Financial Stability Report

June 2014 | Issue No. 35

BANK OF ENGLAND

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Financial Stability Report

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June 2014

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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
Spencer Dale
Clara Furse
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 25 June 2014 and, unless otherwise stated, uses data available as at 16 June 2014.

The *Financial Stability Report* is available in PDF at www.bankofengland.co.uk.

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Executive summary

The recovery in advanced economies has continued, supported by highly accommodative monetary policies. Strengthening economic growth has bolstered the resilience of global and UK banks, and market concerns about tail risks have declined. According to the Bank's latest *Systemic Risk Survey*, the perceived probability of a high-impact event in the UK financial system has fallen to its lowest level since the crisis. Yet financial stability risks remain.

Historically low levels of interest rates globally and the current backdrop of low volatility across financial markets may encourage market participants to underestimate the likelihood and severity of tail risks. There are increasing signs that investors, in searching for yield, may be increasing the vulnerability of the financial system to shocks. This vulnerability is amplified by structural changes in markets potentially reducing the availability of market liquidity at times of stress.

The recovery in the UK housing market has been associated with a marked rise in the share of mortgages extended at high loan to income multiples. At higher levels of indebtedness, households are more likely to encounter payment difficulties in the face of shocks to income and interest rates. This could pose direct risks to the resilience of the UK banking system, and indirect risks via its impact on economic stability.

The FPC does not believe that household indebtedness poses an imminent threat to stability. But it has agreed that it is prudent to insure against the risk of a marked loosening in underwriting standards and a further significant rise in the number of highly indebted households. The FPC has recommended that:

- When assessing affordability, mortgage lenders should apply an interest rate stress test that assesses whether borrowers could still afford their mortgages if, at any point over the first five years of the loan, Bank Rate were to be 3 percentage points higher than the prevailing rate at origination.

- The PRA and the FCA should ensure that mortgage lenders limit the proportion of mortgages at loan to income multiples of 4.5 and above to no more than 15% of their new mortgages.

These steps will be supported by the UK banking sector stress-test exercise, to be completed by the end of 2014, which will assess the resilience of UK banks to a marked fall in house prices and substantial increases in interest rates.

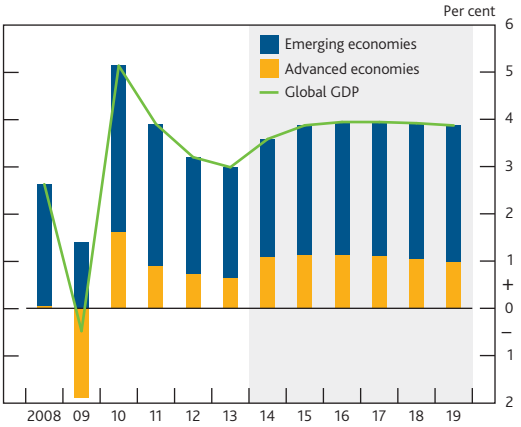
In light of its assessment of the outlook for financial stability and the FPC's recommendations, the FPC also decided at its June meeting to set the countercyclical capital buffer rate for UK exposures at 0% (as set out on pages 68–69).

The FPC also reviewed risks beyond the core banking sector, in particular channels through which stress in selected parts of the non-bank financial system could affect wider UK financial stability. Based on that assessment and initiatives under way to improve understanding and manage risks within these sectors, the FPC did not at present see a case for recommending changes to the regulatory framework.

1 Global financial environment

During the period since the November *Report*, the recovery in advanced economies continued and volatility remained low across a range of asset classes. But there were increasing signs across markets of investors searching for yield, with compressed spreads for risky debt, increased leveraged lending and greater appetite for complex assets. Global banks' resilience improved and their funding costs fell, leading to improved credit conditions in some advanced economies.

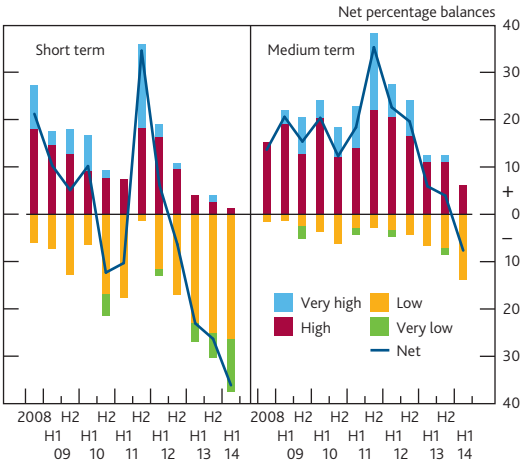
Chart 1.1 Advanced economies continued to recover
Contributions to growth in real world GDP, actual and forecast[(a)(b)]



Sources: IMF *World Economic Outlook* (*WEO*) and Bank calculations.

(a) Actual and projected global growth data are based on the April 2014 *WEO*.
(b) World GDP growth aggregate at PPP-exchange rates with PPP shares in world GDP from 2007.

Chart 1.2 Perceived risks of UK financial instability diminished further
Perceived probability of a high-impact event in the UK financial system[(a)]



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.

