemically important banks are yet to be identified and the level of capital surcharge is yet to be decided.

(c) Macroprudential capital buffers consist of countercyclical capital buffer and sectoral capital requirements.

(d) The total capital requirements for a firm may be greater than the numbers in (3) if a firm-specific capital requirement (Pillar 2A), macroprudential capital buffers or additional firm-specific capital buffer (Pillar 2B) are applied.

**Table 3.D Pillar 1 and Pillar 2 capital requirements try to deal with different sources of risks<sup>(a)</sup>**

- The so-called 'Pillar 1' minimum capital requirements (shown in **Table 3.B**) apply to all banks and are designed to provide protection against credit, market and operational risks of well-diversified international banks.
- Banks may be subject to additional firm-specific Pillar 2 capital requirements. These are intended to ensure that banks' capital is adequate for supporting all the relevant risks in their business. It is also intended to encourage them to develop and use better risk management techniques in monitoring and managing their risks.
- Firm-specific Pillar 2 capital requirements aim to provide protection against risks that are not adequately captured (eg concentrations of credit risk) or not captured at all (eg interest rate risk in the banking book or pension risk) under the Pillar 1 framework.

Source: Bank of England.

(a) The table covers the Pillar 2A capital requirement, and not the Pillar 2B capital buffer.

calculating capital requirements against market risk and require that banks publish capital charges calculated under the standardised approach for each trading desk (a unit within a bank trading particular financial products). This would enable supervisors to assess banks' internal models against an objective standard and withdraw permission for using internal models for specific desks — rather than for the bank as a whole — if they were found to be inadequate. Separately, the capital framework for securitisation, including its mechanistic reliance on credit ratings, also remains under review.<sup>(1)</sup>

### *The framework allows for macro and microprudential discretion.*

The FPC is due to have two types of Direction tools to adjust capital requirements in order to contain emerging threats to financial stability (**Table 3.C**). First, the Government is proposing to make the FPC responsible for decisions on the countercyclical capital buffer.<sup>(2)</sup> Second, the FPC has the power to issue Directions to the PRA requiring it to supplement sectoral capital requirements.<sup>(3)</sup> In addition, the FPC also has the power to make Recommendations to the PRA and the FCA over other aspects of the capital framework on a 'comply or explain' basis.

The PRA under its Pillar 2 regime has the power to impose an additional firm-specific capital requirement against risks that are not captured or not adequately captured in the minimum Pillar 1 capital requirements that apply to all banks (**Table 3.C and Table 3.D**). The PRA can also require an additional firm-specific capital buffer. The PRA is currently revisiting its approach to the treatment of risks under Pillar 2 and plans to communicate its approach to firm-specific capital add-ons and buffers in due course.

To reduce uncertainty over the use of its Direction tools, the interim FPC released a Draft Policy Statement in January. This incorporated a set of core indicators that the FPC will routinely review in setting the countercyclical capital buffer and sectoral capital requirements.<sup>(4)</sup> The FPC plans to issue a new Policy Statement early next year.

The Bank of England has also released a Discussion Paper on stress testing. This paper, which was prepared under the guidance of the FPC and the PRA Board, includes discussion of issues including how stress tests could be used in setting macroprudential and firm-specific capital buffers.<sup>(5)</sup> Important details of how the stress tests will be conducted and used will be finalised following feedback on the Discussion Paper.

(1) [www.bis.org/publ/bcbs236.pdf](http://www.bis.org/publ/bcbs236.pdf).

(2) CRD IV requires the countercyclical capital buffer to be set from January 2016.

(3) This Direction power is subject to compliance with any applicable requirements of CRD IV.

(4) [www.bankofengland.co.uk/financialstability/Documents/fpc/policystatement130114.pdf](http://www.bankofengland.co.uk/financialstability/Documents/fpc/policystatement130114.pdf).(5) [www.bankofengland.co.uk/financialstability/fsc/Documents/discussionpaper1013.pdf](http://www.bankofengland.co.uk/financialstability/fsc/Documents/discussionpaper1013.pdf).

*But the new capital framework is more complex than in the past...*

The different elements of the new capital framework are designed to tackle multiple sources of risk. But taken together, this amounts to a more complex capital framework than in the past. One important element relates to the risk weights used to calculate the denominator of the risk-weighted capital ratio. As discussed in the November 2012 *Report*, UK banks' internal models have been found to produce widely differing risk weights for common portfolios of banking assets.<sup>(1)</sup> Consequently, the PRA's evaluation of capital shortfalls at major UK banks — which was conducted in response to an interim FPC recommendation in March — was based on a more prudent calculation of risk weights.<sup>(2)</sup> The FPC recommended in June that the PRA assess the feasibility of also calculating capital ratios using the Basel III standardised approach to credit risk (Section 4).

*...and concerns remain over the quality of capital.*

In addition, concerns remain over the numerator of risk-weighted capital ratios — the level of capital available for absorbing *unexpected* losses. This may be overstated if assets are not prudently valued and the accounting framework does not capture risk adequately from a regulatory perspective, such that provisions available for absorbing *expected* losses are insufficient.<sup>(3)</sup> This is why the interim FPC's recommendation in March, and the subsequent evaluation of capital shortfalls by the PRA, included an assessment of banks' expected losses. A further concern is that some components of regulatory capital — such as certain unrealised capital gains and imprudent valuations of less liquid trading book positions — may not be available for absorbing losses in all situations.

*Further work is needed to ensure that the overall capital framework is effective.*

More generally, further work is needed to ensure that the overall capital framework is simple, clear and produces comparable outcomes across banks and over time.<sup>(4)</sup> There is also a need to ensure that the combined effect of reforms to banks' capital framework is to enhance the stability of the system as a whole. This includes examination of how the accumulation of reforms, uncertainty around their future paths and inconsistencies in implementation across jurisdictions may affect banks' business models and incentives, as well as market-making and market liquidity.

The FPC agreed that it should ensure that prospective changes to regulatory capital requirements for UK banks are, when taken together, appropriately calibrated and phased in from a

(1) For international evidence, see [www.bis.org/publ/bcbs256.pdf](http://www.bis.org/publ/bcbs256.pdf) and [www.bis.org/publ/bcbs256.htm](http://www.bis.org/publ/bcbs256.htm).

(2) [www.bankofengland.co.uk/publications/Pages/news/2013/081.aspx](http://www.bankofengland.co.uk/publications/Pages/news/2013/081.aspx).

(3) See Box 4 on provisioning in the June 2013 *Report* for a further discussion of the issues.

(4) The scope for removing undue complexity and improving comparability within the new capital framework is currently being examined by the Basel Committee. See [www.bis.org/publ/bcbs258.pdf](http://www.bis.org/publ/bcbs258.pdf).

macroprudential perspective, and that they fit together to deliver a stable, prudent and coherent package, which takes account of the broader impact on the financial system (Section 5).

*The appropriate 'going concern' capital for specific banks depends on the likelihood that they can be resolved.*

The appropriate level of 'going concern' capital — such as common equity (Table 3.B) — for the banking system as a whole depends on the ability of the system to absorb losses under stress, while continuing to provide credit to the real economy. The appropriate 'going concern' capital for a specific firm depends, in part, on the likelihood that it can be resolved without use of taxpayer funds. As discussed in the next section, the reform agenda on strengthening the resolution framework for systemically important banks includes the introduction of 'gone concern' loss-absorbing capacity (GLAC) — such as long-term bonded debt — that can be 'bailed in' at resolution to avoid taxpayer support when a bank's capital is depleted. Ultimately, the appropriate level of 'going concern' capital may depend on the quantum and distribution of GLAC within banking groups and the credibility of the resolution framework. This means that optimal levels of 'going concern' capital will depend, in part, on improvements in resolution arrangements.

### 3.2 Ending 'too big to fail'

*Various reforms to address 'too big to fail' are under way...*

Disorderly failure of a large, highly interconnected financial institution can potentially cause major disruptions for the financial system as a whole. The 'too big to fail' problem arises, in part, when the threatened failure of a systemically important financial institution (SIFI) — including non-banks and financial market infrastructures — leaves public authorities with no option but to bail it out to avoid systemic financial instability. And if creditors expect to be bailed out, the risks taken by SIFIs would not be fully reflected in the price of their debt. This in turn creates incentives for SIFIs to take excessive risks. Credit rating agencies still attach some probability to the bailout of unsecured creditors of large UK and European banks, although Moody's in November removed ratings uplift from government support for all US bank holding company debt, citing strengthened US bank resolution tools. Market intelligence also indicates greater understanding among contacts of the impact of reforms on the likelihood of bailout. Table 3.E summarises some of the approaches for dealing with the 'too big to fail' problem.

*...to require systemic institutions to fund themselves with additional capital...*

One way of tackling the 'too big to fail' problem is through measures to reduce the probability of a SIFI failure by requiring systemic financial institutions to fund themselves with additional capital. Starting in 2016, global systemically

**Table 3.E** A range of measures may be required to tackle the 'too big to fail' problem

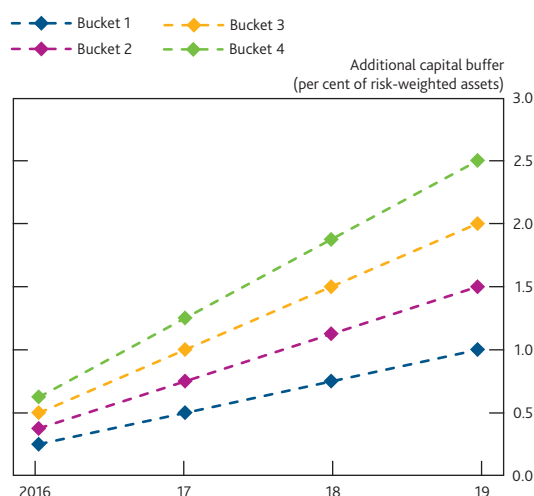
Examples of *ex-ante* and *ex-post* policy measures

Policy objectives	Examples of key measures
Reduce the probability of a SIFI failure	<ul style="list-style-type: none"> <li>Intensive and effective supervision of SIFIs.</li> <li>Ensure that SIFIs have sufficient capital to absorb losses and remain a 'going concern' in most states of the world.</li> </ul>
Reduce the impact of a SIFI failure by establishing effective and credible resolution regimes	<ul style="list-style-type: none"> <li>Structural reforms to make it easier to resolve a SIFI while preserving its core functions.</li> <li>Require SIFIs to have sufficient 'gone concern' loss-absorbing capacity in the relevant parts of the group.</li> <li>Development of credible resolution plans, including cross-border co-operation agreements, for SIFIs.</li> </ul>

Source: Bank of England.



**Chart 3.2** Global systemically important banks are required to fund themselves with additional capital  
G-SIBs capital surcharge transition path by 'bucket' classifying banks by systemic importance<sup>(a)(b)</sup>



Sources: BIS, CRR, FSB and Bank calculations.

- (a) Firms in bucket 4 are considered to be the most systemic of the G-SIBs. The FSB's November 2013 G-SIB list includes HSBC (bucket 4), Barclays (bucket 3), Royal Bank of Scotland (bucket 2) and Standard Chartered (bucket 1).  
(b) Surcharge increases take effect as of 1 January of each year.

important banks (G-SIBs) will be required to fund themselves with additional capital buffers according to the internationally agreed 'phase-in' timetable (Chart 3.2). Once fully implemented in 2019, G-SIBs will be required to have in place an additional capital buffer of 1%–2.5% of risk-weighted assets, depending on their measured systemic importance (Table 3.C). As well as lowering their default probabilities, the additional capital buffer will enhance G-SIBs' ability to continue lending in a situation of general financial market stress.

The BCBS has also set out a framework containing a minimum set of principles for national authorities to identify domestic systemically important banks (D-SIBs) and apply capital surcharges, which are to be phased in alongside those for G-SIBs. The BCBS will start an international peer review of the implementation of the D-SIB frameworks by 2015. In the EU, D-SIBs will need to be identified by 2016, based on the guidelines issued by the European Banking Authority.

The Financial Stability Board (FSB) has also identified global systemically important insurers that will be subject to higher loss-absorbency requirements. Work is currently under way to develop straightforward 'backstop' capital requirements for all activities of the insurance group (including those of non-insurance subsidiaries). These will then be supplemented by higher loss-absorbency measures for systemic insurers.<sup>(1)</sup> The FSB is also working on assessment methodologies for identifying systemic non-bank, non-insurance financial institutions in consultation with the International Organization of Securities Commissions (IOSCO).

#### *...and to supervise them more intensively.*

Intensive supervision is another way of promoting the safety and soundness of SIFIs and avoiding the adverse effects that those institutions can have on financial stability. The FSB previously suggested that the key preconditions for effective supervision of financial institutions, in particular SIFIs, included: strong and unambiguous mandates; independence to act; sufficient quality and quantity of supervisory resources; supervisors having the power to execute on their mandate; and strong supervisory expectations for financial institutions' risk governance and internal controls, risk management functions, risk aggregation and risk reporting capabilities.<sup>(2)</sup>

Consistent with the FSB's principles, the PRA focuses its supervisory resources towards those issues and institutions that, in its judgement, pose the greatest risk to the stability of the UK financial system. The PRA has also adopted a Proactive Intervention Framework, which focuses senior management attention and resources on those financial institutions which

(1) Specifically, the International Association of Insurance Supervisors will develop the backstop capital requirements by November 2014, with implementation details for higher absorbency requirements for global systemically important insurers to be developed by end-2015. See [www.financialstabilityboard.org/publications/r\\_130718.pdf](http://www.financialstabilityboard.org/publications/r_130718.pdf).

(2) [www.financialstabilityboard.org/publications/r\\_130902.pdf](http://www.financialstabilityboard.org/publications/r_130902.pdf).

are judged to be most at risk of failure. The FSB's 'Peer review of the United Kingdom' concluded in September that significant progress had been made in reforming microprudential supervision, and made a number of recommendations to further enhance its effectiveness, including a continuous assessment of the adequacy of supervisory resources.<sup>(1)</sup>

*Structural reforms to help end 'too big to fail' are under way...*

In the United Kingdom, key structural reforms within the banking system will be implemented through the Banking Reform Bill, which is expected to receive Royal Assent by early 2014. For the largest deposit-takers, the Banking Reform Bill ring-fences core banking services — such as deposit-taking from individuals and small and medium-sized businesses, provision of overdraft facilities and payment services. The ring-fencing requires these services to be undertaken in a separate legal entity insulated from investment banking activities, as recommended by the Independent Commission on Banking (ICB) in 2011. The ring-fence is to be implemented by 2019. The ICB has proposed that ring-fenced institutions should be subject to a capital surcharge that is the larger of the G-SIB buffer and the ring-fence buffer (**Table 3.C**). The FPC will monitor how structural reform proposals, and firms' implementation plans, will help reduce 'too big to fail' problems in line with the objectives of the ICB's recommendations (Section 5).

Structural reforms are also under way in other jurisdictions. In the United States, the Volcker Rule will prohibit proprietary trading by banking entities. In addition, proposed rules for foreign banking organisations require foreign banks with a significant US presence to create an intermediate holding company over their US subsidiaries to facilitate enhanced supervision and regulation of their operations. In Europe, ongoing reforms in Germany and France aim to ensure that certain activities, including proprietary trading, are undertaken by separately capitalised subsidiaries. The European Commission is expected to issue legislative proposals for reforming the structure of the EU banking sector in due course, following a report by the Liikanen Group. Finally, the FSB in conjunction with the IMF and the OECD will be assessing the cross-border consistency of various structural reform efforts and their implications for financial stability by end-2014.

*...and resolution regimes and 'gone concern' loss-absorbency requirements are being developed...*

A necessary requirement for ending 'too big to fail' is an effective and credible resolution regime, which allows authorities to expose shareholders and unsecured and uninsured creditors of a failing SIFI to losses without major

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(1) [www.financialstabilityboard.org/publications/r\\_130910.pdf](http://www.financialstabilityboard.org/publications/r_130910.pdf).

disruption. Without such a regime, addressing the problem of 'too big to fail' is reliant on a zero-failure regime for SIFIs, which is unlikely to be realistic. It is expected that all G20 jurisdictions will have implemented the international standards embodied in the FSB's 'Key attributes of effective resolution regimes' (Key Attributes) by end-2015.<sup>(1)</sup> In the United Kingdom, the Bank of England plans for and implements resolutions of failed financial institutions under the Special Resolution Regime. The scope of the regime was extended through the Financial Services Act 2012 to include investment firms, central counterparties (CCPs) and banking group companies (including holding companies).<sup>(2)</sup> But it does not currently cover insurers.

As set out in the FSB's September report on 'Progress and next steps towards ending 'Too-Big-to-Fail (TBTF)'',<sup>(3)</sup> effective resolution requires that a firm issues sufficient 'gone concern' loss-absorbing capacity (GLAC) — such as long-term bonded debt — which can readily be written down and converted into equity after the firm's capital is depleted. The FSB is expected to provide a detailed proposal on GLAC by end-2014. The composition of GLAC is yet to be decided, but it is likely to comprise Basel III capital instruments, as well as other long-term unsecured instruments (for example senior long-term debt) that could credibly be bailed in at resolution.

In the United Kingdom, the Banking Reform Bill (and associated secondary legislation) will set out a framework for the PRA to impose GLAC requirements on financial institutions and their holding companies. In addition, the Banking Reform Bill is set to add a new 'bail-in' tool to the Bank of England's resolution toolkit. Such a 'bail-in' tool will enable the imposition of losses on a wide range of liabilities, including GLAC. In order to make resolution strategies credible, some UK financial institutions will need to undergo some structural changes and ensure that they have sufficient GLAC in the right part of the group, typically a holding company. To enable 'bail-in' of GLAC instruments without causing excessive contagion elsewhere in the system, there is a need to ensure that the holdings of these instruments are not concentrated in segments of the market that are likely to be affected by the same shocks that hit the failing bank.