1.1 Macroeconomic and financial developments

Recovery in advanced economies continued…

During the period since the November *Report*, the economic recovery in advanced economies continued, though in some countries erratic factors (such as unusually cold weather in the United States) weighed on activity in early 2014. Survey measures of activity pointed to robust US and UK growth and continued expansion in the euro area. And over 2014 as a whole, advanced economies were forecast by the International Monetary Fund (IMF) to contribute their highest share to global growth (30%) since 2010 (**Chart 1.1**). This was consistent with Monetary Policy Committee (MPC) projections for faster growth in the United States and euro area. But growth in emerging economies slowed in 2013 and IMF forecasts for GDP growth in emerging economies were revised down slightly.

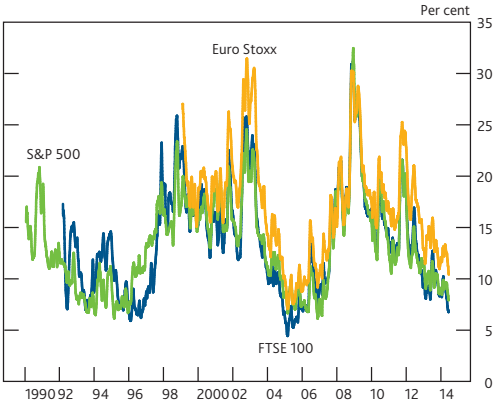
…and tail risks were perceived to have diminished.

As economic recovery continued, perceived tail risks declined. The probability of a high-impact event in the UK financial system fell to its lowest level since 2008, according to the Bank's 2014 H1 *Systemic Risk Survey* (**Chart 1.2**). And fewer respondents highlighted the two main risks identified in the 2013 H2 *Survey*: an economic downturn was cited by 61% (down 6 percentage points) and sovereign risk was cited by 40% (down 33 percentage points). Some market-based measures of perceived tail risk also fell, with the option-implied probability of a large fall in equity prices close to pre-crisis lows (**Chart 1.3**).

A reduction in the perceived risks in the euro area partly explained falls in euro-area periphery government bond yields. Ten-year yields on Greek government bonds fell below 6% for the first time since early 2010 and on Spanish government bonds fell to a record low of 2.8%. In cross-currency swap markets, used for raising foreign currency funding, the premium for swapping euros for US dollar funding, a key

Chart 1.3 Market pricing implied a large fall in equity prices was unlikely

Option-implied probability of a 10% decline in equity prices[(a)(b)]

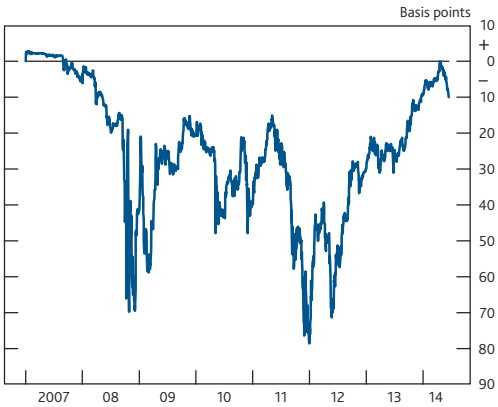


Sources: Chicago Mercantile Exchange, Eurex, NYSE Liffe and Bank calculations.

(a) Three month ahead risk-neutral probability densities implied by option prices. For more details see Clews, R, Panigirtzoglou, N and Proudman, J (2000), 'Recent developments in extracting information from options markets', *Bank of England Quarterly Bulletin*, February, pages 50–60, available at www.bankofengland.co.uk/archive/Documents/historicpubs/qb/2000/qb000101.pdf.
(b) 22-day moving average.

Chart 1.4 The premium for swapping euros for US dollar funding in cross-currency swap markets largely disappeared

Euro-dollar cross-currency basis[(a)]

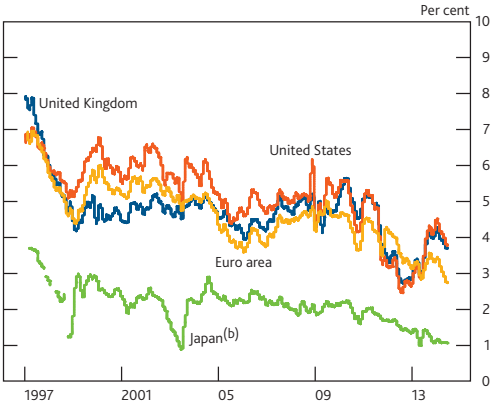


Source: Bloomberg.

(a) Premium/discount to three-month Euribor to swap US dollars, which pay three-month dollar Libor, for euros for one year.

Chart 1.5 Interest rates were expected to remain relatively low in the medium term

Forward nominal yields on selected government bonds[(a)]



Sources: Bloomberg and Bank calculations.

(a) Five-year nominal interest rates five years forward, derived from the Bank's government liability curves. Euro-area rates are estimated from French and German government bonds. One-month moving averages.
(b) Japan series based on partial data to 1999.

barometer of stress in recent years, disappeared in April for the first time since the crisis (**Chart 1.4**). Reflecting the easing in conditions, Cyprus, Greece and Portugal resumed bond market issuance.

Investors partly attributed the improved sentiment to greater resilience of euro-area periphery banks, reduced fragmentation in euro-area cross-border money markets and the announcement of further stimulus measures by the European Central Bank (ECB), alongside continued confidence in the authorities' willingness to do 'whatever it takes' to address the challenges facing the euro area.

Stresses in more vulnerable emerging economies abated. Market sentiment improved and net inflows into emerging-economy bond and equity funds resumed in April and May (Section 2.2). In part, that reflected generally benign financial market conditions. Contacts also attributed improved sentiment to actions by these countries, including tighter monetary, fiscal and macroprudential policies.

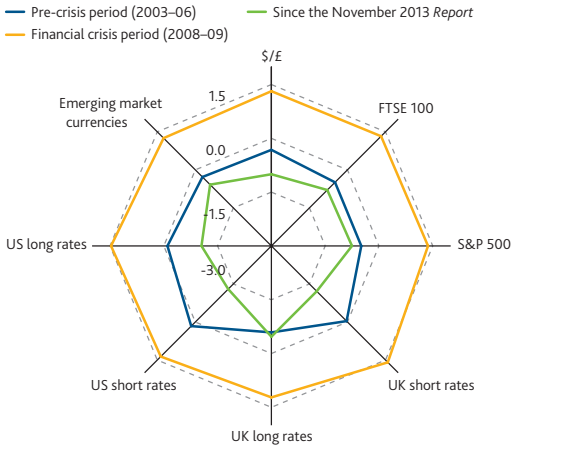
Monetary policy remained accommodative…

Advanced-economy central banks maintained policy rates at historically low levels. In the United Kingdom, the MPC indicated that Bank Rate was likely to rise only gradually and to a level below its pre-crisis average. In the United States, Federal Reserve asset purchases continued, albeit at a slowing pace, and the Federal Reserve Board provided guidance that current policy rates would be maintained for a considerable time. Japanese stimulus measures also remained in place. And a variety of easing measures were announced for the euro area including: forward guidance that policy rates will remain at present or lower levels for an extended period of time; a negative deposit rate at the ECB; operations to support bank lending to households (excluding residential mortgages) and non-financial corporations; and plans to explore purchases of asset-backed securities. Market prices implied that policy rate increases were likely around the turn of the year in the United Kingdom, during the second half of 2015 in the United States and in 2017 in the euro area.

Longer-term interest rates in advanced economies declined, partially reversing rises seen in mid-2013. Expectations of interest rates in the medium term — as implied by the cost of UK and US government borrowing for five years, five years ahead — fell by 30 to 40 basis points and remained below historical averages (**Chart 1.5**). Survey data from the Federal Reserve Bank of New York suggested that the moves in US rates reflected reduced term premia — the compensation for holding longer-maturity assets — as well as a fall in long-run policy rate expectations.

Chart 1.6 At short horizons, implied volatility was historically low across asset classes

Differences from averages since 2003, in standard deviations, of three-month option-implied volatilities(a)

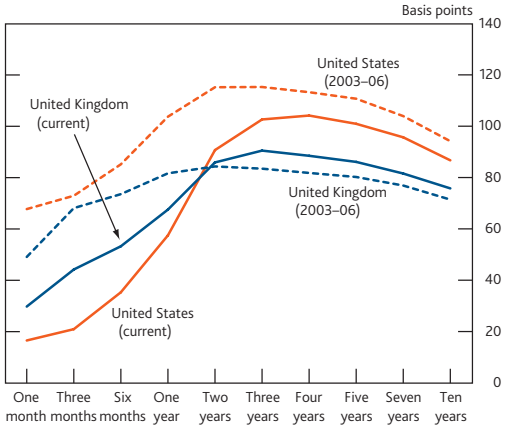


Sources: Barclays Live, Bloomberg, Chicago Mercantile Exchange, NYSE Liffe and Bank calculations.

(a) Three-month option-implied volatilities of the US dollar into sterling exchange rate, the FTSE 100 and S&P 500 equity indices, and the sterling and US dollar one-year and ten-year interest rates, as well as of the JPMorgan emerging market foreign exchange volatility index.

Chart 1.7 At longer horizons, implied interest rate volatility was closer to pre-crisis averages

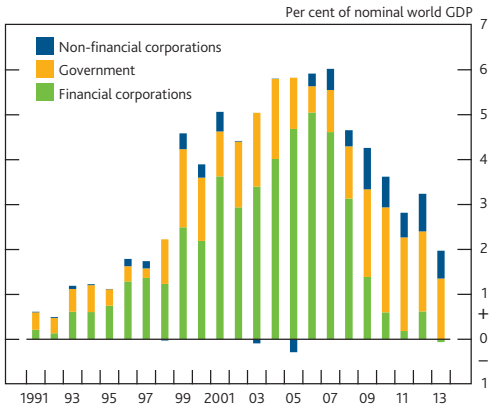
Implied volatilities of options on one-year interest rate swaps at different horizons



Sources: Barclays Live, Bloomberg and Bank calculations.

Chart 1.8 Net issuance of financial sector assets remained subdued

Global net debt securities issuance



Sources: Bank for International Settlements (BIS), IMF, World Bank and Bank calculations.