*...including on a cross-border basis.*

In the EU, the Bank Recovery and Resolution Directive will introduce a uniform minimum standard for resolution regimes for banks and investment firms across the EU, including provisions relating to GLAC. Once in force, the Directive will implement the core elements of the FSB's Key Attributes, thus facilitating resolution of those financial institutions within the EU. But effective resolution of cross-border G-SIFIs —

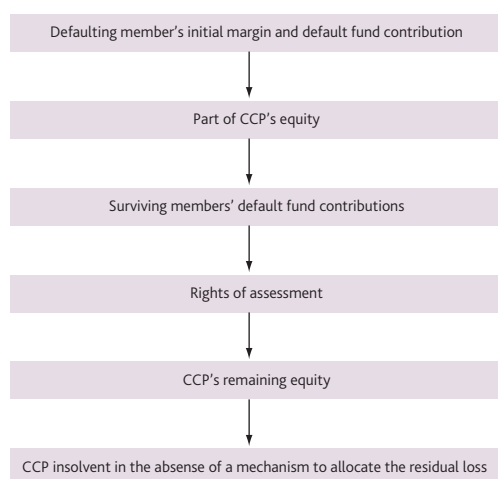
(1) The FSB's Key Attributes can be found at: [www.financialstabilityboard.org/publications/r\\_111104cc.pdf](http://www.financialstabilityboard.org/publications/r_111104cc.pdf).

(2) The additional resolution powers will become available following adoption of the necessary secondary legislation, expected in the near future.

(3) [www.financialstabilityboard.org/publications/r\\_130902.pdf](http://www.financialstabilityboard.org/publications/r_130902.pdf).

### Chart 3.3 CCPs risk insolvency without a mechanism to allocate exceptional losses

A typical CCP default waterfall in the absence of a loss-allocation rule



Source: Bank of England.

particularly those that are headquartered or have significant operations outside the EU — also requires the removal of barriers to effective resolution in other jurisdictions. This includes: the conclusion of institution-specific cross-border agreements that are in the process of being developed; amendments to financial institutions' structures to ensure that they are resolvable; and the removal of legal barriers to cross-border recognition of resolution actions.

### *Recovery plans and resolution regimes for non-bank financial institutions are also being developed.*

Given the critical importance of CCPs for the system as a whole, there is a need to ensure that they can manage losses — even those that exceed their margin and other financial resources — while maintaining clearing services (**Chart 3.3**). To this end, UK-regulated CCPs will be required to introduce by February 2014 a loss-allocation rule that specifies how any losses in excess of pre-funded default resources would be allocated in the event of a clearing member default. These CCPs will also be required to introduce similar arrangements for losses arising from other sources (such as investment losses) by May 2014. The presence of transparent loss-allocation rules should help avoid a disorderly failure of a CCP and allow it to continue to provide critical services to the market.

The FSB also published in August a consultative document on how the Key Attributes may be applied to the resolution of non-bank financial institutions, including CCPs, and will set out by the end of the year desirable arrangements for financial market infrastructures, insurance companies and financial firms that hold client assets.<sup>(1)</sup> The FSB will be reviewing plans for the implementation of the Key Attributes for non-bank financial institutions in the United Kingdom and other jurisdictions next year.

### *Successful completion of the reform agenda is key to ending 'too big to fail'.*

The FPC agreed that one of its medium-term priorities should be to review and, where necessary, influence the design and implementation of reforms to address the 'too big to fail' problem, subject to where policies have been settled internationally (Section 5). There is also a need to ensure that the implications of the reforms are well understood and priced in by market participants so as to enhance market discipline on SIFIs.

## 3.3 Shadow banking and diverse and resilient sources of market-based finance

### *Non-bank and market-based finance are vitally important, but risks need to be managed.*

Non-bank and market-based provision of finance can play a number of key roles in the financial system, including offering companies alternatives to bank lending and distributing direct

(1) [www.financialstabilityboard.org/publications/r\\_130812a.pdf](http://www.financialstabilityboard.org/publications/r_130812a.pdf).

risk exposures among a wider group of counterparties. But it can also present systemic risks that need to be detected, monitored and managed.

In the United Kingdom, most financial institutions are subject to supervision by the PRA, the FCA or both. But only those that are engaged in deposit-taking, insurance or brokerage activities are subject to prudential regulation by the PRA.<sup>(1)</sup> The FPC is responsible for identifying and assessing systemic risks arising beyond the regulatory perimeter, including from the 'shadow' banking system.<sup>(2)</sup> The FPC was also given, in the Financial Services Act 2012, the power to recommend to HM Treasury that the existing regulatory perimeter be extended or modified. Gaps in the data on entities and activities outside the regulatory perimeter form a key impediment to the FPC's efforts in assessing systemic risks arising beyond the regulatory perimeter and the appropriateness of the perimeter itself.

The shadow banking system — which the FSB defined as credit intermediation occurring partly or wholly outside of the regular banking system — often involves leverage and maturity mismatch, which are two key sources of risk. The size of the global shadow banking system is hard to measure accurately, but the FSB estimates that non-bank financial intermediaries' assets in 20 member jurisdictions and the euro area — a rough proxy of shadow banking assets — may stand at around US\$70 trillion (Chart 3.4). Of these, the assets of the United Kingdom's non-bank financial intermediaries stand at around US\$9 trillion.

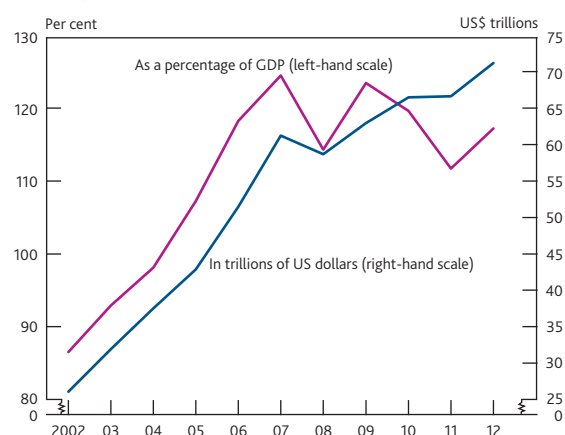
A comprehensive international reform agenda is progressing under the FSB to strengthen the oversight and regulation of the shadow banking system. In the EU, several initiatives are also under way, including the European Commission's proposed regulatory reform for money market funds.<sup>(3)</sup> The FPC stated in September that an effective regime for monitoring and mitigating risks to stability from shadow banking, consistent with international standards, is needed in the United Kingdom, alongside measures that support diversity in sources of finance and financial services. The identification and management of potential systemic risks from shadow banking is one of the FPC's medium-term priorities, in line with its statutory responsibilities (Section 5).

### *Measures to limit the availability of leverage in securities financing markets have been proposed...*

The FSB published in August a high-level policy framework for strengthening the oversight and regulation of shadow banking

**Chart 3.4 Non-bank financial intermediaries' assets continue to increase in dollar terms**

Covering 20 FSB member jurisdictions and euro area<sup>(a)</sup>



Source: FSB.

(a) Twenty jurisdictions and euro area.

(1) Specifically, the PRA is responsible for the prudential regulation and supervision of banks, building societies, credit unions, insurers and major investment firms.

(2) Issues regarding the regulatory perimeter are described in Box 4 from the November 2012 Report.

(3) The proposal includes liquidity requirements for all money market funds and a 3% capital buffer for constant net asset value funds, which seek to maintain a stable monetary value per share when investors redeem or purchase shares. For further details, see [http://europa.eu/rapid/press-release\\_IP-13-812\\_en.htm?locale=en](http://europa.eu/rapid/press-release_IP-13-812_en.htm?locale=en).

**Table 3.F The FSB proposed a minimum haircut for certain types of securities-against-cash transactions<sup>(a)</sup>**

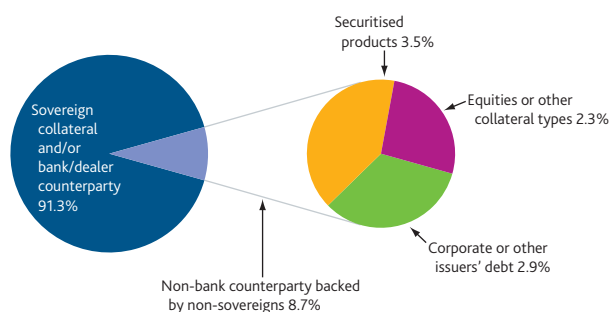
Per cent Residual maturity of collateral	Haircut level	
	Corporate and other issues	Securitised products
≤1 year debt securities and floating-rate notes	0.5	1.0
>1 year ≤5 years debt securities	1.0	2.0
>5 years debt securities	2.0	4.0
Main index equities		4.0
Other assets within the scope of the framework		7.5

Source: FSB.

(a) Numerical haircut floors for securities-against-cash transactions proposed by the FSB are aimed at non-centrally cleared transactions involving entities not subject to regulation of capital and liquidity/maturity transformation using non-government collateral.

**Chart 3.5 The proposed haircut would apply to a relatively small subset of the transactions**

Transactions subject to proposed floors, as of 2012



Source: FSB.

entities.<sup>(1)</sup> Securities financing markets, which allow non-bank companies to obtain financing against collateral from banks and other firms, are a key component of this. These markets play important roles in enabling firms' risk and collateral management, and supporting secondary market liquidity. But they also provide a mechanism by which non-banks can build excessive debts in an upswing, when asset prices rise and inflate collateral values. The loosening of financing conditions can be exaggerated if the degree of overcollateralisation required by market participants — or collateral 'haircuts' — falls in tandem. And in a downswing, when asset prices fall and haircuts rise, non-banks are often forced to deleverage by selling assets. This can amplify the initial fall in asset prices, further reducing the value of collateral held by other financial institutions and tightening borrowing constraints across the system.

To mitigate risks in these markets, the FSB has proposed minimum standards for the methodologies used by investors when calculating collateral haircuts to help limit the availability of leverage to non-bank companies against non-government securities. In addition, the FSB has proposed a schedule of numerical haircut floors<sup>(2)</sup> (Table 3.F). The proposed calibration, which could affect around 9% of the repo market (Chart 3.5), is not intended to bind for the majority of transactions except during periods of exuberance. The FSB intends to finalise its recommendations on minimum haircuts in 2014.

*...and reforms to reduce counterparty credit risks in over-the-counter derivative markets are in progress...*

An important package of reforms of OTC derivative markets is also progressing internationally.<sup>(3)</sup> In the United States, mandatory central clearing of certain types of interest rate swaps and credit default swaps has been brought into force in phases through the course of this year.<sup>(4)</sup> In Europe, the process of mandating products for central clearing is expected to start in 2014. In September, the BCBS and IOSCO published a final framework for margin requirements for non-centrally cleared derivatives.<sup>(5)</sup> Under these globally agreed standards, which are set to be introduced in 2015, all financial firms and systemically important non-financial entities will have to exchange initial and variation margin on non-centrally cleared contracts.

As many derivative trades cross borders, market participants need access to overseas infrastructures. The FSB has highlighted that regulators in different jurisdictions should be able to defer to each other where it is justified by the quality

(1) See [www.financialstabilityboard.org/publications/r\\_130829c.pdf](http://www.financialstabilityboard.org/publications/r_130829c.pdf).

(2) The FSB proposes that these haircuts are applied to securities financing transactions involving non-banks using non-government collateral.

(3) See also Section 3 from the June 2013 Report and Box 3 from the November 2012 Report.

(4) For the products to which the clearing mandate of the US Commodity Futures Trading Commission applies, see [www.cftc.gov/PressRoom/PressReleases/pr6607-13](http://www.cftc.gov/PressRoom/PressReleases/pr6607-13).

(5) See [www.bis.org/publ/bcbs261.pdf](http://www.bis.org/publ/bcbs261.pdf).



of their respective regimes. Such an approach prevents financial institutions from using infrastructures with weaker regulatory oversight, without creating undue impediments to their opportunities to trade cross-border.

*...but the aggregate impact of regulatory reforms is uncertain.*

Regulatory reforms following the recent financial crisis have been far-reaching, but they have necessarily focused on addressing risks in specific segments of the financial system. Further work is required to fully understand their collective impact on the financial system as a whole. For example, the proposals for reform of securities financing and OTC derivative markets described above suggest changes to collateralisation practices that ought to reduce the availability of excessive leverage to investors and mitigate counterparty credit risk. But greater reliance on collateral could potentially have the unintended effect of making the financial system more exposed to liquidity risks if asset prices, margin rates or collateral eligibility change procyclically with wider economic conditions. There is also a need to examine the cumulative impact of regulatory reforms on the resilience of liquidity in financial markets that are important to UK financial stability.

*Further actions may be needed to offset procyclicality...*

Actions may need to be taken to offset the unintended consequences of ongoing regulatory reforms on procyclicality in the availability of finance. The interim FPC suggested in 2012 that margin requirements could potentially be an important countercyclical macroprudential policy tool for the United Kingdom.<sup>(1)</sup> And international guidance suggests that CCPs and financial institutions should adopt measures to limit procyclical effects in risk management practices, to the extent possible without putting their own financial soundness at risk.<sup>(2)</sup>

There is also a need to ensure that regulation of non-banks — including those that may not necessarily engage in bank-like leverage or maturity transformation — does not contribute to procyclicality in asset markets. For example, regulatory requirements to mark the balance sheets of life insurers to market prices may create procyclical movements in their capital resources. This in turn may generate pressure on these insurers to sell risky assets during periods of market stress and take excessive risks in periods of exuberance in the absence of credible measures to mitigate such incentives.

*...and enhance the resilience of important markets.*

Measures to mitigate financial stability risks both within and outside of the regular banking system need to support the development of diverse and resilient market-based finance.

(1) See the statement from the FPC policy meeting held on 16 March 2012, [www.bankofengland.co.uk/financialstability/documents/fpc/statement120323.pdf](http://www.bankofengland.co.uk/financialstability/documents/fpc/statement120323.pdf).

(2) See, for example, [www.bis.org/publ/cpss101a.pdf](http://www.bis.org/publ/cpss101a.pdf) and [www.esma.europa.eu/page/European-Market-Infrastructure-Regulation-EMIR](http://www.esma.europa.eu/page/European-Market-Infrastructure-Regulation-EMIR).

Effective market-based financing requires continuously open primary markets and resilient secondary market liquidity. To date, many financial markets have been reliant directly or indirectly on banks acting as market makers or providers of committed credit lines to other firms. Market resilience could be improved by greater diversity of market participants, including non-banks operating alongside banks. Market regulation and trading infrastructures therefore need to be designed to support such diversity.

Greater transparency for regulators and investors and more robust trading infrastructures are likely to promote resilience of systemically important markets. In this context, the FSB recommended more granular and frequent data collection on securities financing and repo markets by national and regional authorities — for example through trade repositories and enhanced regulatory reporting — in order to enhance their ability to monitor these markets and respond appropriately to emerging risks.<sup>(1)</sup> The FSB also proposed setting standards and processes for data collection to enable global aggregation of such data. Some aggregate information could be released publicly to improve investors' understanding of the wider risk landscape beyond their own exposures.

#### *Impediments to the functioning of securitisation markets require further examination.*

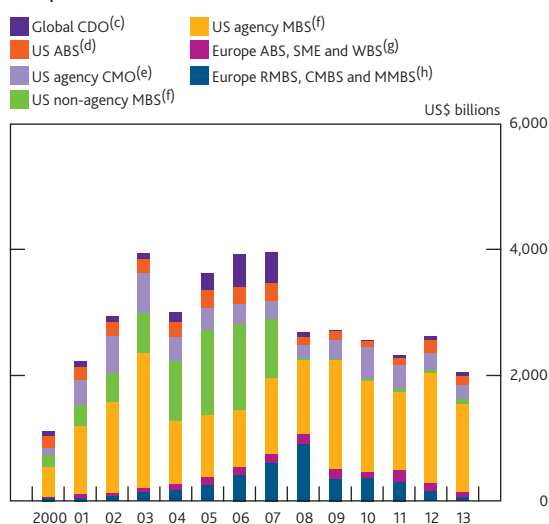
The FPC will seek to improve the diversity and robustness of market-based financing in the United Kingdom and globally (Section 5). In this context, there is a need to examine impediments to market-based finance, including securitisation markets and financing for small and medium-sized enterprises (SMEs).

Better functioning and safe and robust securitisation markets have the potential to diversify banks' funding sources and create securities that are better tailored to the needs of non-bank investors, such as insurers and pension funds. Securitisation can also transfer risk outside the banking sector. For example, banks that have the expertise to originate loans may not always be best placed to bear the risk of those loans. In those circumstances, banks can free up capital for new lending by securitising loans and selling them to other investors. This process diversifies sources of finance available to the real economy and potentially increases its stability.

Both Europe and the United States have experienced a sharp fall in the issuance of securitised products since the crisis, with the notable exception of US agency mortgage-backed securities (MBS) that are supported by government-sponsored enterprises (Chart 3.6). The reduction in European securitisation issuance has been particularly marked, with the total issuance falling from US\$1.2 trillion in 2008 to US\$322 billion in 2012.

**Chart 3.6 Global securitisation markets are yet to recover**

European and US securitisation issuance<sup>(a)(b)</sup>



Sources: Association for Financial Markets in Europe, Securities Industry and Financial Markets Association statistics and Bank calculations.

(a) US data updated to end-October 2013 and European (including Turkey, Kazakhstan, the Russian Federation and Iceland) data to end-September 2013.

(b) European data includes retained securitisation.

(c) Collateralised debt obligation.

(d) Asset-backed securities.

(e) Collateralised mortgage obligation.

(f) Mortgage-backed securities.

(g) Asset-backed securities, small and medium-sized enterprises and whole business securitisation.

(h) Residential mortgage-backed securities, commercial mortgage-backed securities and mixed mortgage-backed securities.

(1) [www.financialstabilityboard.org/publications/r\\_130829b.pdf](http://www.financialstabilityboard.org/publications/r_130829b.pdf).

Temporary factors can partially explain the muted recovery in securitisation issuance in Europe thus far. These include: weak funding demand by large banks that are trying to shrink their balance sheets; the availability of cheap alternative funding, including from central banks; uncertainty over the final form of regulations relating to securitisation; and a lingering stigma attached to securitisation given its role in the crisis.

There may also be structural factors impeding the development of a well-functioning securitisation market in Europe. These could include: the lack of standardisation of structures and information about asset performance; the difficulty of modelling cash flows of underlying asset classes (for example due to prepayment options); and the lack of mechanisms for smaller issuers to pool assets to overcome the fixed costs of issuance.

The FPC intends to assess, and where necessary act, to develop approaches to promote a better functioning securitisation market in the United Kingdom (Section 5).

*Lack of information about creditworthiness may impede credit supply to smaller companies...*

The 'RBS Independent Lending Review', led by Sir Andrew Large and published in November,<sup>(1)</sup> recommended that the UK authorities should help identify appropriate solutions to structural shortcomings in the credit market for SMEs. The report also noted the lack of a central repository of information about SMEs' creditworthiness as a shortcoming and identified the creation of a credit database for SMEs as a possible solution. Unlike a number of other European countries, the United Kingdom does not currently operate a central credit register.

*...and there may be scope for a credit register to improve information available on these companies.*

There would be choices over the breadth of data contained within such a credit register and choices around who could access data contained within it. Those choices could affect potential benefits and costs. But in principle, a credit register, accessed by a range of potential lenders, could improve SMEs' access to credit in a number of ways. In the short term, better information could reduce uncertainty and improve lenders' ability to screen loan applicants, thus facilitating loan provision to creditworthy SMEs and helping to bring down collateral requirements. In the longer term, improved information about SME borrowers could encourage the emergence of new lenders, thus enhancing competition in the SME loan market and potentially stabilising credit availability. Moreover, better data on the prepayment and default history of SME borrowers could potentially support securitisation of SME loans.

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(1) See [www.independentlendingreview.co.uk](http://www.independentlendingreview.co.uk).

The 'RBS Independent Lending Review' also identified a need to increase the information on SME lending available to public authorities, the financial services industry and SMEs themselves. By establishing a comprehensive set of statistics on SME lending that can be disclosed to the public in a suitable form, a credit register could encourage better-informed policymaking and public debate about the state of SME finance. In the longer run, creation of a credit register could also enable both the MPC and FPC to assess the impact of monetary and macroprudential policies on credit availability and banks' risk-taking better. Moreover, timely credit data that are comparable across banks would provide valuable input for bank stress tests and hence the FPC's policymaking. The FPC therefore intends to consider whether a UK credit register might support financial stability, subject to an assessment of its potential costs and benefits (Section 5).

# 4 Progress on previous macroprudential policy decisions

The Financial Policy Committee (FPC) has held two policy meetings since the June 2013 *Report*. The Committee made no new recommendations in September. At its November meeting it issued one new recommendation to the Financial Conduct Authority (FCA) on appropriate interest rate stress tests to use in the assessment of mortgage affordability.

In September, the Committee agreed that the stance of UK monetary policy did not currently pose a significant threat to financial stability that could not be contained by prudential or other regulatory tools. In line with the process set out in the MPC forward guidance document, the Committee will release the assessment from its November meeting no later than the minutes of the December 2013 MPC meeting.

During its September meeting, the Committee identified priority areas on which it would focus over the coming 18 months. The Committee also approved for publication a Bank staff Discussion Paper on stress testing.

The Committee reviewed progress against previous recommendations at both meetings. Two of these have now been implemented and actions are under way to implement the remaining recommendations.

This section describes the activity of the Committee and the progress made in implementing previous recommendations over the past six months. Each recommendation has been given an identifier to ensure consistent referencing of recommendations over time. For example, the identifier 12/Q2/3 refers to the third recommendation made following the 2012 Q2 Committee meeting, and so on.

## 4.1 Activity of the Committee

The Committee has held two policy meetings since the publication of the June 2013 *Report*. At its September meeting, the Committee identified three priority areas on which it would focus over the coming 18 months: the medium-term capital framework for banks; ending 'too big to fail'; and shadow banking and diverse and resilient sources of market-based finance. These priorities are explored further in Sections 3 and 5 of this *Report*.

Also in September, in a joint discussion with the PRA Board, the Committee agreed the key questions on which public guidance would be sought in relation to stress testing. The consultation began with publication of a Discussion Paper,

'A framework for stress testing the UK banking system', on 1 October. The proposed framework is explored in further detail later in this section.

As required by statute, the Committee also reviewed a draft of the Bank's Financial Stability Strategy, which was published on 1 October.<sup>(1)</sup> The Committee anticipated that the strategy would be updated in early 2014, in light of the further discussions on its priorities at the November meeting.

As part of the forward guidance framework announced by the Monetary Policy Committee (MPC) in August, the Committee has been asked to alert the MPC if the stance of UK monetary policy posed a significant threat to financial stability that could not be contained by prudential or other regulatory tools.<sup>(2)</sup> The Committee agreed in September that no such threat was posed. In line with the process set out in the MPC forward guidance document, the Committee will release the assessment from its November meeting no later than the minutes of the December 2013 MPC meeting.

(1) See [www.bankofengland.co.uk/about/Documents/strategy1314.pdf](http://www.bankofengland.co.uk/about/Documents/strategy1314.pdf).

(2) See [www.bankofengland.co.uk/publications/Documents/inflationreport/2013/ir13augforwardguidance.pdf](http://www.bankofengland.co.uk/publications/Documents/inflationreport/2013/ir13augforwardguidance.pdf).

Also in September, the Committee was briefed on the Chancellor's plans to consult the Committee in respect of the Help to Buy mortgage guarantee scheme. If, after the scheme's initial three-year life, the Government wished to extend it, the Chancellor would ask the Committee to assess the impact of the scheme on financial stability and to advise accordingly. In addition, following the Committee's meeting in September, the Chancellor asked the Committee to work with him every September, starting in 2014, to assess the ongoing impact of the scheme. He proposed that, following the annual assessment, the FPC advise on whether the key parameters of the scheme — the house price cap and the fee charged to lenders — remain appropriate.

Finally, the Committee considered recommendations made by the Parliamentary Commission on Banking Standards (PCBS) which were directly relevant to its objectives. The PCBS had in particular asked for the Committee to make public its views on the appropriate level and role of a leverage ratio for banks. On 26 November, the Chancellor wrote to the Governor requesting that the FPC undertakes a review of the role for the leverage ratio within the capital framework for UK banks. Box 2 on pages 69–70 sets out the Committee's view on issues relevant to the PCBS recommendation.

A full account of the September meeting is available in the published Record.

The Committee met in November, where it issued one new recommendation. It also approved the *Financial Stability Report*. The conclusions of its meeting are outlined in Section 5 of this *Report* and a detailed account will be available in the Record on 3 December.

## 4.2 Progress made in implementing recommendations

At its September and November meetings, the Committee reviewed progress in implementing its recommendations. The Committee assessed that these recommendations, outlined below, had each made a positive contribution towards its objectives. The conclusions are summarised in **Table 4.A** and described in more detail in the remainder of this section.

### Recommendation 12/Q2/3

'The Committee recommended that banks work to assess, manage and mitigate specific risks to their balance sheets stemming from current and future potential stress in the euro area.'

Over the period since the recommendation was made, UK banks' exposures to vulnerable euro-area periphery countries have fallen by around £11 billion to around £140 billion, equivalent to 62% of UK banks' reported core Tier 1 capital, at the end of 2013 H1. Progress has remained

**Table 4.A** Summary of recommendations

Identifier	Short title	Lead	Status
12/Q2/3	Manage and mitigate balance sheet risks from euro-area stress	UK banks	Action under way
13/Q1/2	Ensure capital resources of at least 7% of risk-weighted assets on basis described in 13/Q1/1 by the end of 2013	PRA	Action under way
13/Q1/3	Apply higher capital requirements where there are additional concerns about resilience	PRA	Implemented and closed
13/Q1/4	Meet 13/Q1/2 and 13/Q1/3 in a way that does not hinder lending to the economy	PRA	Action under way
13/Q1/5	Ensure credible plans to transition to higher future capital requirements	PRA	Action under way
13/Q1/6	Develop proposals for regular stress testing of the UK banking system	Bank, including PRA	Action under way
13/Q2/1	Assess vulnerability to sharp upward movements in long-term interest rates	FCA and Bank, including PRA	Action under way
13/Q2/2	Introduce minimum 80% LCR requirement	PRA	Implemented and closed
13/Q2/3	Work towards consistent and comparable Pillar 3 disclosures	PRA	Action under way
13/Q2/4	Implement EDTF recommendations	PRA	Action under way
13/Q2/5	Assess feasibility of calculating capital ratios using Basel III standardised approach	PRA	Action under way
13/Q2/6	Improve resilience to cyber attacks	HMT, FCA and Bank, including PRA	Action under way
13/Q4/1	Require mortgage lenders to have regard to any future FPC recommendation on appropriate interest rate stress tests	FCA	New

gradual, and exposures are likely to become increasingly difficult to reduce in the near term as over three quarters of UK banks' remaining exposures are to the non-bank private sectors.

UK banks have continued to make gradual progress in reducing the risk from redenomination. Banks' local customer liabilities have been broadly stable since the previous *Report*.

### Status: Action under way

The Committee remained concerned about the resilience of the UK banking system to the crystallisation of stress in the euro area. It also noted that, once implemented, the new stress-testing framework (see Recommendation 13/Q1/6) could be used to help the Committee in assessing whether banks had taken sufficient steps to mitigate this risk.

### Recommendation 13/Q1/2

'The PRA should take steps to ensure that, by the end of 2013, major UK banks and building societies hold capital resources equivalent to at least 7% of their risk-weighted assets, as assessed on the basis described in Recommendation 13/Q1/1.<sup>(1)</sup> Relative to that benchmark, major UK banks and building societies in aggregate currently have a shortfall in capital of around £25 billion.'

(1) 13/Q1/1: The Committee recommended that the PRA assess capital adequacy on the Basel III basis adjusting for expected future losses, future conduct costs and more prudent calculation of risk weights. At its June meeting, the Committee judged that this recommendation had been implemented and therefore could be closed.



In June the PRA concluded its capital assessment for the eight major UK banks and building societies in relation to the Committee's recommendations on capital. The PRA judged that on that basis banks had an aggregate capital shortfall of £27 billion at the end of 2012. Plans to increase capital were agreed by the PRA with the five banks which fell short of the standard at the end of 2012.

Banks have made good progress in improving their capital position, as set out on pages 13–14 in Section 1. By September, banks for whom a shortfall had been identified by the exercise had taken actions to address around three quarters of the shortfall. The vast majority of actions planned by these banks were due to be completed by end-2013. This has coincided with a fall in their average five-year senior CDS premia of around 40 basis points since the June 2013 *Report*, which indicates improved confidence in their resilience.

#### **Status: Action under way**

The Committee agreed to keep open the recommendation, recognising that a full assessment could only be made when the end-year reporting was available in the spring of 2014. On the assumption that progress was maintained in line with the plans agreed by the PRA, the Committee expected to close the recommendation at its meeting in 2014 Q2.

#### **Recommendation 13/Q1/3**

**'The PRA should consider applying higher capital requirements to any major UK bank or building society with concentrated exposures to vulnerable assets, where there are uncertainties about assets not covered in the FSA's assessment of future expected losses or risk weights analysis, or where banks are highly leveraged relating to trading activities.'**

In addition to the agreed actions relating to Recommendation 13/Q1/2, the PRA required two firms to increase their Tier 1 leverage ratio to 3%, after adjustments for prospective credit and conduct losses.

#### **Status: Implemented and closed**

At its September meeting, the Committee agreed that the PRA had met this recommendation and that it could be closed. The PRA planned to keep the Committee informed of firms' progress towards the 3% leverage ratio.

#### **Recommendation 13/Q1/4**

**'The PRA should ensure that major UK banks and building societies meet the requirements in Recommendations 13/Q1/2 and 13/Q1/3 by issuing new capital or restructuring balance sheets in a way that does not hinder lending to the economy. Any newly issued capital, including contingent capital, would need to be clearly capable of absorbing losses in a going concern to enable firms to continue lending.'**

The PRA asked firms to ensure that plans to tackle capital shortfalls did not reduce lending to the real economy. The actions which have been agreed vary from firm to firm. But the mix across the system has included, for example, the retention of earnings, equity issuance and non-core asset disposals. Asset sales do not imply lower lending from the banking system to the real economy. More broadly, the agreed actions do not entail reductions in firms' core retail and corporate lending portfolios.

#### **Status: Action under way**

The Committee agreed to keep open the recommendation. On the assumption that progress was maintained in line with the plans agreed by the PRA, the Committee expected to close the recommendation at its meeting in 2014 Q2.

#### **Recommendation 13/Q1/5**

**'The PRA should ensure that major UK banks and building societies have credible plans to transition to meet the significantly higher targets for capital and the leverage ratio that will come into effect in 2019 after full implementation of Basel III, the trading book review and surcharge for systemically important banks, and after HM Government's implementation of the ICB proposals, in ways consistent with sustainable expansion of the UK economy.'**

In August, the PRA published a Consultation Paper<sup>(1)</sup> setting out proposed changes to its rules in order to implement a package of European legislation — the Capital Requirements Regulation (CRR) and the corresponding Directive (CRD) — which would give effect to the Basel III reforms in the EU. In some areas the legislation provides scope for national discretion over implementation. For example, and consistent with the recommendation, the PRA has proposed to bring forward the end-point definition of common equity Tier 1 (CET1) capital ahead of the Basel III transition path.

Several aspects of the reform agenda affecting banks are still in progress. These include, for example, the Banking Reform Bill, by which the Government is implementing the proposals of the Independent Commission on Banking, and the Basel Committee on Banking Supervision (BCBS) review of leverage ratios and capital requirements for the trading book.

#### **Status: Action under way**

The Committee agreed to keep open this recommendation in light of the ongoing reform agenda. Ensuring the credibility of the transition plans of major banks and building societies would be a key part of the Committee's future work on the medium-term capital framework discussed in Section 5 of this *Report*. Progress on this recommendation would be reviewed in 2014 Q2, when end-year reporting would be available.

(1) See [www.bankofengland.co.uk/pr/Documents/publications/policy/2013/implementingcrdivcp513.pdf](http://www.bankofengland.co.uk/pr/Documents/publications/policy/2013/implementingcrdivcp513.pdf).

### Recommendation 13/Q1/6

**'Looking to 2014 and beyond, the Bank and PRA should develop proposals for regular stress testing of the UK banking system. The purpose of those tests would be to assess the system's capital adequacy. The framework should be able to accommodate any judgements by the Committee on emerging threats to financial stability.'**

On 1 October the Bank of England published a Discussion Paper — prepared under the guidance of the Committee and the PRA Board — setting out proposals for annual, concurrent stress tests of the UK banking system. They had been built on the principles that were set out by the Committee in the June 2013 *Report*.

The main purpose of the framework was to provide a quantitative, forward-looking assessment of the capital adequacy of the UK banking system and individual institutions within it. It was expected to take a few years to build up the Bank's capabilities. The first stress-test exercise planned for 2014 would be the most significant stepping stone towards this medium-term framework. As such it was expected to focus on a smaller set of firms.

### Status: Action under way

The Committee envisaged that the stress-testing framework would, in time, play a central role in its deliberations. It kept open the recommendation to allow for further development of the proposals in light of the comments on the Discussion Paper, which are due by 10 January 2014. The Committee planned to agree, in 2014 Q1, the scenarios for the first stress-test exercise later that year.

### Recommendation 13/Q2/1

**'The FCA and the PRA, with other Bank staff, should provide an assessment to the FPC of the vulnerability of borrowers and financial institutions to sharp upward movements in long-term interest rates and credit spreads in the current low interest rate environment. They should each report back to the FPC in September 2013.'**

In September, the Committee was presented with a preliminary assessment of the risks which may arise from an abrupt rise in long-term interest rates and credit spreads. The PRA, with other Bank staff, had asked the largest banks, building societies and insurance firms to provide an assessment of key vulnerabilities, including the implications for clients, counterparties and markets. The FCA assessed the findings of its latest Hedge Fund Survey and engaged with a number of the largest hedge funds, investment banks and asset managers, particularly on risks stemming from the nature, extent and distribution of leverage across these sectors.

As discussed in Section 2.2, that initial work found that losses from a moderate shock would not pose a direct threat to financial stability via banks. Similarly, the financial stability implications of a rise in long-term interest rates propagating through the balance sheets of insurance companies, pension funds and other investment funds appeared to be limited. But some institutions would become vulnerable to a rise in credit spreads and borrowers would become more exposed to an increase in interest rates were debt levels to rise. And the combination of leverage and liquidity risk had the potential to bring wider disorder to financial markets.

Respondents had typically not considered potential amplification mechanisms working through the financial system.

### Status: Action under way

The Committee agreed that it should not draw too much comfort from this preliminary work. Further work was needed to provide a clearer elaboration of potential amplification effects under more severe increases in interest rates and credit spreads. The scope for carrying out a 'reverse stress test' to establish more clearly the range of interest rate movements that might induce more serious instability should be examined. This analysis would feed into the design of the 2014 stress-testing exercise and help ensure that the boards of key financial firms developed a better understanding of the amplification channels.

The FCA, together with staff across the Bank, also planned to enrich the information available to the authorities on hedge funds, so that a more complete assessment of risks to financial stability — particularly those arising from leverage — could be made.