...and financial market volatility low...

Measures of volatility in financial markets remained close to historically low levels across a wide range of asset classes.(1) At short horizons, implied volatilities — a measure of future expected volatility — were at or below pre-crisis levels in equity, currency and interest rate markets (**Chart 1.6**). That was in spite of continued risks to economic recovery, weak fiscal positions and short bouts of market volatility against a backdrop of country-specific developments in Argentina, Iraq, Thailand, Turkey and Ukraine.

Measures of implied volatility at longer horizons were higher and closer to levels seen in 2003–06, particularly in interest rate markets (**Chart 1.7**). This contrasted with the period immediately prior to the financial crisis, when investors expected volatility to remain subdued. In interest rate markets, higher expected volatilities at longer horizons may reflect market expectations that while policy rates will remain close to the zero lower bound in the short term, volatility will rise once interest rates rise.

...which alongside subdued supply of financial securities...

Market contacts reported limited investment opportunities in private sector assets, which some attributed to limited appetite for corporates to borrow for the financing of capital expenditure. Despite strong issuance in corporate bond markets in recent years, net issuance of debt securities as a proportion of GDP fell to levels previously seen in the late 1990s, contrary to expectations of a rising trend as financial markets deepen (**Chart 1.8**). This partly reflected fewer debt securities issued by a deleveraging financial system. Securitisation activity in particular remained subdued, with issuance in Europe in 2013 less than 40% of its level in 2006. Section 3 discusses some of the factors that may lie behind this, as set out in a recent Discussion Paper by the Bank of England and ECB.(2)

...was accompanied by increasing signs of investors searching for yield.

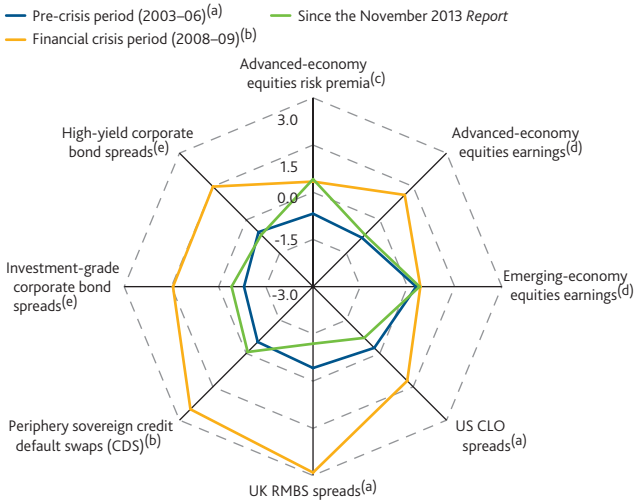
A number of market segments appeared to show signs of risk premia being compressed (**Chart 1.9**). The so-called 'search for yield' broadened beyond principally US markets to those in Europe. This may in part reflect low volatility making some investments, such as currency carry trades, more attractive (**Chart 1.10**). Signs of a search for yield were more visible in non-price, than price, elements of transactions (**Table 1.A**). That was consistent with investors accepting the risks inherent in worsening terms and subordination features more readily than lower yields.

(1) There is further discussion of recent trends in implied volatility in the *Bank of England Quarterly Bulletin*, Vol. 54, No. 2, pages 208–10, available at www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2014/qb14q209.pdf.

(2) Bank of England and European Central Bank (2014), 'The case for a better functioning securitisation market in the European Union: A Discussion Paper', available at www.bankofengland.co.uk/publications/Documents/news/2014/paper300514.pdf.

Chart 1.9 There were signs of compressed risk premia for some asset classes

Differences from averages since 2003, in standard deviations, of risk premia measures

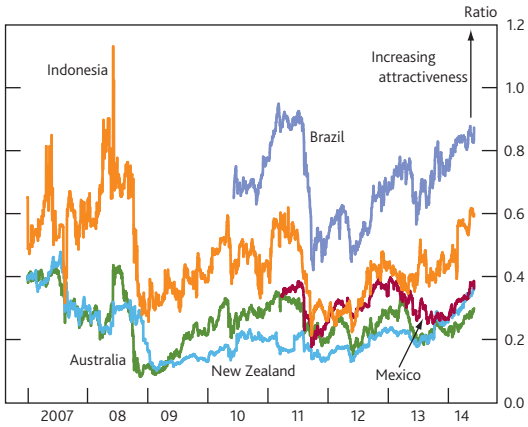


Sources: Bloomberg, BofA Merrill Lynch Global Research, JPMorgan Chase & Co., Markit Group Limited, Thomson Reuters Datastream and Bank calculations.

(a) US collateralised loan obligation (CLO) spreads and UK residential mortgage-backed security (RMBS) spreads time series from January 2006. BBB-rated. Spreads to Libor.
(b) Financial crisis period for Periphery sovereign CDS 1 June 2011 to 31 May 2012. Average five-year CDS spreads for Greece, Ireland, Italy, Portugal and Spain.
(c) Average equity risk premia on FTSE All-Share, S&P 500 and Euro Stoxx 50.
(d) Earnings-price ratio. Advanced-economy is average of US and UK series.
(e) Average option-adjusted spreads on US dollar, Sterling and Euro series.