### Recommendation 13/Q2/2

**'In assessing the liquidity of banks and building societies, the PRA should employ, among other measures, the Liquidity Coverage Ratio (LCR) as defined in the EU's implementation of the Basel standard. The minimum requirement should be set at an LCR of 80% until 1 January 2015, rising thereafter to reach an LCR of 100% on 1 January 2018. The PRA should consider whether any additional requirements are needed where there are idiosyncratic liquidity risks not captured by the LCR framework or where the adjustments to capital positions described in the existing capital recommendations have not been implemented.'**

The LCR was agreed by the BCBS in January 2013. It was calibrated such that internationally active banks would hold sufficient liquid assets to cover their expected net cash outflows under a 30-day liquidity stress scenario.

The PRA has amended its current liquidity framework in line with the recommendation. For those major UK banks and building societies that meet the minimum 7% risk-weighted capital ratio set in the recent PRA exercise, the PRA has reduced the level of required liquid asset holdings so that it is broadly equivalent to 80% of the LCR. The effect will be to lower total required holdings by £90 billion, once all eight firms meet the capital threshold.

While aggregate liquidity metrics are broadly unchanged at present, the reduction in the level of required holdings has the potential to support lending to the real economy since funds held in liquidity buffers are not otherwise available for this purpose.

In October the Bank announced changes to the Sterling Monetary Framework's liquidity insurance toolkit.<sup>(1)</sup> Taken together, those changes were designed to increase the availability and flexibility of that insurance, by providing liquidity at longer maturities, against a wider range of collateral, at lower cost and with greater predictability of access.

#### **Status: Implemented and closed**

The Committee agreed in September that this recommendation had been implemented.

#### **Recommendation 13/Q2/3**

**'The PRA should continue to work with the banking industry to ensure greater consistency and comparability of the Pillar 3 disclosures of the major UK banks and building societies, including reconciliation of accounting and regulatory measures of capital.'**

#### **Recommendation 13/Q2/4**

**'The PRA should ensure that all major UK banks and building societies comply fully with the October 2012 recommendations of the Enhanced Disclosure Task Force (EDTF) upon publication of their 2013 annual reports.'**

The PRA has been in discussion with the British Bankers' Association regarding its expectations of high-quality disclosure, including full implementation of the EDTF recommendations. The indications are that firms are on track to meet these expectations in their 2013 disclosures.

Major UK banks have been disclosing a reconciliation of accounting and regulatory measures in 2012 year-end and 2013 interim financial statements.

The global Pillar 3 disclosure standards are currently being reviewed by the BCBS. A key aim of the review is to promote greater consistency and comparability between banks.

#### **Status: Action under way**

The Committee kept open these recommendations and intended to review progress in detail in mid-2014 after the next annual reporting season.

#### **Recommendation 13/Q2/5**

**'The PRA should assess the feasibility of the major UK banks and building societies calculating their regulatory capital ratios under end-point Basel III definitions using the standardised approach to credit risk. The PRA should report back to the FPC for its 2013 Q4 meeting.'**

The PRA asked major UK banks and building societies using the internal ratings based (IRB) approach to credit risk to provide an assessment of the challenges and costs involved in calculating their credit risk requirements using the standardised approach.

The PRA asked firms to assume that the calculations would need to be implemented by end-2014. The PRA found that it would be technically feasible for banks to produce these data. The largest firms were expected to need to make changes to their systems. The estimated costs provided were — in aggregate — around £40 million upfront and around £7 million on an ongoing annual basis. The cost for the smaller firms was considered likely to be lower because only a small proportion of their portfolios are currently calculated by the IRB approach.

#### **Status: Action under way**

The Committee at its November meeting welcomed the feasibility report from the PRA. The PRA will now consider the costs and benefits of asking firms to calculate their capital ratios on this approach regularly and report back to the Committee in 2014 Q1 with that assessment. The assessment will take into account the benefits and costs of these ratios being subsequently disclosed publicly, in line with the Committee's aim of considering disclosure that could improve comparability of capital disclosures and increase the incentives for prudent calculation of risk weights, as outlined in the June 2013 Report. The Committee will weigh the PRA assessment with its own judgement about the costs and benefits for financial stability of collecting and disseminating this information.

#### **Recommendation 13/Q2/6**

**'HM Treasury, working with the relevant government agencies, the PRA, the Bank's financial market infrastructure supervisors and the FCA should work with the core UK financial system and its infrastructure to put in place a programme of work to improve and test resilience to cyber attack.'**

(1) See [www.bankofengland.co.uk/publications/Pages/news/2013/124.aspx](http://www.bankofengland.co.uk/publications/Pages/news/2013/124.aspx).

As discussed in Section 2.2, the financial system has a number of potential vulnerabilities to cyber attack, reflecting its high degree of interconnectedness, its reliance on centralised market infrastructure, and its sometimes complex legacy IT systems.

As recommended, HM Treasury, relevant government agencies and the financial authorities have drawn up a shared programme of work to assess, test and improve cyber resilience across core parts of the UK financial sector.

Engagement by industry is vital if the aims of the recommendation are to be achieved. A Cross Market Operational Resilience Group, comprised of Chief Risk Officers, has been established. On 12 November an exercise took place to test the financial sector's response to a sustained and intensive cyber attack (Exercise Waking Shark II). This was an industry-led exercise which was supported by HM Treasury, the Bank of England and the FCA and included participation by a

number of government agencies. A report will be published early in 2014 to share the outcomes and lessons with the participants and wider financial sector.<sup>(1)</sup>

**Status: Action under way**

The Committee remained concerned that the threat had many dimensions and was growing. It was particularly important that boards of financial firms and infrastructure providers were not just alive to the threats, but also to their responsibility for responding to them, which required a combination of continuous vigilance, improved information sharing and investment to strengthen operational resilience.

The Committee welcomed the progress which had been made and encouraged the Government and regulators to ensure that action plans were in place to deliver a high level of protection for each institution at the core of the financial system by 2014 Q1.

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(1) See [www.bankofengland.co.uk/financialstability/fsc/pages/default.aspx](http://www.bankofengland.co.uk/financialstability/fsc/pages/default.aspx).

# 5 Prospects for financial stability

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Economic recovery in the United Kingdom, and in some other advanced economies, has strengthened and UK banks' capital positions have improved. That has boosted confidence in financial stability, as evident in the Bank's recent *Systemic Risk Survey*.

But financial stability risks remain, including from the high indebtedness of some sovereigns, corporates and households. These vulnerabilities have been kept in check by low interest rates and other policy interventions. A sharp rise in interest rates, especially if not associated with a strengthening in incomes, could test financial system resilience. There are also signs of a deepening 'search for yield' in some markets, which could become a concern if they were to broaden and intensify into a more general mispricing of risk.

UK housing market activity is picking up from a low level and inflation in house prices — which is already above historical averages on some metrics — appears to be gaining momentum. At present, activity remains below long-term trends and underwriting standards are materially higher than before the crisis. There is little evidence of an immediate threat to stability. But risks may grow if stronger activity is accompanied by further substantial and rapid increases in house prices and a further build-up in household indebtedness, which is already elevated for some households. These risks would be accentuated if underwriting standards on mortgage lending were to weaken as has been the case in previous house price cycles. In addition, the pace of increased mortgage lending may place greater reliance on short-term wholesale funding.

Several actions are in train that will guard against a build-up in vulnerabilities, including higher capital at banks. The Bank's stress-testing initiative will look at bank resilience to housing and other shocks, and tighter underwriting standards are being introduced as part of the Financial Conduct Authority's Mortgage Market Review. In addition, the Prudential Regulation Authority (PRA) has decided to end its temporary capital relief on new household lending from the beginning of next year. Moreover, the Bank and HM Treasury have decided to modify the Funding for Lending Scheme to remove direct incentives to expand household lending in 2014. The Financial Policy Committee (FPC) welcomed both these decisions. As a further proportionate and preparatory step, the Committee agreed the following recommendation to enhance the range of tools available to authorities:

- The Financial Conduct Authority (FCA) should require mortgage lenders to have regard to any future FPC recommendation on appropriate interest rate stress tests to use in the assessment of affordability.

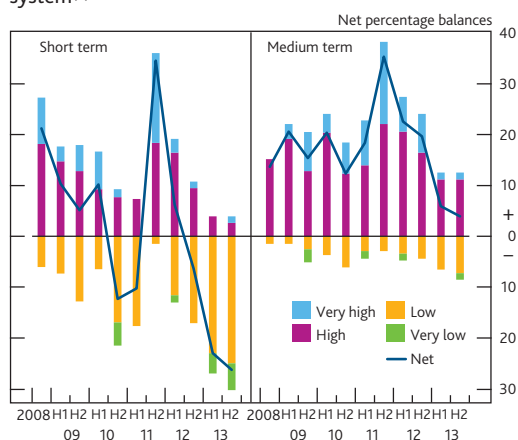
The Committee has an extensive toolkit that it could deploy, as part of a proportionate and graduated response to evolving housing market risks, should that become necessary. These tools include recommendations on underwriting standards, the Help to Buy scheme and the availability of higher-risk loans, as well as recommendations or directions on bank capital requirements. Some of these measures are already in use in several countries.

The Committee also responded to a request by the Chancellor to set out medium-term issues that it will pursue as a priority. The FPC's priorities are to act to influence the medium-term bank capital framework, ending 'too big to fail' and identifying and addressing any risks in shadow banking, while working to support diverse and resilient sources of market-based finance (as set out on pages 65–68). The FPC also discussed some broader issues relevant to the Parliamentary Commission on Banking Standards recommendation on the leverage ratio (as set out on pages 69–70).



### Chart 5.1 Expectations of UK financial instability diminished further

Perceived probability of a high-impact event in the UK financial system<sup>(a)</sup>

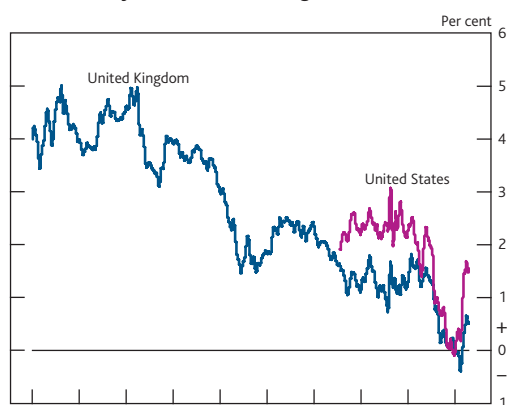


Sources: Bank of England Systemic Risk Surveys and Bank calculations.

(a) Respondents were asked for the probability of a high-impact event in the UK financial system in the short and medium term. From the 2009 H2 survey onwards, short term was defined as 0–12 months and medium term as 1–3 years. The net percentage balance is calculated by weighting responses as follows: very high (1); high (0.5); medium (0); low (-0.5); and very low (-1). Bars show the contribution of each component to the net percentage balance.

### Chart 5.2 Real rates have risen but are still historically low in the United Kingdom

Forward real yields on UK and US government bonds<sup>(a)</sup>

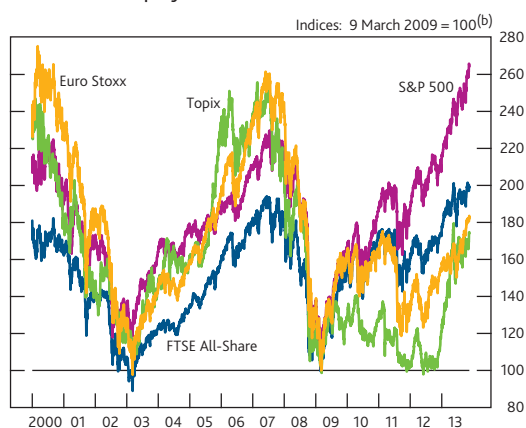


Sources: Bloomberg and Bank calculations.

(a) Five-year real interest rates five years forward, derived from the Bank's index-linked government liability curves. One-month moving averages.

### Chart 5.3 Advanced-economy equity prices rose

International equity indices<sup>(a)</sup>



Sources: Thomson Reuters Datastream and Bank calculations.

(a) Denominated in units of local currency.

(b) This corresponds to the lowest value in the S&P 500 across the time period shown.

This section sets out the decisions taken by the Committee at its November 2013 meeting in the light of the outlook for financial stability. It also includes a box on the leverage ratio, as well as a summary of the financial stability themes that the Committee intends to focus on over the coming 18 months.

## 5.1 Recent developments

As discussed in Section 1, economic recovery in the United Kingdom, and in some other advanced economies, has strengthened and UK banks' capital positions have improved. The Bank's latest *Systemic Risk Survey* suggests that market concerns about tail risks have fallen (Chart 5.1).

But financial stability risks remain, including from the high indebtedness of some sovereigns, corporates and households. These vulnerabilities have been kept in check by the low interest rate environment and a range of other policy interventions. But recent increases in long-term interest rates highlight the risk that the environment could change.

### Global economic and market developments

Forecasts for global growth have been broadly stable since June. But the composition of growth has changed, with impetus coming increasingly from advanced economies, where near-term indicators improved, and less from the emerging economies, where prospects weakened. Perceived tail risks from the euro area also receded, reflecting actions by the ECB and progress on steps to strengthen banking systems — nonetheless the economic outlook remains challenging.

Against this backdrop, yield curves for government bonds in advanced economies steepened and emerging economies experienced capital outflows, in particular from countries with large external and domestic imbalances. A perception that the Federal Open Market Committee would reduce the pace of its asset purchases earlier than previously expected contributed to a rise in rates in the United States and elsewhere (Chart 5.2), though they have fallen since the summer as market expectations of an imminent tapering and earlier rise in policy rates receded.

Despite some temporary signs of market disruption, in part caused by concerns about US government default in October, risk appetite in advanced economies appears to have returned. Since the previous *Report*, equity indices increased (Chart 5.3), with equity risk premia falling, and corporate bond spreads tightened slightly. But with the continuation of the low interest rate environment and the return of volatility to close to historical lows, there are also signs of a deepening 'search for yield' in some markets, which could become a concern if they were to broaden and intensify into a more general mispricing of risk. For example, in the period since June, US high-yield loan issuance reached record levels, with nearly 50% of issuance with limited covenants. Issuance of



collateralised loan obligations in the United States returned to levels seen just ahead of the crisis.

### Improved banking system resilience

The improved economic outlook helped banks to strengthen their resilience. Most large global banks reported capital ratios above 9% on a 'fully loaded' Basel III basis, although downside risks remain, including the impact of conduct-related costs on profitability. UK banks made substantial progress in implementing the plans agreed with the PRA to reduce the capital shortfalls previously identified by the FPC. As discussed in Section 1, by September banks had filled around three quarters of the shortfall identified in the exercise, with most progress made by the banks with the weakest initial positions. This improved resilience was also reflected in higher price to book ratios for major UK banks.

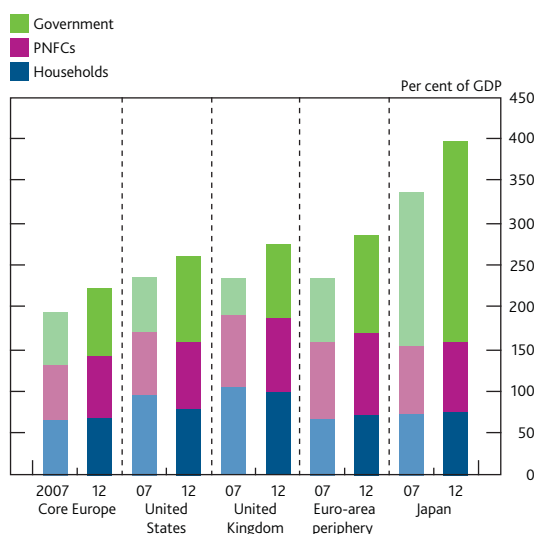
## 5.2 Risks to the financial system

### Risks from an abrupt increase in interest rates

Notwithstanding the steepening in yield curves internationally since the summer, the potential for an abrupt increase in long-term rates remains a key risk to financial stability. In June 2013, the Committee recommended that the FCA and PRA, with other Bank staff, assess the vulnerability of borrowers and financial institutions to a sharp upward movement in long-term rates and credit spreads.

Preliminary work suggested that the UK banking sector would be resilient to direct losses caused by the impact of a moderate increase in long-term rates on banks' loan books and fixed-income portfolios. But that work found that market participants had not always considered potential amplification mechanisms working through the financial system. For example, there may be tipping points beyond which higher market interest rates could cause declines in asset prices sufficient to force investment funds — including some exchange-traded funds and hedge funds — to delever abruptly. That could arise as a result of falls in the value of collateral posted in funding agreements. Such effects could be aggravated by investor redemptions and asset disposals in illiquid markets, potentially resulting in wider disruption. The work also suggested that some market participants had not considered structural changes to the financial system since the crisis, including reductions in market-making and warehousing capacity among some firms, a greater potential exposure to procyclical movements in collateral valuations across the financial system, and the role of non-bank financial intermediaries lying partly outside the regulatory perimeter. Given these gaps in firms' analysis, the FPC has asked the Bank and FCA to work with market participants to ensure the implications of these developments are factored into firms' risk management.

**Chart 5.4 Debt levels in advanced economies have risen**  
Debt to GDP ratios of selected advanced economies<sup>(a)</sup>



Sources: Bank of Japan, Eurostat, Federal Reserve Bank of St. Louis, IMF WEO and Bank calculations.

(a) Euro-area periphery includes Greece, Ireland, Italy, Portugal and Spain. Core Europe includes Austria, Belgium, Finland, France, Germany and the Netherlands.

The risks are not confined to increases in long-term rates. Unexpectedly steep rises in short-term rates could expose carry trades and other maturity transformation. Such activity may have been encouraged by low market volatility and expectations that central banks will keep rates at unusually low levels. In addition, while increased demand for risky assets can be partly explained by improving economic prospects, a 'search for yield' could become an increasing risk to financial stability were it to broaden beyond US markets and intensify, causing a mispricing of risk.

The potential risk to financial stability from an increase in interest rates could be exacerbated by high levels of indebtedness. Public sector indebtedness has increased significantly across advanced economies since 2007 (Chart 5.4). And while low interest rates and recovering incomes have facilitated some deleveraging since the financial crisis, private sector debt levels remain high, particularly in some euro-area periphery countries.

UK household and PNFC debt to income ratios have fallen since the crisis, but remain at historically high levels. Some households and corporates remain particularly vulnerable. According to an NMG Consulting survey conducted in September 2013, households with loan to income ratios greater than 5 account for around a fifth of total UK mortgage debt. While many corporates have reduced debt levels, a highly leveraged tail remains. In particular, despite recovery in the prime commercial real estate (CRE) market, CRE companies have deleveraged far less than their non-property counterparts and the market for secondary CRE property remains relatively illiquid.

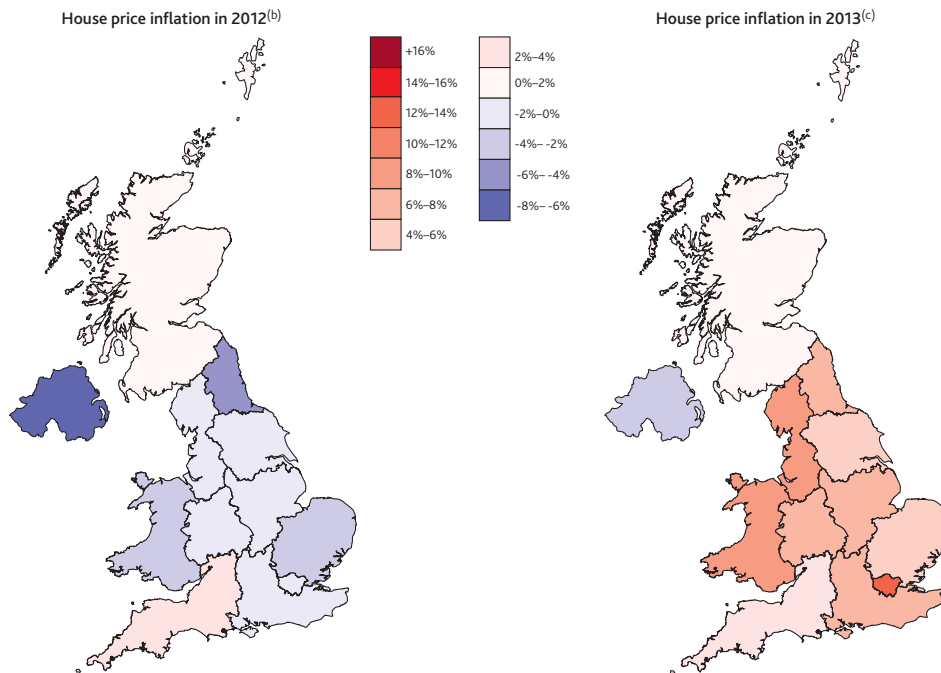
### Risks from UK house prices and household indebtedness

The upturn in UK house prices has gathered momentum since the June Report, with average prices nationally rising by 6.8% in October on a year earlier, according to the average of the Halifax and Nationwide indices. The recovery also broadened regionally, with prices in nearly all regions rising (Chart 5.5). Surveys indicate that prices are expected to increase further in the period ahead (Chart 5.6). Activity also increased, but remains at relatively low levels. Further support to the housing market will come in the months ahead, including from the Help to Buy scheme.

As outlined in Section 2 of this Report, measures of valuation are below the levels reached in 2007. But some metrics, such as house price to income and house price to rent measures are above historical averages. Alternative indicators of the sustainability of prices, such as household income gearing, are at lower levels, though that reflects the direct impact of current exceptionally low interest rates. If UK house prices were to rise materially, or interest rates increase, these valuation measures would look more stretched.

### Chart 5.5 House price momentum appears to be building

Annual house price inflation in 2012 and 2013 across the United Kingdom<sup>(a)</sup>

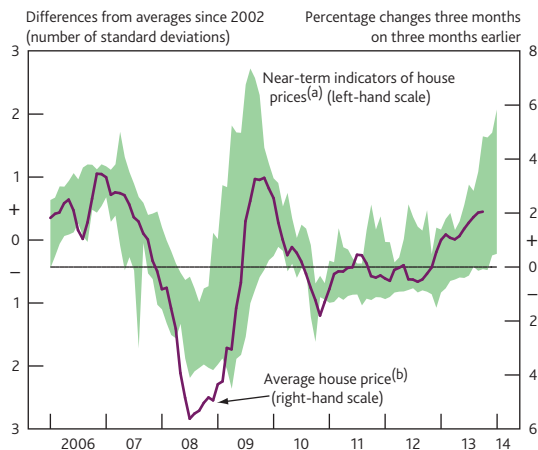


Sources: Halifax, Nationwide and Bank calculations.

- (a) The stylised maps show the average of the Nationwide and Halifax regional house price series.  
 (b) The 2012 map shows house price inflation between 2011 Q4 and 2012 Q4.  
 (c) The 2013 map shows house price inflation between 2012 Q4 and 2013 Q3, scaled to an annual rate.

### Chart 5.6 Indicators point to further house price rises in the near term

House prices and near-term indicators of house prices



Sources: Halifax, Nationwide, Rightmove.co.uk, Royal Institution of Chartered Surveyors (RICS) and Bank calculations.

- (a) Includes the RICS house prices three months ahead net balance, the RICS new buyer enquiries less instructions to sell net balances, the RICS sales to stock ratio and the Rightmove index for asking prices posted on the Rightmove website. All series have been moved forward by three months. The Rightmove index has been seasonally adjusted by Bank staff.  
 (b) Average of Halifax and Nationwide measures. Latest observation is for October 2013.

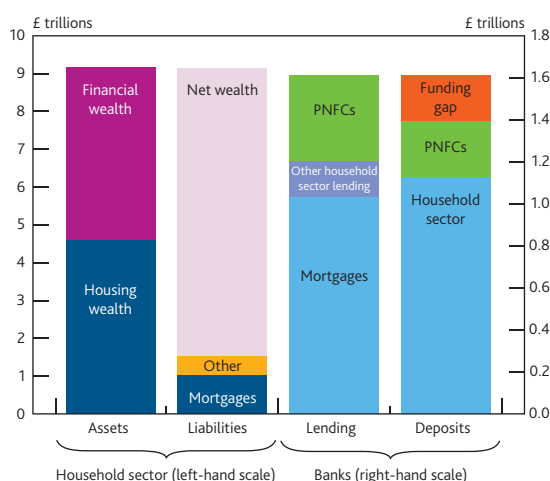
Rising house prices — and any subsequent falls — need not in themselves pose a threat to financial stability. It is the interaction of developments in the housing market with a range of factors, including household indebtedness and leverage in the banking sector, which gives rise to financial stability risks.

As discussed in Section 2 of this *Report*, mortgage debt accounts for a large part of UK banks' balance sheets, while housing is a sizable component of household balance sheets (Chart 5.7). That means that households' and banks' balance sheets are sensitive to fluctuations in the price of property and to the ability of households to service their mortgages. Indeed, these relationships can at times have painful consequences, as shown by international experience of 'twin' property and credit booms and the IMF's finding that recessions that followed property booms were two to three times deeper, on average, than those without.

Any housing downturn could affect financial stability both through its direct impact on banks and from the exposure of borrowers more broadly to an economic downturn.

For banks and building societies, threats to resilience from a housing downturn could arise directly from credit losses as defaults rose and house prices fell. That risk is in part mitigated by the higher quality and level of capital held by banks now, relative to the crisis period. Furthermore, mortgage underwriting standards today are materially

**Chart 5.7 Housing is central to UK private balance sheets**  
Stylised balance sheets of UK households and banks<sup>(a)</sup>

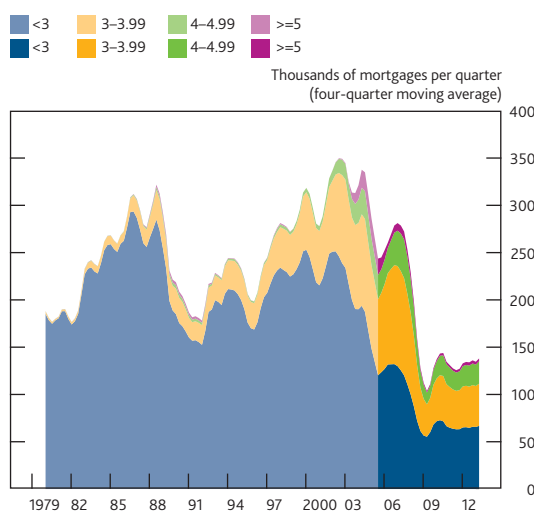


Sources: Bank of England, ONS and Bank calculations.

(a) These balance sheets are highly stylised and exclude, for example, lending and deposits of the public sector and financial corporations. Based on end-2012 data for sterling only, using data on MFIs, which include banks and building societies.

**Chart 5.8 The proportion of mortgages at higher loan to income ratios has been increasing**

Flow of new mortgage lending for house purchase by loan to income ratio<sup>(a)(b)(c)</sup>



Sources: Council of Mortgage Lenders, FCA Product Sales Data and Bank calculations.

(a) FCA's Product Sales Data (PSD) are only available from 2005 Q2. Data from 1992 Q2 to 2005 Q1 are from the discontinued Survey of Mortgage Lenders and prior to 1992 Q2 are from the building societies sample of mortgage completions. The three data sources are not directly comparable and the loan to income split is illustrative, based on smaller samples, prior to 2005 Q2.  
(b) All data include loans to first-time buyers, council/registered social tenants exercising their right to buy and homemovers.  
(c) The PSD include regulated mortgage contracts only, and therefore exclude other regulated home finance products such as home purchase plans and home reversions, and unregulated products such as second charge lending and buy-to-let mortgages.

stronger than was the case immediately prior to the crisis. But past experience reveals that mortgage lending standards have deteriorated as house prices have risen, amplifying losses in a downturn. Although new mortgage lending overall is still at relatively subdued levels, there have been some signs of lending being provided at higher loan to income ratios (Chart 5.8) and for longer term. Shifts such as these, were they to broaden and be accompanied by a deterioration in underwriting standards, would increase threats to financial stability, especially if interest rates were to rise from current low levels.

Banks might also be vulnerable to losses on lending to related sectors such as construction and CRE, to the extent that a housing downturn coincided with a downturn in the commercial property market. Imbalances could also arise from the funding structure used to expand mortgage lending: first, if mortgage lending became inadequately capitalised relative to potential losses in a market downturn; and second, if house prices rose sharply and mortgage lending outpaced household deposit growth, opening up a customer funding gap in the banking system. That might lead banks to resort to short-term wholesale funding sources, increasing vulnerability to funding runs.

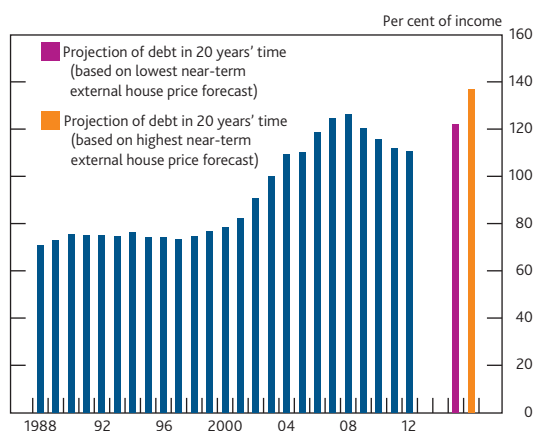
A downturn in the housing market would also be likely to have an important impact on the wider economy, which could in turn affect financial stability. Household indebtedness is near historically high levels (Chart 5.9) and some cohorts of households have particularly elevated debt to income ratios. As a result, there is a risk of sharp adjustments to household spending in response to a rise in interest rates or a fall in house prices. That could lead to weaker economic activity and rising unemployment, with impacts across a broad range of banks' exposures and on bank profitability. Estimates of past losses associated with housing corrections would be significantly larger once these indirect losses and losses from non-mortgage debts are taken into account.

As a result of this assessment, the Committee will closely monitor:

- developments in house price inflation relative to indicators of affordability and sustainability;
- indicators of an increasing 'tail' of borrowers with particularly high indebtedness;
- indicators of underwriting standards in the residential mortgage market;
- indicators of underwriting standards on construction and CRE loans;
- exposure of lenders to highly indebted households; and
- the reliance of lenders on short-term wholesale funding.

**Chart 5.9 Household indebtedness is near historically high levels**

Household secured debt to income ratios<sup>(a)(b)(c)(d)</sup>



Sources: HM Treasury, ONS and Bank calculations.

- (a) Income is gross disposable income adjusted for FISIM.  
 (b) Mortgage debt includes loans by UK banks and other non-bank lenders.  
 (c) The two scenario projections assume that the ratio of mortgage debt to gross housing wealth returns to its long-run average. They assume that house prices rise at the upper or lower bound of external forecasts for 2013 and 2014, and beyond that at the average growth rate of whole-economy average weekly earnings over the past ten years. They further assume that the real net capital stock of dwellings grows at its estimated average growth rate over the past ten years of available data. External forecasts are from *Forecasts for the UK economy: a comparison of independent forecasts*, November 2013, as compiled by HM Treasury.  
 (d) Some pre-1997 ONS data are no longer available from the ONS. In such circumstances, we use Bank of England data originally sourced from the ONS.

## The FPC's approach to mitigating risks from the housing market

The FPC, alongside the PRA and the FCA, have a number of measures already in train that should mitigate potential risks from the housing market (summarised in **Table 5.A** on page 64). UK authorities, including the FPC, are today announcing other measures as a proportionate response to prospective risks from the housing market. The FPC has also identified a range of further steps that it could take in the future, should that be necessary, to meet its statutory objective to ensure financial stability. The Committee would deploy tools in a way that is proportionate and commensurate with the risks to financial stability and consistent with a graduated response.

## Actions already in train

The capital that banks hold against threats from the housing sector has increased, both as a result of global regulatory reforms and through the recent capital raising exercises conducted by the PRA following the FPC's **March recommendations**, as discussed earlier in this section.<sup>(1)</sup> In assessing banks' capital needs, the PRA reviewed provisions held against forbore loans in retail mortgage portfolios. It also reviewed the risk weights applied to UK mortgages, including the impact of applying a floor of 15%, in determining capital requirements. Higher capital, alongside enhanced supervision of bank liquidity and funding positions, has bolstered banks' resilience to shocks from the housing sector.

The Bank, including the PRA, is also currently developing a regular stress-testing framework to help assess the resilience of the UK banking system on an ongoing basis, following an FPC recommendation in March 2013. The main features of the proposed framework were set out in a Discussion Paper published in October.<sup>(2)</sup> The first stress test will be conducted in 2014. The stress scenarios will be designed with input from the FPC and will enable close examination of the capital adequacy of major UK banks to risks arising from housing-related portfolios, among other things.

Measures are also being put in place by the FCA to help maintain stronger mortgage underwriting standards as part of the implementation of the Mortgage Market Review (MMR), via the Mortgage and Home Finance: Conduct of Business sourcebook. From April 2014, banks will be required by the FCA to conduct an affordability assessment, including an interest rate test to gauge borrowers' resilience to rising rates. The affordability assessment and interest rate test in line with the MMR are already being applied to mortgage lending under the Help to Buy mortgage guarantee scheme. The measures contained in the MMR are consistent with the FSB Principles for Sound Residential Mortgage Underwriting Practices.<sup>(3)</sup>

(1) [www.bankofengland.co.uk/financialstability/Documents/fpc/cpmethodology.pdf](http://www.bankofengland.co.uk/financialstability/Documents/fpc/cpmethodology.pdf).

(2) [www.bankofengland.co.uk/financialstability/fsc/Documents/discussionpaper1013.pdf](http://www.bankofengland.co.uk/financialstability/fsc/Documents/discussionpaper1013.pdf).

(3) [www.financialstabilityboard.org/publications/r\\_120418.pdf](http://www.financialstabilityboard.org/publications/r_120418.pdf).

### Additional steps to address potential risks in the housing market

The Committee noted that it could also issue recommendations to the FCA to address potential risks, notwithstanding the introduction of the MMR. In particular, the FPC could give more explicit guidance on the appropriate interest rate stress tests to use in the MMR affordability assessment, as noted by the FCA.<sup>(1)</sup> The current test requires firms, at a minimum, to assess mortgage affordability if interest rates were to rise in line with market expectations over the next five years — currently the market yield curve projects short-term interest rates to rise to around 3% in five years' time.

The Committee noted that some banks at present tend to base assessments of affordability on levels of interest rates above the minima set out in the MMR. But the Committee agreed, in accordance with its objectives, that it would be prudent and proportionate for steps to be taken that would allow it to give guidance in this area in the future, should that prove necessary. In taking any future actions that affected underwriting standards, the Committee and other authorities would need to consider carefully the impacts, including other potential consequences. For example, more stringent affordability tests might lead lenders to increase the average mortgage term. Other means, such as more intensive supervision, could also be taken to maintain underwriting standards.

#### Recommendation 1

**The Financial Conduct Authority (FCA) should require mortgage lenders to have regard to any future FPC recommendation on appropriate interest rate stress tests to use in the assessment of affordability.**

The FPC considered that the recommendation would not prejudice the advancement by the FCA of its operational objectives, and does not affect the United Kingdom's international obligations.<sup>(2)</sup>

The UK authorities are announcing additional measures affecting incentives to expand household lending. **At its November meeting, the PRA informed the FPC that it did not intend to extend its temporary policy of allowing banks that increase household lending eligible in the Funding for Lending Scheme (FLS) to claim an offset in their capital requirements.** The Committee welcomed this decision.

**The FPC was also informed that the Bank and HM Treasury would be modifying the terms of the FLS to remove direct incentives to expand household lending in 2014.** The Committee also welcomed this decision. The Scheme had been established at a time when banks faced high funding costs and household credit conditions were unusually tight. But, as noted

(1) [www.fca.org.uk/static/documents/policy-statements/fsa-ps12-16.pdf](http://www.fca.org.uk/static/documents/policy-statements/fsa-ps12-16.pdf).