Chart 1.10 Low volatility may have made carry trades more attractive

US dollar-funded carry trade attractiveness(a)



Sources: Bloomberg and Bank calculations.

(a) Spreads between one-year government bond yields in selected countries and the United States, divided by the one-year implied volatility of the bilateral exchange rates.

Falls in credit risk premia…

Some of the strongest signs of search for yield were in credit markets. Spreads on corporate bonds — the difference in yield relative to an equivalent maturity government bond benchmark — declined to only slightly above the levels seen in 2003–06 (**Chart 1.11**). Some market-implied estimates indicated a less than one in five probability of high-yield European loans defaulting in the next five years, the lowest since July 2007 (**Chart 1.12**). The compression in spreads was more marked for lower-rated bonds, suggesting investors were more willing to take on credit risk. For example, spreads on European CCC-rated corporate bonds were a third lower than at the time of the November *Report*, compared with a tenth lower for A-rated bonds.

Underwriting standards on leveraged loans, which are primarily used to finance private equity-sponsored acquisitions, also loosened in Europe and the United States. Spreads on new leveraged loans fell to their lowest level since 2008. Debt levels on large European leveraged buyout transactions approached those in the United States at 5.5 times company earnings, close to 2005–06 levels. And loans characterised by limited covenants made up the majority of leveraged loans in the United States, with 'cov-lite' also beginning to re-emerge in Europe. In the UK commercial real estate market, some contacts also expressed surprise over the speed at which some underwriting standards — in particular interest rate margins — had loosened (Section 2.1).

…were accompanied by declining compensation for liquidity risk…

Amid the low volatility environment and increased signs of investors searching for yield, compensation for taking liquidity risk in some fixed-income markets also appeared to decline to relatively compressed levels (Box 1). That was despite evidence of reduced market liquidity for these securities, given structural changes in recent years that might warrant greater compensation (as discussed in Section 2.2).

…and increased investor demand for more complex assets.

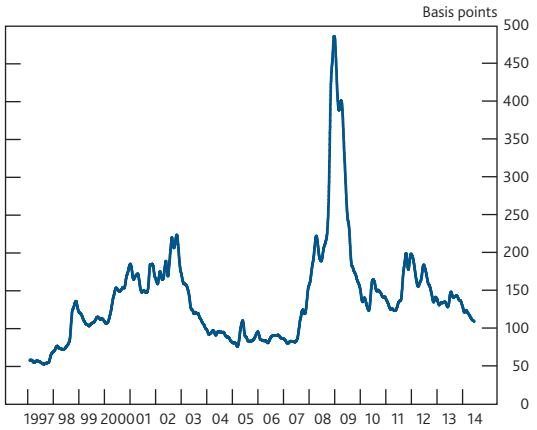
There were also signs of increased investor demand for more complex securities. For example, issuance of bank contingent capital, which can contain complex or opaque features, increased markedly in Europe (Box 3 in Section 2).

Table 1.A Price and non-price indicators of the degree of search for yield

Market segment	Price signals (at the time of the June *Report*)	Non-price signals (at the time of the June *Report*)
Advanced-economy equities	Few signs — mainly in US markets • S&P 500 index of US equities up 19% in the past year to nearly 25% above pre-crisis peak. FTSE 100 index of UK equities up 7%, to around pre-crisis peak. • Price to earnings ratios around pre-crisis averages. • Estimates of equity risk premia above historical averages for the S&P 500, FTSE All-Share and Euro Stoxx.	Some signs • Strong flows into equity funds during 2013. • Advanced-economy equity markets viewed as overvalued by 49% of asset managers surveyed by the Chartered Financial Analyst Society of the United Kingdom in May, up from 39% three months earlier.
Euro-area periphery bonds	Some signs • Sovereign CDS spreads nearly half the level at the time of the November *Report*. • Yields on Spanish and Italian bonds at or close to historical lows.	Some signs • Return of Cyprus, Greece and Portugal to sovereign debt markets.
Investment-grade corporate bonds	Few signs • Spreads wider than a level consistent with the long-run corporate default rate.	Few signs • Issuance of US investment-grade corporate bonds in first five months of 2014 in line with issuance in same period in 2013.
High-yield corporate bonds	Some signs • Spreads at lowest levels since mid-2007 across currencies including US dollar, euro and sterling. • Spreads on lower-rated bonds close to historical lows.	Some signs — primarily in US market • Record US issuance in 2013. • Weakening investor protection, including: shorter periods before an issuer can redeem early; the ability to redeem a portion of the bond each year; portability of bonds on change of issuer ownership; and looser restrictions on dividend payouts.
Corporate loans	Some signs • Spreads on new leveraged loans in the United States and Europe at lowest levels since 2008.	Strong signs — mainly in US markets but increasingly in Europe • US corporate leveraged loan standards looser than at the time of the November *Report*. • Investment-grade syndicated loan maturities lengthened. • Proportion of cov-lite issuance in US CLOs up to over 50%, compared with a pre-crisis peak of 29%. • Leveraged buyouts in the United States and Europe at debt levels last seen just prior to the crisis. • Higher LTV ratios in US commercial real estate loans.
European contingent capital (Box 3 in Section 2)	Strong signs • Average spreads on additional Tier 1 capital instruments compressed by a third during the period since the November *Report*.	Strong signs • Issuance up materially in 2014. • Large order books relative to issue sizes. • Broadening of investor base.
Securitisations	Some signs — mainly US markets but increasingly Europe • European BBB-rated CLO spreads 45 basis points narrower (at 405 basis points) since the November *Report*. • UK BBB-rated prime RMBS spreads 70 basis points narrower (at 140 basis points) since the November *Report*.	Strong signs — mainly in US markets • Reappearance of securitisation of commercial real estate in US collateralised debt obligations. • Issuance of US CLOs sharply higher at US$80 billion in 2013, close to pre-crisis peak of US$90 billion in 2007, and issuance in first five months of 2014, 25% higher than in same period in 2013.