(2) In the opinion of the Committee, it is not practicable to produce an estimate of the costs and benefits of this recommendation since it merely establishes a framework.



in Section 1, market-based funding costs have fallen substantially since the FLS was introduced and mortgage spreads have declined markedly. The Bank has also taken actions that reduce the need for the FLS as a shock absorber. The Bank has announced changes to its liquidity facilities that improve banks' ability to access liquidity, without stigma, in future periods of stress. It has also, alongside other central banks, moved temporary bilateral swap arrangements onto a standing basis.

### Potential future tools

Depending on how the risks to financial stability from the housing market evolve, there are a number of additional actions which the Committee could take over time as necessary to mitigate risks to financial stability from developments in the housing market (Table 5.A).

The Committee noted it has been asked by the Chancellor, on an annual basis from September 2014, to assess the impact of the Help to Buy scheme. The scheme has been put in place to tackle problems faced by some borrowers in accessing the mortgage market for high loan to value mortgages. As set out in a recent letter from the Governor to the Chair of the Treasury Committee,<sup>(1)</sup> the FPC has the power to make recommendations at any time on the scheme. In addition, the FPC has been asked specifically to advise annually on whether the key parameters of the scheme — the house price cap and the fee charged to lenders — remain appropriate, and could recommend changes to HM Treasury. At the end of the scheme's three-year life, if a future Government proposes to extend the scheme, the FPC will be asked to give its assessment of the impact of the scheme on financial stability and advise whether it should be continued.

The Committee noted that it could, if needed in light of risks to stability, take actions to enhance the resilience of lenders' balance sheets by giving a direction or recommendation to vary capital requirements. Depending on the nature of the risks to resilience, the Committee could decide to apply the requirement to specific types of mortgage lending, just to new lending or to the entire portfolio of loans. If it were concerned about broader risks to banks' resilience, for example arising from the impact of a housing-induced economic slowdown on a range of bank exposures, it could in due course increase requirements across all exposures in the United Kingdom by raising the countercyclical capital buffer. There are also choices that can be made about the method for implementing tighter capital requirements. Table 5.A notes that capital tools have been applied in a range of countries internationally.

The Committee could also take actions where it was concerned about risks to financial stability stemming primarily from the indebtedness of households. For example, it could

(1) [www.bankofengland.co.uk/financialstability/Documents/fpc/letters/governorletternov13.pdf](http://www.bankofengland.co.uk/financialstability/Documents/fpc/letters/governorletternov13.pdf).

**Table 5.A** Tools available to mitigate risks from the housing market

Actions already in train	Timings
<b>Implementation of March 2013 FPC recommendations to raise banks' capital and other international capital reforms</b>	2014 H1 and onwards
<b>2014 Bank stress test of the UK banking system, including resilience to housing market stress</b>	2014 Q1–Q4
<b>Mortgage Market Review implementation</b>	April 2014
Additional steps	
<b>Capital relief on new household lending</b> — PRA to end its temporary capital relief on new household lending qualifying for the Funding for Lending Scheme from the beginning of next year	Start 2014
<b>Funding for Lending Scheme</b> — Bank and HM Treasury to modify Scheme to remove direct incentives to expand household lending in 2014	Start 2014
<b>FCA should require mortgage lenders to have regard to any future FPC recommendation on appropriate interest rate stress tests to use in the assessment of affordability</b>	Recommendation in November 2013
Potential future tools	International examples
<b>Recommendations to FCA or PRA on underwriting standards</b> to ensure that standards remain robust. That could include recommendations on appropriate interest rate stress tests to use in the assessment of affordability.	Hong Kong has a regime of debt-servicing ratio (DSR) caps, including caps on DSRs after a stress test of mortgage applicants' repayment ability, assuming an increase in mortgage rates of at least 3 percentage points.
<b>Recommendations to HMT regarding the Help to Buy scheme including:</b> <ul style="list-style-type: none"> <li>• annually on whether the pricing and mortgage cap remain appropriate;</li> <li>• after three years, if a future Government proposes to extend the scheme, the FPC will be asked to give its assessment of the impact of the scheme on financial stability; and</li> <li>• the FPC also has the power to make recommendations on the scheme at any time.</li> </ul>	
<b>Recommendations or directions to PRA on bank capital requirements on residential real estate lending</b> to increase directly the loss-absorbing capital held against such lending.	Sweden has increased minimum risk weights on mortgage lending. In Switzerland, the authorities have increased capital requirements on residential mortgage lending.
<b>Decisions regarding the countercyclical capital buffer (CCB)</b> to increase directly loss-absorbing capital against the broader impact on banks of an economic downturn.	The Norwegian central bank noted in September 2013, ahead of the legislation being finalised, that banks should build CCBs and that the authorities would issue concrete advice in December.
<b>Recommendations on maximum loan to value ratios, loan to income ratios, debt to income ratios or mortgage term</b> to restrict mortgages of a particular type.	Various forms of restriction have been used internationally and varied over time, including in Canada, Hong Kong, Korea, Singapore and a number of EU countries. Rather than adopt a loan-by-loan approach, New Zealand has introduced a limit on the proportion of new lending above 80% loan to value.

recommend that regulators curtail the extension of mortgages with certain characteristics, for example via limits on the loan to value or loan to income ratios of mortgages. The Committee noted that such limits have been previously used in a range of countries (Table 5.A), with local authorities judging them to have had some success. These experiences had also revealed the importance of applying policies in a way that avoids circumvention by lenders and borrowers, for example via greater unsecured lending.

## 5.3 Structural vulnerabilities affecting financial stability

### Leverage

In June, the Parliamentary Commission on Banking Standards (PCBS) requested that the FPC provide, by the end of this year, its own assessment of the appropriate leverage ratio and whether it should be used as a 'frontstop' rather than a 'backstop'. The Committee noted in September that some evaluation might be possible on that timescale, but a full assessment would depend on the definition of leverage agreed internationally. Box 2 sets out the Committee's view on issues relevant to the PCBS recommendation. In particular, it discusses the role of the leverage ratio alongside other capital adequacy metrics and how, given that role, the leverage ratio should be able to be adjusted if other capital measures are changed. In that sense, the 'backstop' versus 'frontstop' debate was potentially unhelpful.

On 26 November, the Chancellor wrote to the Governor requesting that the FPC undertakes a review of the role for the leverage ratio within the capital framework for UK banks.<sup>(1)</sup>

### The FPC's medium-term priorities

Section 3 of this *Report* takes stock of progress on initiatives related to three medium-term priorities identified by the Committee in September 2013. This section outlines the Committee's objectives for each priority and specific areas on which it plans to focus over the next 18 months.

### Medium-term capital framework for banks

The medium-term capital framework for banks is a vital component for ensuring the resilience of the UK financial system.

The Committee agreed that it should ensure that prospective changes to regulatory capital requirements for UK banks are, when taken together, appropriately calibrated and phased in from a macroprudential perspective, and that they fit together to deliver a stable, prudent and coherent package, which takes account of the broader impact on the financial system.

In doing so, the Committee recognised the need to take into account the resolution framework when calibrating capital requirements, and therefore the links with the priority on ending 'too big to fail'.

It also recognised that international reforms, such as Basel III and CRD IV, had already settled some parts of the capital framework. Clearly, any policy action in this area will need to take account of these legal obligations.

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(1) [www.bankofengland.co.uk/publications/Pages/news/2013/161.aspx](http://www.bankofengland.co.uk/publications/Pages/news/2013/161.aspx).

The Committee will review and, where appropriate, act to influence:

- the definitions, valuations and risk weightings used in calculating banks' capital positions;
- the level and composition of capital that is needed to ensure resilience against stress;
- the level of the leverage ratio, relative to risk-weighted capital requirements;
- the location of capital within banking groups;
- the simplicity, clarity and comparability of the overall capital framework;
- the public disclosure around bank capital to enhance market discipline;
- how the accumulation of reforms, uncertainty around their future paths, and inconsistencies in implementation across jurisdictions may affect banks' business models and incentives;
- the impact of bank capital requirements (including Pillar 2 requirements) on the broader financial system, including on market-making and market liquidity; and
- the interaction of banks' going concern capital requirements and 'gone concern' loss-absorbing capacity (GLAC).

The timetable for delivering this work will be influenced by key external deadlines, including: the implementation of CRD IV in the European Union on 1 January 2014; finalisation of revisions to BCBS rules on the trading book planned for end-2014; BCBS work on the credit risk standardised approach and interest rate risk in the banking book; proposals on GLAC by the FSB in 2014; the next steps of the BCBS work on the simplicity and comparability of the new capital framework; and a peer review programme covering the UK capital framework for domestic systemically important banks from no later than mid-2015.

### Ending 'too big to fail'

As demonstrated in the recent crisis, the disorderly failure of systemically important financial institutions (SIFIs) can cause widespread disruption to the financial system. That may force the public authorities to use public funds to avoid the disorderly failure of SIFIs, including deposit-takers, investment firms, financial market infrastructures (such as central counterparties) and insurers. This 'too big to fail' (TBTF) problem provides an implicit subsidy to SIFIs who are expected to be bailed out when in difficulty, creating potential for resource misallocation and imposing costs on the rest of the financial system, the public sector and the wider economy.

The recent crisis sparked a significant programme of domestic and international reforms to address the TBTF problem (Section 3). The Committee agreed that one of its medium-term priorities should be to review and, where necessary, influence the design and implementation of these reforms, subject to where policies have been settled internationally.

In particular, the Committee will review and, where appropriate, act to influence:

- the design of the GLAC framework, giving consideration to where in a group GLAC should be held and the systemic implications of the framework, including assessing risks arising from concentration in the holders of GLAC;
- the interaction and calibration of going concern capital requirements on banks relative to their GLAC;
- the credibility of resolution planning for SIFIs with a presence in the United Kingdom, including group structures, impediments and progress made to establish co-operation agreements;
- how structural reform proposals, and firms' implementation plans, will help reduce TBTF problems, in line with the objectives of the Independent Commission on Banking's recommendations;
- the heightened supervisory framework in the United Kingdom in light of the FPC's view on the ability to resolve SIFIs that operate in the United Kingdom;
- the approach used to identify domestic SIFIs;
- the principles of a global capital standard for global systemically important insurers;
- the resolution arrangements for financial market infrastructures; and
- in light of the initiatives above, and the remaining gaps in the resolution framework, assess whether going concern loss-absorbing requirements are adequate, and how, more broadly, the overall capital, leverage and liquidity framework for SIFIs should be calibrated.

The timing of the work would be influenced by the FSB work programme on ending TBTF, including proposals on GLAC requirements for global systemically important banks to be published by the FSB in 2014. In addition, national structural reforms are due to be assessed in 2014.

### **Shadow banking and diverse and resilient sources of market-based finance**

The provision of finance from outside the traditional banking system can play an important role in the financial system and wider economy but it can also be a source of systemic risk. In September, the Committee agreed that the identification and management of potential systemic risks from shadow banking should be one of its medium-term priorities, in line with its statutory responsibilities.

The Committee will review risks beyond the existing regulatory perimeter (ie the scope of firms and activities currently regulated by the PRA, FCA and Bank). Where potential risks to UK financial stability, either directly or indirectly via connections with financial institutions and markets, are identified, the Committee may choose to act to mitigate those risks. For example, the Committee could recommend to HM Treasury that certain types of firm or activity be brought

within scope of PRA or FCA regulation (a power provided to the Committee by the Financial Services Act 2012).

In addition to identifying systemic risks, the Committee will also seek to improve the diversity and robustness of market-based financing in the United Kingdom and globally. This can be achieved by removing impediments to the provision of resilient sources of market-based finance and credit and by promoting the development of such sources of finance.

In particular, the Committee will assess, and where necessary act to:

- develop approaches to promote a better functioning securitisation market in the United Kingdom;
- reduce the risks to financial stability arising from procyclicality in the availability of finance, including via collateral markets;
- enhance the resilience of liquidity in financial markets that are important to UK financial stability; and
- consider whether a credit register in the United Kingdom might support financial stability, subject to an assessment of the cost and benefits.

The timing of the work will in part be influenced by the FSB work on transforming shadow banking. The FSB intends to finalise policies to mitigate the systemic risks of the repo and securities lending market and the BCBS will update proposals to address the risks from banks' interactions with shadow banks in 2014.



## Box 2

### Leverage ratio: high-level considerations

#### Introduction

In its June 2013 report, the Parliamentary Commission on Banking Standards (PCBS) requested that the FPC provide 'its own assessment of the appropriate leverage ratio' and consider 'whether the leverage ratio should be a regulatory frontstop rather than a backstop given the recognised deficiencies in the risk-weighted assets approach to assessing capital adequacy'.

As noted in the Bank's response to the PCBS report, the FPC believes that a full assessment of this recommendation depends on the definition of leverage agreed internationally by the Basel Committee on Banking Supervision (BCBS) (as discussed in Section 3.1). This box sets out the Committee's view on some broader issues relevant to the PCBS recommendation.

On 26 November, the Chancellor wrote to the Governor requesting that the FPC undertakes a review of the role for the leverage ratio within the capital framework for UK banks.<sup>(1)</sup> The Governor confirmed that the terms of reference for this review will be finalised by Bank staff early in the New Year, once the definition of leverage is finalised, and expected that the FPC would then complete its review within twelve months.

#### Defining the leverage ratio

The leverage ratio is defined as the ratio of a going concern capital measure (Tier 1 capital) over an exposure measure. The Basel Committee intends to finalise the leverage ratio definition in early 2014.

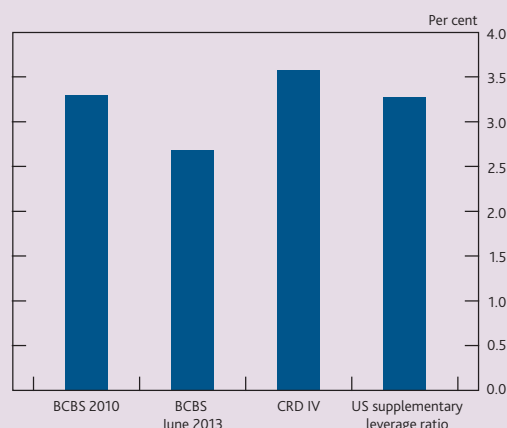
The Committee believes that the definition of the leverage ratio should be finalised first before considering an appropriate level of calibration. This is because the precise definition of the leverage exposure can result in different leverage ratios.

For example, there are currently several different definitions of leverage ratios proposed or implemented. These include: the leverage ratio definition in the original Basel III standards in 2010; the revised definition proposed by the BCBS in 2013; the definition of the 'supplementary' leverage ratio in the United States; and the leverage ratio included in CRD IV.

When applied to UK banks, the estimated impact of these different definitions can result in aggregate leverage ratios that vary by a factor of more than 1.3 times (**Chart A**). The chart also shows that the US proposed 5% and 6% supplementary leverage ratios would be considerably more challenging than a 3% leverage ratio requirement, even under the strictest definition. However, when comparing leverage ratios across jurisdictions, it is important to consider structural differences in balance sheets — for example UK banks retain a significantly

**Chart A** The precise definition of the leverage exposure can result in different leverage ratios

UK banks' aggregate leverage ratios under different definitions<sup>(a)(b)(c)(d)</sup>



Sources: BCBS and Bank calculations.

(a) Using figures for exposures and Basel Tier 1 capital as at end-December 2012.

(b) Sample consists of ten UK banks and building societies.

(c) The treatment of securities financing transactions under both the BCBS 2010 and CRD IV definitions involve approximations, as does the treatment of trade finance under CRD IV.

(d) The US supplementary leverage ratio definition uses US GAAP accounting values. To arrive at the leverage ratio for the sample of UK banks, an approximation of US GAAP accounting values is applied.

larger share of the mortgages that they originate than US banks — and that firms' risk strategies may change.

#### Role of the leverage ratio in the regulatory framework

All capital adequacy measures are faced with a range of risks which they seek to capture or address. These include capturing the 'true' risk of the underlying assets, portfolio or correlation risk, and avoiding model risk, arbitrage risk, political risk, etc. Broadly speaking, solvency metrics can be categorised in three approaches:

- (i) an approach which estimates and differentiates risks based on banks' internal models and assessments (eg the internal ratings-based approach for credit risk);
- (ii) an approach which estimates and differentiates risks based on international regulators' assessment of risk (eg the Basel standardised approach) or through regulatory constraints on internal models, such as floors; and
- (iii) an approach which provides an overall capitalisation level on all assets independent of their (measurable) risk (eg a leverage ratio).

These different solvency measures do better or worse jobs of reflecting or correcting for these risks. For example: internal model-based approaches to scaling capital are more sensitive to individual risk exposures but are more susceptible to inaccurate models (model risk); standardised approaches are less likely to be gamed but are exposed to the risk of perceived political pressure to set regulatory risk weights that favour certain types of exposure; and leverage ratios are more robust to model risk and better at capturing unsustainable balance sheet expansion but may lead to incentives to shift into higher-risk assets. All three measures are, in isolation,

susceptible to regulatory arbitrage because risk could migrate over time to where the risk gaps are largest. As such, one solvency measure will not always be more 'risk sensitive' than another. Rather, each metric is better suited to address some types of risks relative to other metrics and no one metric is unambiguously better at capturing every type of risk.

Several conclusions follow from this assessment:

- **No single capital adequacy metric can capture well all of these risks all of the time.** And even if it could at a point in time, arbitrage could see it undone over time. This was the pre-crisis experience. For example, a recent research paper shows that in the run-up to the recent crisis, the leverage for a set of major international banks increased by 30%, while risk-weighted assets fell by 15%.<sup>(2)</sup> A robust approach, in the face of these various risks, is likely to involve more than one capital metric.
- **How frequently and in what circumstances each measure will bind depends on their relative calibration and the types of risks to which banks are exposed.** Therefore, the language of 'frontstops' and 'backstops' is potentially unhelpful. The leverage ratio provides a barrier against model risk and rapid balance sheet expansion — in other words, a specific class of risk rather than the frequency with which the risk occurs. For example, had leverage ratios been in place prior to the crisis, they would have bound more tightly than risk-weighted measures for a number of banks that subsequently failed. That could be seen as an indication of leverage ratios successfully guarding against a particular class of risk.<sup>(3)</sup> A more risk-sensitive measure, on the other hand, would constrain banks who would tend to shift into riskier assets if a leverage ratio was the only constraint.
- **Given the various risks and uncertainties surrounding capital adequacy measures, a robust regulatory approach would involve using multiple metrics.** Further, setting a similar risk tolerance may help guard against the worst outcomes from arbitrage of each individual measure.

### Relative calibration of solvency metrics

As noted earlier, views on calibration will necessarily depend on the definitions agreed upon in the international regulatory arena. The existing risk-weighted capital requirements and leverage ratio were calibrated for the banking system as a whole. The Committee discussed three topics in relation to relative calibration between risk-weighted and leverage requirements.

- **Time-varying requirements.** The interim Committee had noted the merit in being able to vary leverage ratios countercyclically, in response to any cyclical build-up of risks where it judged that the leverage ratio would be the appropriate tool. The Government had committed to provide the FPC with a time-varying leverage direction-making tool, but no earlier than 2018 and subject to a review in 2017 to assess progress on international standards.
- **Moving leverage ratios in proportion to risk-weighted measures.** The Committee discussed the possible merits of moving leverage requirements in line with movements in risk-weighted requirements in different circumstances. It noted that if risk-weighted requirements were to be increased in a period of banking system exuberance without a proportionate increase in the leverage ratio, then the effectiveness of the policy intervention could be compromised in at least two ways. First, banks might still be able to grow their balance sheets to unsustainably high multiples of capital. So such a policy may have the impact of reducing the effectiveness of the leverage ratio to constrain imprudent balance sheet expansion.<sup>(4)</sup> Second, banks would face increased incentives to understate risks on existing assets precisely at the point in the cycle where the FPC is concerned about risk underestimation. Increasing the leverage ratio in proportion to risk-weighted requirements could provide a more effective means to curtail unsustainable balance sheet expansion while continuing to guard against model risk.
- **Ring-fenced banks.** The Committee noted that the Independent Commission on Banking (ICB) recommended that ring-fenced banks be subject to a higher risk-weighted capital standard (eg 10% CET1) and a proportionately higher leverage ratio (4.06%).<sup>(5)</sup> Together, these recommendations were meant to increase the 'insurance per unit of risk taken' for banks' critical functions carried out within ring-fenced banks. This proportional scaling up was intended to ensure that both metrics retained their respective roles in the regulatory framework and to ensure that appropriate assets were placed within the ring-fence. The PCBS has noted that a derogation from higher leverage ratios for some ring-fenced banks could be used to address the Government's belief that further work is required to determine whether different minimum leverage ratios should apply to banks with different business models.

(1) See [www.bankofengland.co.uk/publications/Pages/news/2013/161.aspx](http://www.bankofengland.co.uk/publications/Pages/news/2013/161.aspx).

(2) Change in leverage and risk-weighted assets between end-2004 and end-2007 for a sample of 17 major international banks, as used in Haldane, A (2013), 'Constraining discretion in bank regulation', available at [www.bankofengland.co.uk/publications/Documents/speeches/2013/speech657.pdf](http://www.bankofengland.co.uk/publications/Documents/speeches/2013/speech657.pdf).

(3) Studies in this area include: IMF (2009), *Global Financial Stability Report*, available at [www.imf.org/external/pubs/ft/gfsr/2009/01/pdf/chap3.pdf](http://www.imf.org/external/pubs/ft/gfsr/2009/01/pdf/chap3.pdf); Demirgüç-Kunt, A, Detragiache, E and Merrouche, O (2010), 'Bank capital: lessons from the financial crisis', *IMF Working Paper No. 10/286*; Haldane, A and Madouros, V (2012), 'The dog and the frisbee', available at [www.bankofengland.co.uk/publications/Documents/speeches/2012/speech596.pdf](http://www.bankofengland.co.uk/publications/Documents/speeches/2012/speech596.pdf); and Blundell-Wignall, A and Atkinson, P (2011), 'Global SIFIs, derivatives and financial stability', *OECD Journal: Financial Market Trends*, Vol. 2011, Issue 1, pages 167–200.

(4) Consider an example of a bank with a £1 trillion balance sheet, and assume that the risk-weighted standard and the leverage ratio for that bank were binding at the 7% and 3% levels respectively, implying risk-weighted assets of £429 billion funded by £30 billion of capital and £970 billion of debt. Now assume that the regulator increases the risk-weighted standard from 7% to 10%, while retaining the leverage ratio at 3%. Under this policy, the bank could double its balance sheet and still maintain 33x leverage, provided that it invests the extra borrowed funds in new assets with an average risk weight equal or below 17%.

(5) See ICB (2011), *Final Report: Recommendations*, available at <https://hmt-sanctions.s3.amazonaws.com/ICB%20final%20report/ICB%2520Final%2520Report%5B1%5D.pdf>. The Basel III risk-weighted Tier 1 standard is 8.5%, while the Tier 1 leverage ratio is set at 3%. The ICB recommended an increase in Tier 1 risk-weighted capital standards to 11.5%, which implies a proportionate increase in the leverage ratio to 4.06%.



# Annex: Core indicators

**Table A.1** Core indicator set for the countercyclical capital buffer<sup>(a)</sup>

Indicator	Average, 1987–2006 <sup>(b)</sup>	Average 2006 <sup>(c)</sup>	Minimum since 1987 <sup>(b)</sup>	Maximum since 1987 <sup>(b)</sup>	Previous value (oya)	Latest value (as of 19 Nov. 2013)
<b>Bank balance sheet stretch<sup>(d)</sup></b>						
1 Core Tier 1 capital ratio <sup>(e)</sup>	6.6%	6.3%	6.1%	11.7%	10.8%	11.7% (2013 H1)
2 Leverage ratio <sup>(f)</sup>						
Simple	4.7%	4.1%	2.9%	5.4%	5.0%	5.3% (2013 H1)
Basel III	n.a.	n.a.	n.a.	n.a.	4.0%	3.8% (2013 H1)
3 Average risk weights <sup>(g)</sup>	53.6%	46.4%	35.2%	65.4%	35.2%	35.8% (2013 H1)
4 Return on assets before tax <sup>(h)</sup>	1.0%	1.1%	-0.2%	1.5%	0.3%	0.5% (2013 H1)
5 Loan to deposit ratio <sup>(i)</sup>	114.0%	132.4%	96.0%	133.3%	106.3%	100.6% (2013 H1)
6 Overseas concentration indicator: countries to which UK banks have 'large' and 'rapidly growing' total exposures <sup>(j)</sup>	In 2006 Q4: BR, CH, CN, ES, FR, IE, IN, LU, NL				In 2012 Q2: DE, JP, NL	In 2013 Q2: CH, CN, MY, TW
7 Bank debt measures						
CDS premia <sup>(k)</sup>	12 bps	8 bps	6 bps	298 bps	167 bps	114 bps (19 Nov. 2013)
Subordinated spreads <sup>(l)</sup>	29 bps	10 bps	4 bps	642 bps	341 bps	214 bps (19 Nov. 2013)
8 Bank equity measures						
Price to book ratio <sup>(m)</sup>	2.14	1.97	0.50	2.83	0.78	0.96 (19 Nov. 2013)
Market-based leverage ratio <sup>(n)</sup>	9.7%	7.8%	1.9%	14.9%	4.1%	5.1% (19 Nov. 2013)
<b>Non-bank balance sheet stretch<sup>(o)</sup></b>						
9 Credit-to-GDP <sup>(p)</sup>						
Ratio	128.9%	163.9%	96.2%	185.8%	167.4%	165.9% (2013 Q2)
Gap	2.6%	6.7%	-16.0%	20.8%	-14.5%	-16.0% (2013 Q2)
10 Private non-financial sector credit growth <sup>(q)</sup>	10.5%	12.6%	-1.2%	25.6%	-1.2%	-0.9% (2013 Q2)
11 Net foreign asset position to GDP <sup>(r)</sup>	-3.5%	-15.1%	-20.1%	21.6%	-1.5%	-3.8% (2013 Q2)
12 Gross external liabilities to GDP <sup>(s)</sup>	241.9%	403.8%	146.1%	490.3%	467.9%	471.8% (2013 Q2)
of which debt to GDP	202.5%	336.0%	130.8%	421.6%	388.9%	383.2% (2013 Q2)
of which bank debt to GDP	133.9%	210.0%	90.2%	285.1%	231.7%	219.7% (2013 Q2)
13 Current account balance to GDP <sup>(t)</sup>	-1.9%	-2.8%	-5.5%	0.5%	-4.5%	-3.2% (2013 Q2)
<b>Conditions and terms in markets</b>						
14 Long-term real interest rate <sup>(u)</sup>	3.10%	1.27%	-0.48%	5.29%	0.13%	0.59% (19 Nov. 2013)
15 VIX <sup>(v)</sup>	19.1	12.8	10.6	65.5	17.6	13.1 (19 Nov. 2013)
16 Global spreads <sup>(w)</sup>						
Corporate bond spreads <sup>(x)</sup>	115 bps	87 bps	52 bps	486 bps	135 bps	137 bps (19 Nov. 2013)
Collateralised and securitised debt spreads <sup>(y)</sup>	50 bps	46 bps	15 bps	257 bps	59 bps	58 bps (19 Nov. 2013)
17 Spreads on new UK lending						
Mortgage lending <sup>(z)</sup>	82 bps	52 bps	38 bps	361 bps	342 bps	216 bps (Oct. 2013)
Corporate lending <sup>(aa)</sup>	104 bps	100 bps	93 bps	412 bps	330 bps	291 bps (2013 Q3)

(a) A spreadsheet of the series shown in this table is available at [www.bankofengland.co.uk/financialstability/Pages/fpc/coreindicators.aspx](http://www.bankofengland.co.uk/financialstability/Pages/fpc/coreindicators.aspx).

(b) If the series starts after 1987, the average between the start date and 2006 and the maximum/minimum since the start date are used.

(c) 2006 was the last complete non-crisis year.

(d) Unless otherwise stated indicators are based on the major UK bank peer group defined as: Abbey National (until 2003); Alliance & Leicester (until 2007); Bank of Ireland (from 2005); Bank of Scotland (until 2000); Barclays; Bradford & Bingley (from 2001 until 2007); Britannia (from 2005 until 2008); Co-operative Bank (from 2005); Halifax (until 2000); HBOS (from 2001 until 2008); HSBC (from 1992); Lloyds TSB/Lloyds Banking Group; Midland (until 1991); National Australia Bank (from 2005); National Westminster (until 1999); Nationwide; Northern Rock (until 2011); Royal Bank of Scotland; Santander (from 2004); TSB (until 1994); Virgin Money (from 2012) and Woolwich (from 1990 until 1997). As Virgin Money did not publish 2012 H1 or 2013 H1 results, its 2012 results are used for those periods. Accounting changes, eg the introduction of IFRS in 2005 result in discontinuities in some series. Restated figures are used where available.

(e) Major UK banks' aggregate core Tier 1 capital as a percentage of their aggregate risk-weighted assets. The series starts in 2000 and uses the major UK banks peer group as of end-2012 and their constituent predecessors. Data exclude Northern Rock from 2008. From 2008, core Tier 1 ratios are as published by banks, excluding hybrid capital instruments and making deductions from capital based on PRA definitions. Prior to 2008, that measure was not typically disclosed and Bank calculations approximating it as previously published in the *Financial Stability Report* are used. The series is annual with the exception of 2012 H1 and 2013 H1. Sources: Published accounts and Bank calculations.

(f) A simple leverage ratio calculated as aggregate peer group equity (shareholders' claims) over aggregate peer group assets (note a discontinuity due to the introduction from 2005 of IFRS accounting standards, which tends to reduce reported leverage ratios thereafter) and, in addition from 2011, a series corresponding to the Basel III estimates submitted to the PRA by firms on a best endeavours basis (aggregate peer group Tier 1 capital over aggregate leverage ratio exposure). The Basel III leverage definition is still under review and so the basis upon which these ratios is reported may differ from the final definition. Tier 1 capital includes some instruments which are subject to grandfathering arrangements. Note that the simple series excludes Northern Rock from 2008, and the Basel III series consists of Barclays, Co-operative Bank, HSBC, Lloyds Banking Group, Nationwide, RBS and Santander UK. The simple series is annual with the exception of 2012 H1 and 2013 H1. Sources: Published accounts, PRA regulatory returns and Bank calculations.

(g) Calculated dividing aggregate peer group risk-weighted assets by aggregate peer group assets. Series begins 1992. All data points are annual with the exception of 2013 H1 and 2012 H1. Sources: Published accounts and Bank calculations.

(h) Calculated as major UK banks' annual net income (excluding tax) as a proportion of total assets, averaged over the current and previous year. Pre-tax profits for 2012 H1 and 2013 H1 have been annualised. Series is annual with the exception of 2012 H1 and 2013 H1 which show return on assets over the previous twelve-month period.

(i) Major UK banks' customer lending as a percentage of customer funding, where customer refers to all non-bank borrowers and depositors. Repurchase agreements are excluded from loans and deposits where disclosed. One weakness of the current measure is that it is not possible to distinguish between retail deposits from households and deposits placed by non-bank financial corporations on a consolidated basis. Additional data collections would be required to improve the data in this area. The series begins in 2000 and is annual with the exception of 2012 H1 and 2013 H1. Sources: Published accounts and Bank calculations.

- (j) This indicator counts the number of countries where UK-owned monetary financial institutions' overall exposures are greater than 10% of UK-owned monetary financial institutions' tangible equity on an ultimate risk basis and have grown by 10% or more as a proportion of UK-owned monetary financial institutions' tangible equity during the previous year. Foreign exposures as defined in BIS consolidated banking statistics. Tangible equity figures for 2005–07 are estimated. Series begins in 2005 Q4. Countries flagged in 2006 Q4 were Brazil (BR), Switzerland (CH), People's Republic of China (CN), Spain (ES), France (FR), Ireland (IE), India (IN), Luxembourg (LU) and Netherlands (NL). Countries flagged in 2012 Q2 were Germany (DE), Japan (JP) and Netherlands (NL). Countries flagged in 2013 Q2 were Switzerland (CH), People's Republic of China (CN), Malaysia (MY) and Taiwan (TW). Sources: Bank of England, published accounts and Bank calculations.
- (k) Average of major UK banks' five-year senior CDS premia, weighted by total assets. Series starts in 2003. Includes Nationwide from July 2003. Sources: Markit Group Limited, published accounts and Bank calculations.
- (l) Average of UK banks' five-year euro-denominated subordinated debt spreads to swaps, weighted by total assets. Includes contingent capital instruments. Sample includes the following financial groups: Banco Santander, Bank of Ireland, Barclays, HSBC, LBG and RBS. Series starts in 2002. The data provider has changed the calculation of the underlying series which explains differences to the data published in the draft Policy Statement in January 2013. Sources: UBS Delta, published accounts and Bank calculations.
- (m) Relates the share price with the book, or accounting, value of shareholders' equity per share. Simple averages of the ratios in the peer group, weighted by end-year total assets. The sample comprises the major UK banks excluding Britannia, Co-operative Bank, and Nationwide. Northern Rock is excluded from 2008 and Virgin Money from 2012. Series starts in 2000. Sources: Thomson Reuters Datastream, published accounts and Bank calculations.
- (n) Total peer group market capitalisation divided by total peer group assets (note a discontinuity due to introduction of IFRS accounting standards in 2005, which tends to reduce leverage ratios thereafter). The sample comprises the major UK banks excluding Britannia, Co-operative Bank, and Nationwide. Northern Rock is excluded from 2008 and Virgin Money from 2012. Series starts in 2000. Sources: Thomson Reuters Datastream, published accounts and Bank calculations.
- (o) The current vintage of ONS data is not available prior to 1997. Data prior to this and beginning in 1987 have been assumed to remain unchanged since *The Blue Book 2013*.
- (p) 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' loans and debt securities excluding derivatives, direct investment loans and loans secured on dwellings. ONS data are not available before 1990. Before then, stable relationships between the ONS household and private non-financial corporation debt data and Bank of England household and private non-financial corporation lending data are assumed and the ONS household and private non-financial corporation debt series is assumed to grow at the same rate as the Bank of England household and private non-financial corporation lending series. The credit to GDP gap is calculated as the percentage point difference between the credit to GDP ratio and its long-term trend, where the trend is based on a one-sided Hodrick-Prescott filter with a smoothing parameter of 400,000. Sources: Bank of England, ONS and Bank calculations.
- (q) Twelve-month growth rate of nominal credit. Credit is defined as above. Sources: Bank of England, ONS and Bank calculations.
- (r) As per cent of annual GDP (four-quarter moving sum). Sources: ONS and Bank calculations.
- (s) Excluding derivatives. Non-debt liabilities are equity liabilities in the form of either foreign direct or portfolio investment. Ratios computed using a four-quarter moving sum of GDP. MFIs are monetary financial institutions, and cover banks and building societies resident in the United Kingdom. Sources: ONS and Bank calculations.
- (t) As per cent of quarterly GDP. Sources: ONS and Bank calculations.
- (u) Five-year real interest rates five years forward, derived from the Bank's index-linked government liabilities curve. Source: Bank of England.
- (v) The VIX is a measure of market expectations of 30-day volatility as conveyed by S&P 500 stock index options prices. Series starts in 1990. One-month moving averages. Sources: Bloomberg and Bank calculations.
- (w) Option adjusted spreads, which are the number of basis points the matched-maturity government spot curve is shifted in order to match a bond's present value of discounted cash flows. One-month moving averages.
- (x) Global corporate bond spreads refers to the global broad market industrial spread. This tracks the performance of non-financial, investment grade corporate debt publicly issued in the major domestic and eurobond markets. Index constituents are capitalisation-weighted based on their current amount outstanding. The series starts in 1997. Sources: BofA Merrill Lynch Global Research, used with permission, Bloomberg and Bank calculations.
- (y) Global securitised and collateralised debt spreads refers to the global broad market collateralised spread. This tracks the performance of investment grade securitised and collateralised debt, including mortgage-backed, asset-backed, commercial mortgage-backed, covered bond, pfandbrief and US mortgage pass-through securities publicly issued in the major domestic and eurobond markets. Qualifying currencies are US dollars, Australian dollars, Canadian dollars, euros, Japanese yen, sterling; subject to minimum size requirements. The series starts in 1997. Sources: BofA Merrill Lynch Global Research, used with permission, Bloomberg and Bank calculations.
- (z) The UK mortgage spread is a weighted average of quoted mortgage rates over safe rates, using 90% LTV two-year fixed rate mortgages and 70% LTV tracker, two and five-year fixed-rate mortgages. Spreads are taken relative to gilt yields of matching maturity for fixed-rate products until August 2009, after which spreads are taken to OIS of matching maturity. Spreads are taken to Bank Rate for the tracker product. Series starts in 1997. Sources: Bank of England, CML and Bank calculations.
- (aa) The UK corporate lending spread is a weighted average of: SME lending rates over Bank Rate; CRE lending rates over Bank Rate; and, as a proxy for the rate at which banks lend to large, non-CRE corporates, UK investment-grade company bond spreads over maturity-matched government bond yields (adjusted for any embedded option features such as convertibility into equity). Series starts in 2002 Q4. Sources: Bank of England, BofA Merrill Lynch Global Research, used with permission, BBA, BIS, Bloomberg, De Montfort University and Bank calculations.