Chart 1.11 Corporate bond spreads continued to narrow

Global corporate debt spreads[(a)]

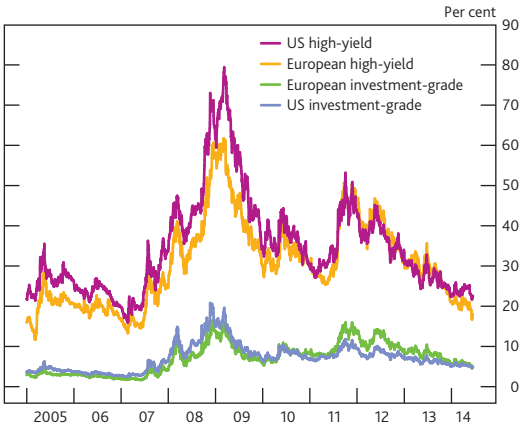


Sources: BofA Merrill Lynch Global Research and Bank calculations.

(a) One-month moving average of option-adjusted spread of non-financial investment-grade corporate debt, issued in major domestic and eurobond markets and capitalisation-weighted by amount of debt outstanding of constituent issuers.

Chart 1.12 Market indices priced a more benign outlook for corporate defaults

Market-implied default probabilities over the next five years for selected corporate debt[(a)]



Sources: JPMorgan Chase & Co. and Bank calculations.

(a) Probability of default, derived from CDS premia, from the perspective of a 'risk-neutral' investor (ie investor who is indifferent between a pay-off with certainty and an uncertain pay-off with the same expected value). If market participants are risk-averse, these measures may overstate actual probabilities of default. A loss given default of 60% is assumed.

Box 1
Liquidity risk premia in fixed-income markets

Yields of financial securities should in principle reflect the compensation that investors demand for bearing different types of risk. In fixed-income markets, on top of the risk-free rate, they include a term premium that reflects the specific maturity of the security in question and an inflation risk premium. Also, investors should generally be compensated for: the possibility that the issuer might default during the life of the security (credit risk premium); and exposure to potentially illiquid secondary markets at the point the holder chooses or is forced to dispose of the security before it matures (liquidity risk premium).(1) This box focuses specifically on liquidity risk premia in fixed-income markets, which are a key source of corporate/sovereign funding and collateral for repo transactions.

Why are we interested in liquidity risk premia?

In principle, liquidity risk premia should be reflective of investors' perception of conditions in secondary markets and the probability of having to take a large price discount at the point of sale. In reality, they are influenced by a range of factors. These include long-standing structural factors — for example, allocation of foreign exchange reserves in some emerging markets, shifts in real money investor preferences and, more recently, reductions in dealer inventories. Other factors are more cyclical in nature, such as heightened risk-taking prompted by the global low interest rate environment and manifested by elevated appetite for credit and liquidity risks in the so-called 'search for yield'.(2)

Suppressed levels of liquidity risk premia are therefore not, by themselves, necessarily a benign signal. They might disguise an underlying fragility that could be exposed by smaller shocks than investors might expect. Monitoring and understanding the drivers of liquidity risk premia is therefore important from a policy perspective.

Selected diagnostics of liquidity risk premia

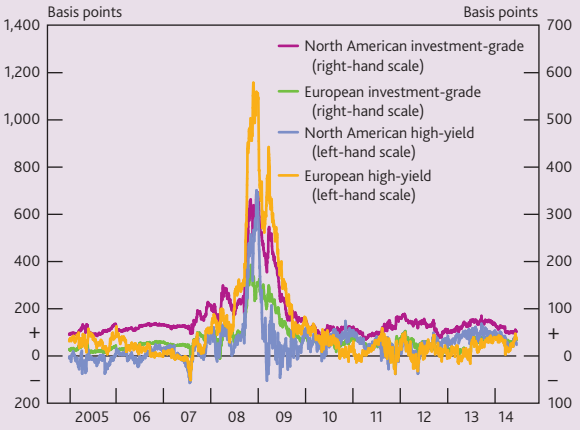
Monitoring liquidity risk premia is difficult as they are not directly observable and there is no single accepted approach to measuring them. A number of empirical and model-based measures can be used as proxies, but none of them are perfect and sometimes they send conflicting signals. This highlights the importance of tracking a range of indicators.

Cash-CDS basis

A commonly used diagnostic of liquidity risk premia in corporate bond markets is the so-called cash-CDS basis. This is the difference between the spread of a corporate bond or basket of corporate bonds over risk-free interest rates and the corresponding CDS premia on the same underlying reference entity or entities.(3) Corporate bonds and the corresponding credit default swaps carry essentially the same credit risk, so the cash-CDS basis should reflect the relative compensation required by investors for bearing non-credit risks.

Although there are a number of factors that could influence the cash-CDS basis (including funding costs associated with taking a long position in the bond market and the credit quality of the firm writing the CDS protection), it is to a large extent driven by the relative liquidity of the corporate bond and the CDS. The latter is typically more liquid as investors could buy/sell protection by simply being willing to pay or receive premia on the swap. Large positive values of the basis could therefore be indicative of large liquidity risk premia being priced in the corporate bond market. That was observed during the crisis. But, since then, the cash-CDS basis for European and North American non-financial corporate bonds has fallen towards its pre-crisis level, both for investment-grade and high-yield securities (**Chart A**).

Chart A Empirical measures of liquidity risk premia
Cash-CDS basis for selected types of corporate bonds(a)



Sources: BofA Merrill Lynch Global Research, JPMorgan Chase & Co. and Bank calculations.

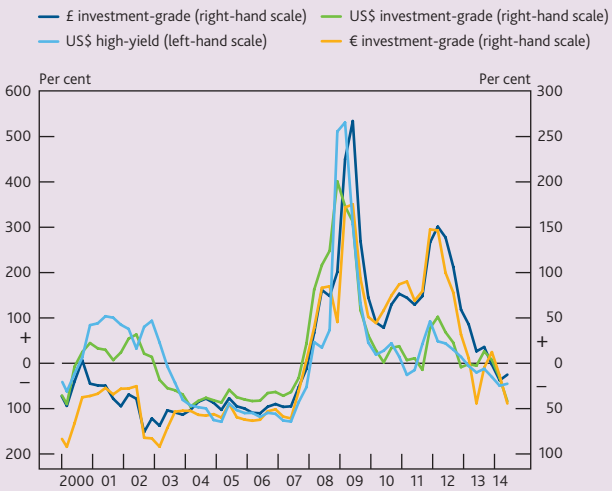
(a) The difference between option-adjusted non-financial bond spreads and CDS premia for investment-grade and high-yield corporate bonds, approximately maturity and composition matched.

Model-based indicators of liquidity risk premia

An alternative read on liquidity risk premia in corporate bond markets can be inferred from a model-based approach. Valuations and volatility in equity markets can be used to estimate the sizes of the credit-related and non-credit related components of bond spreads, given the balance sheet structure of the issuer (a so-called structural model of credit risk).(4) This approach reveals a broadly similar pattern to the cash-CDS basis: the compensation that investors require for bearing liquidity risk in corporate bond markets has fallen significantly since the crisis, and in this case to below its long-term averages (**Chart B**).

Chart B Model-based measures of liquidity risk premia

Deviations of estimated corporate bond liquidity risk premia from historical averages[(a)(b)(c)]



Sources: Bloomberg, BofA Merrill Lynch Global Research, 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, by decomposing 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.

Off-the-run/on-the-run Treasury spread

A similar overall picture is observed in the US government bond market, which is crucial to the functioning of US dollar repo markets and the global financial system.[(5)] This is illustrated by the spread between the so-called off-the-run and on-the-run ten-year Treasuries — the extra compensation that investors require for holding less frequently traded ten-year US government bonds. It spiked at the height of the financial crisis, but has since fallen and remained exceptionally low (**Chart C**).

Chart C Liquidity risk premia in the US government bond market

Off-the-run/on-the-run ten-year Treasury spread[(a)]

Sources: Federal Reserve, Thomson Reuters Datastream and Bank calculations.

(a) 22-day moving average of off-the-run ten-year estimated Treasury yield minus on-the-run ten-year Treasury yield.

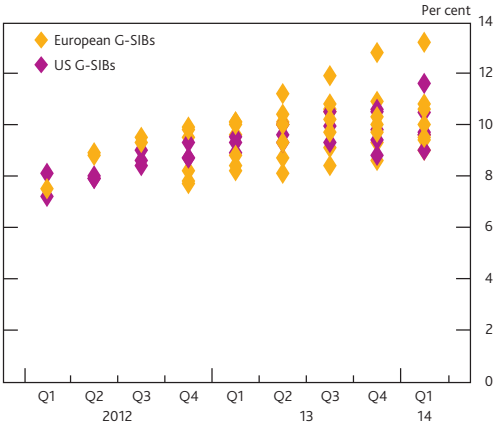
Conclusion

Liquidity risk premia vary significantly throughout the economic cycle, rising sharply during periods of stress. That was demonstrated during the financial crisis, with indicators of liquidity risk premia rising abruptly in 2008–09. Since then, they have fallen close to their pre-crisis levels and, amid increasing signs of investors searching for yield, appear slightly below average in some fixed-income markets.