Table A.2 Core indicator set for sectoral capital requirements<sup>(a)</sup>

Indicator	Average, 1987–2006 <sup>(b)</sup>	Average 2006 <sup>(c)</sup>	Minimum since 1987 <sup>(b)</sup>	Maximum since 1987 <sup>(b)</sup>	Previous value (oya)	Latest value (as of 19 Nov. 2013)
<b>Bank balance sheet stretch<sup>(d)</sup></b>						
1 Core Tier 1 capital ratio <sup>(e)</sup>	6.6%	6.3%	6.1%	11.7%	10.8%	11.7% (2013 H1)
2 Leverage ratio <sup>(f)</sup>						
Simple	4.7%	4.1%	2.9%	5.4%	5.0%	5.3% (2013 H1)
Basel III	n.a.	n.a.	n.a.	n.a.	4.0%	3.8% (2013 H1)
3 Average mortgage risk weights <sup>(g)</sup>	n.a.	n.a.	18.9%	22.5%	20.7%	19.2% (2013 H1)
4 Balance sheet interconnectedness <sup>(h)</sup>						
Intra-financial lending growth <sup>(i)</sup>	13.8%	13.0%	-15.3%	78.7%	-7.7%	6.4% (2013 H1)
Intra-financial borrowing growth <sup>(i)</sup>	14.5%	14.0%	-19.3%	37.7%	-4.0%	-13.1% (2013 H1)
Derivatives growth (notional) <sup>(k)</sup>	37.7%	34.2%	-18.0%	67.5%	-2.9%	6.9% (2013 H1)
5 Overseas concentration indicator: countries to which UK banks have 'large' and 'rapidly growing' non-bank private sector exposures <sup>(l)</sup>		In 2006 Q4: ES, FR, IE, JP, NL			In 2012 Q2: none	In 2013 Q2: CN
<b>Non-bank balance sheet stretch<sup>(m)</sup></b>						
6 Credit growth						
Household <sup>(n)</sup>	10.1%	11.4%	0.8%	19.9%	2.2%	1.6% (2013 Q2)
Commercial real estate <sup>(o)</sup>	15.3%	18.4%	-9.7%	59.8%	-4.7%	-5.7% (2013 Q3)
7 Household debt to income ratio <sup>(p)</sup>	114.5%	156.2%	91.9%	167.2%	142.7%	139.5% (2013 Q2)
8 PNFC debt to profit ratio <sup>(q)</sup>	273.8%	331.8%	194.8%	453.9%	390.9%	390.3% (2013 Q2)
9 NBFI debt to GDP ratio (excluding insurance companies and pension funds) <sup>(r)</sup>	62.3%	133.7%	15.8%	189.0%	168.9%	178.0% (2013 Q2)
of which short-term	48.8%	93.4%	14.2%	116.5%	103.4%	111.5% (2013 Q2)
<b>Conditions and terms in markets</b>						
10 Real estate price to rent indices						
Residential <sup>(s)</sup>	100.0	151.1	66.6	161.4	120.7	123.8 (2013 Q3)
Commercial <sup>(t)</sup>	100.0	128.1	77.7	131.6	92.3	91.9 (2013 Q3)
11 Residential mortgage terms						
Loan to value ratio <sup>(u)</sup>	n.a.	90.1%	81.3%	90.5%	83.6%	85.4% (2013 Q2)
Loan to income ratio <sup>(u)</sup>	n.a.	3.8	3.6	4.0	3.9	3.9 (2013 Q2)
12 Spreads on new UK lending						
Mortgage lending <sup>(v)</sup>	82 bps	52 bps	38 bps	361 bps	342 bps	216 bps (Oct. 2013)
Corporate lending <sup>(w)</sup>	104 bps	100 bps	93 bps	412 bps	330 bps	291 bps (2013 Q3)

(a) A spreadsheet of the series shown in this table is available at [www.bankofengland.co.uk/financialstability/Pages/fpc/coreindicators.aspx](http://www.bankofengland.co.uk/financialstability/Pages/fpc/coreindicators.aspx).

(b) If the series starts after 1987, the average between the start date and 2006 and the maximum/minimum since the start date are used.

(c) 2006 was the last complete non-crisis year.

(d) Unless otherwise stated indicators are based on the major UK bank peer group defined as: Abbey National (until 2003); Alliance & Leicester (until 2007); Bank of Ireland (from 2005); Bank of Scotland (until 2000); Barclays; Bradford & Bingley (from 2001 until 2007); Britannia (from 2005 until 2008); Co-operative Bank (from 2005); Halifax (until 2000); HBOS (from 2001 until 2008); HSBC (from 1992); Lloyds TSB/Lloyds Banking Group; Midland (until 1991); National Australia Bank (from 2005); National Westminster (until 1999); Nationwide; Northern Rock (until 2011); Royal Bank of Scotland; Santander (from 2004); TSB (until 1994); Virgin Money (from 2012) and Woolwich (from 1990 until 1997). As Virgin Money did not publish 2012 H1 or 2013 H1 results its 2012 results are used for those periods. Accounting changes, eg the introduction of IFRS in 2005 result in discontinuities in some series. Restated figures are used where available.

(e) Major UK banks' aggregate core Tier 1 capital as a percentage of their aggregate risk-weighted assets. The series starts in 2000 and uses the major UK banks peer group as of end-2012 and their constituent predecessors. Data exclude Northern Rock from 2008. From 2008, core Tier 1 ratios are as published by banks, excluding hybrid capital instruments and making deductions from capital based on PRA definitions. Prior to 2008, that measure was not typically disclosed and Bank calculations approximating it as previously published in the *Financial Stability Report* are used. The series is annual with the exception of 2012 H1 and 2013 H1. Sources: Published accounts and Bank calculations.

(f) A simple leverage ratio calculated as aggregate peer group equity (shareholders' claims) over aggregate peer group assets (note a discontinuity due to the introduction from 2005 of IFRS accounting standards, which tends to reduce reported leverage ratios thereafter) and, in addition from 2011, a series corresponding to the Basel III estimates submitted to the PRA by firms on a best endeavours basis (aggregate peer group Tier 1 capital over aggregate leverage ratio exposure). The Basel III leverage definition is still under review and so the basis upon which these ratios is reported may differ from the final definition. Tier 1 capital includes some instruments which are subject to grandfathering arrangements. Note that the simple series excludes Northern Rock from 2008, and the Basel III series consists of Barclays, Co-operative Bank, HSBC, Lloyds Banking Group, Nationwide, RBS and Santander UK. The simple series is annual with the exception of 2012 H1 and 2013 H1. Sources: Published accounts, PRA regulatory returns and Bank calculations.

(g) Sample excludes Bank of Ireland; Britannia; National Australia Bank; Northern Rock; Virgin Money; and Nationwide for 2008 H2 only. Average risk weights for residential mortgages (exposures on the Retail IRB method only) are calculated as total risk-weighted assets divided by total exposure value for all banks in the sample. Calculated on a consolidated basis, except for Barclays before 2011 H2 where only solo data were available. Series starts in 2008 and is updated half-yearly. Sources: PRA regulatory returns and Bank calculations.

(h) The disclosures the series are based on are not currently sufficient to ensure that all intra-financial activity is included in these series, nor is it possible to be certain that no real economy activity is included. Additional data collections would be required to improve the data in this area. The intra-financial lending and borrowing growth series are not adjusted for mergers/acquisitions. This contributes to large growth rates in some periods — eg 1992 (Midland/HSBC) and 2007 (RBS/ABN Amro) — as they can result in step changes in the size and interconnectedness of the major UK bank peer group.

(i) Lending to other banks and other financial corporations. All data points are end-year with the exception of 2012 H1 and 2013 H1, which shows growth over the previous twelve-month period. Sources: Published accounts and Bank calculations.

(j) Wholesale borrowing, composed of deposits from banks and non-subordinated securities in issue. All data points are end-year with the exception of 2012 H1 and 2013 H1, which shows growth over the previous twelve-month period. One weakness of the current measure is that it is not possible to distinguish between retail deposits from households and deposits placed by financial corporations on a consolidated basis. Sources: Published accounts and Bank calculations.

(k) Based on notional value of derivatives (some of which may support real economy activity). The sample includes Barclays, HSBC and RBS who account for a significant share of UK banks' holdings of derivatives, though the sample could be adjusted in future should market shares change. Series starts in 2002. All data points are end-year with the exception of 2013 H1 and 2012 H1, which show growth over the previous twelve-month period. As data on notional derivatives for RBS were not available for 2011 H1, its end-2010 figures are used instead. Sources: Published accounts and Bank calculations.

(l) This indicator highlights the countries where UK-owned monetary financial institutions' non-bank private sector exposures are greater than 10% of UK-owned monetary financial institutions' tangible equity on an ultimate risk basis and have grown by 10% or more as a proportion of UK-owned monetary financial institutions' tangible equity during the previous year. Foreign exposures as defined in BIS consolidated banking statistics. Overseas sectoral exposures cannot currently be broken down further than at the non-bank private sector level. The intention is to divide them into households and corporates when new data become available, which is expected to be in 2014. Tangible equity figures for 2005–07 are estimated. Series begins in 2005 Q4. Countries flagged in 2006 Q4 were Spain (ES), France (FR), Ireland (IE), Japan (JP) and Netherlands (NL). Country flagged in 2013 Q2 was: People's Republic of China (CN). Sources: Bank of England, published accounts and Bank calculations.

(m) The current vintage of ONS data is not available prior to 1997. Data prior to this and beginning in 1987 have been assumed to remain unchanged since *The Blue Book 2013*.

(n) Twelve-month nominal growth rate of total household and not-for-profit sector liabilities. Series starts in 1988. Sources: ONS and Bank calculations.

(o) Twelve-month nominal growth rate of UK-resident banks' and building societies' claims on the commercial real estate sector. Includes lending for development of buildings. Series starts in 1988. Sources: Bank of England and Bank calculations.

(p) Gross debt as a percentage of a four-quarter moving sum of disposable income. Includes all liabilities of the household sector. ONS data on household debt are used from 1989. Before then, due to limited data availability, a stable relationship is assumed between the ONS debt data and the Bank of England lending data. The household disposable income series is adjusted for financial intermediation services indirectly measured (FISIM). Sources: Bank of England, ONS and Bank calculations.



- (q) Gross debt as a percentage of a four-quarter moving sum of gross operating surplus. Gross debt is measured as loans and debt securities excluding derivatives, direct investment loans and loans secured on dwellings. ONS data on private non-financial corporate (PNFC) debt are used from 1989 due to limited data availability. Before then, a stable relationship is assumed between the ONS debt data and the Bank of England lending data. The corporate gross operating surplus series is adjusted for financial intermediation services indirectly measured (FISIM). Sources: ONS, Bank of England and Bank calculations.
- (r) Gross debt as a percentage of four-quarter moving sum of nominal GDP. Includes all liabilities of the non-bank financial intermediary and financial auxiliary (NBF1) sector (ie all financial corporations apart from monetary financial institutions), excluding insurance companies and pension funds. Short-term debt consists of currency and deposits, short-term money market instruments issued by other UK residents, short-term loans by UK monetary financial institutions (excluding loans on dwelling and financial leasing) and short-term loans by foreign monetary financial institutions, where short-term refers to instruments or loans with an original maturity of under one year. Long-term debt is defined as total liabilities less short-term debt. Sources: ONS and Bank calculations.
- (s) The residential house price to rent index is the ratio between an average of the Halifax and Nationwide house price indices and RPI housing rent. Sources: Halifax, Nationwide, ONS and Bank calculations.
- (t) The commercial property price to rent index is the ratio between the IPD All Property Capital Growth Index and the IPD All Property Rental Value Index. This series has been corrected from the original hard copy of the draft Policy Statement after the discovery of an error. Sources: Investment Property Databank and Bank calculations.
- (u) Mean LTV (respectively LTI) ratio on new advances above the median LTV (LTI) ratio, excluding remortgagors and advances with LTV above 130 (LTI above 10). Series start in 2005. Sources: FCA Product Sales Data and Bank calculations.
- (v) The UK mortgage spread is a weighted average of quoted mortgage rates over safe rates, using 90% LTV two-year fixed rate mortgages and 70% LTV tracker, two and five-year fixed-rate mortgages. Spreads are taken relative to gilt yields of matching maturity for fixed-rate products until August 2009, after which spreads are taken to OIS of matching maturity. Spreads are taken to Bank Rate for the tracker product. Series starts in 1997. Sources: Bank of England, CML and Bank calculations.
- (w) The UK corporate lending spread is a weighted average of: SME lending rates over Bank Rate; CRE lending rates over Bank Rate; and, as a proxy for the rate at which banks lend to large, non-CRE corporates, UK investment-grade company bond spreads over maturity-matched government bond yields (adjusted for any embedded option features such as convertibility into equity). Series starts in 2002 Q4. Sources: Bank of England, BofA Merrill Lynch Global Research, used with permission, BBA, BIS, Bloomberg, De Monfort University and Bank calculations.

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# Glossary and other information

## Glossary of selected data and instruments

**CDS** – credit default swap.

**GDP** – gross domestic product.

**Libor** – London interbank offered rate.

**MBS** – mortgage-backed security.

**PSD** – Product Sales Data.

## Abbreviations

**AT1** – additional Tier 1.

**BCBS** – Basel Committee on Banking Supervision.

**BIS** – Bank for International Settlements.

**CCB** – countercyclical capital buffer.

**CCP** – central counterparty.

**CET1** – common equity Tier 1.

**CFO** – chief financial officer.

**CML** – Council of Mortgage Lenders.

**COFER** – Currency Composition of Official Foreign Exchange Reserves.

**CRD IV** – Capital Requirements Directive.

**CRE** – commercial real estate.

**CRR** – Capital Requirements Regulation.

**D-SIB** – domestic systemically important banks.

**DSR** – debt-servicing ratio.

**ECB** – European Central Bank.

**EDTF** – Enhanced Disclosure Task Force.

**ETF** – exchange-traded fund.

**EU** – European Union.

**FCA** – Financial Conduct Authority.

**FDIC** – Federal Deposit Insurance Corporation.

**FISIM** – financial intermediation services indirectly measured.

**FLS** – Funding for Lending Scheme.

**FPC** – Financial Policy Committee.

**FSA** – Financial Services Authority.

**FSB** – Financial Stability Board.

**FTSE** – Financial Times Stock Exchange.

**G20** – The Group of Twenty Finance Ministers and Central Bank Governors.

**GAAP** – generally accepted accounting principles.

**GfK** – Gesellschaft für Konsumforschung, Great Britain Ltd.

**GLAC** – 'gone concern' loss-absorbing capacity.

**G-SIB** – global systemically important bank.

**G-SIFI** – global systemically important financial institution.

**HMT** – Her Majesty's Treasury.

**ICB** – Independent Commission on Banking.

**IMF** – International Monetary Fund.

**IOSCO** – International Organization of Securities Commissions.

**IRB** – internal ratings based.

**IT** – information technology.

**LCR** – Liquidity Coverage Ratio.

**LTV** – loan to value.

**MFI** – monetary financial institution.

**MMF** – money market fund.

**MMR** – Mortgage Market Review.

**MPC** – Monetary Policy Committee.

**OECD** – Organisation for Economic Co-operation and Development.

**ONS** – Office for National Statistics.

**OTC** – over the counter.

**PCBS** – Parliamentary Commission on Banking Standards.

**PIK** – payment in kind.

**PNFC** – private non-financial corporation.

**PRA** – Prudential Regulation Authority.

**RBS** – Royal Bank of Scotland.

**REIT** – real estate investment trust.

**RICS** – Royal Institution of Chartered Surveyors.

**SIFI** – systemically important financial institution.

**SME** – small and medium-sized enterprise.

**S&P** – Standard & Poor's.

**T2** – Tier 2.

**TBTF** – too big to fail.

**WEO** – IMF *World Economic Outlook*.



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