But this is not necessarily a benign signal. There is a risk that current valuations are masking an underlying fragility, particularly in the light of a post-crisis reduction in banks' market-making and proprietary trading activity. As discussed in Section 2, this fragility could be exposed if investors simultaneously sought to unwind their fixed-income positions in response to a common interest rate or volatility shock, causing secondary market liquidity to dry up in pockets of the financial system. Such a sell-off could result in wider financial market disruption.

(1) In addition, bond yields could include the compensation for other types of risk (eg early repayment risk for callable bonds).
(2) For more information on the factors that might exaggerate risk-taking in financial markets, see Box 1 of the June 2013 *Financial Stability Report* (*FSR*), pages 10–11, available at www.bankofengland.co.uk/publications/Documents/fsr/2013/fsr33sec1.pdf.
(3) In financial literature the cash-CDS basis is often measured as the difference between the CDS spread and the spread on a corresponding bond/basket of bonds.
(4) For more information on the methodology, see Webber, L and Churm, R (2007), 'Decomposing corporate bond spreads', *Bank of England Quarterly Bulletin*, Vol. 47, No. 4, pages 533–41, available at www.bankofengland.co.uk/publications/Documents/quarterlybulletin/qb070403.pdf.
(5) For more information on the role of US Treasuries in the global financial system, see Box 1 of the November 2013 *FSR*, pages 31–33, available at www.bankofengland.co.uk/publications/Documents/fsr/2013/fsr34sec2.pdf.

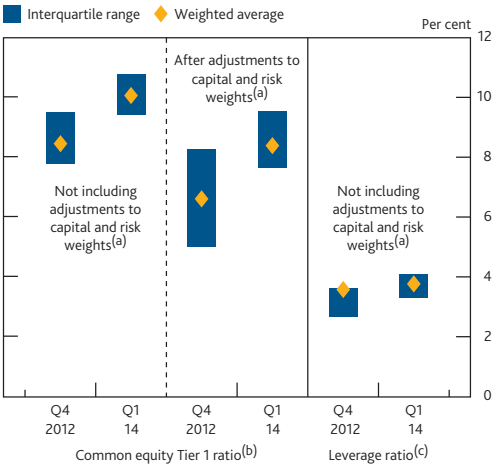
Chart 1.13 Global banks' capital ratios improved
Self-reported 'fully loaded' Basel III CET1 ratios[(a)(b)]



Sources: SNL Financial, published accounts and Bank calculations.

(a) Includes European and US G-SIBs, excluding banks in bucket 1 (the least systemically important G-SIBs).
(b) 'Fully loaded' refers to the rules that will apply at the end of the transition period in 2019.

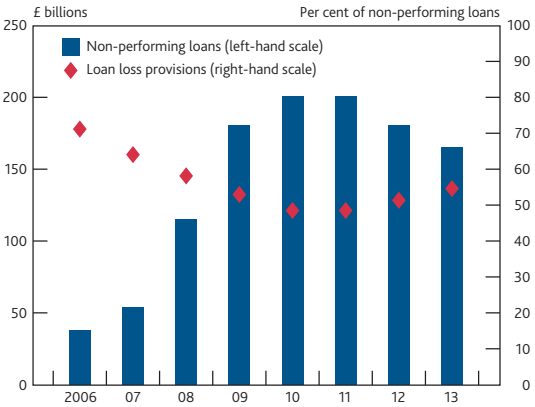
Chart 1.14 UK banks' capital resilience improved
UK banks' capital and leverage ratios



Sources: Prudential Regulation Authority (PRA), published accounts and Bank calculations.

(a) See www.bankofengland.co.uk/publications/pages/news/2013/081.aspx.
(b) Uses end-point CRD IV definitions.
(c) Calculated as end-point CRD IV Tier 1 capital divided by the leverage ratio exposure as defined by Basel 2010 proposals.

Chart 1.15 Major UK banks became better prepared for future loan losses
Major UK banks' non-performing loans and provisions[(a)]



Sources: Bank of England, published accounts and Bank calculations.

(a) Non-performing loans are as reported by the major UK banks.

1.2 Financial system resilience and credit conditions

Global banks' capital ratios strengthened…

Global banks' capital ratios increased throughout 2013. The average common equity Tier 1 (CET1) ratio reported by global systemically important banks (G-SIBs) increased by 0.8 percentage points over the year to 2014 Q1, to around 10% (**Chart 1.13**). European, in particular Swiss, G-SIBs increased their CET1 ratios most, by nearly 2 percentage points on average.

Part of the improvement in banks' capital ratios was due to new capital issuance. European banks issued US$33 billion of equity during 2014 H1. In addition, they raised more than £20 billion of additional Tier 1 (AT1) capital during the period since the November *Report*. Box 3 in Section 2 outlines the main features, benefits and risks of AT1 capital instruments.

UK banks' capital ratios also rose, after they implemented plans to rectify capital shortfalls identified in response to an interim Financial Policy Committee (FPC) recommendation. In March 2013, the microprudential supervisor (at the time the Financial Services Authority) made adjustments equivalent to a reduction of around £50 billion in the CET1 capital of the UK banks covered by the FPC's recommendation,[(1)] to reflect a more prudent valuation of vulnerable assets, potential future conduct costs and a prudent calculation of risk weights. These banks' unadjusted capital ratios have increased subsequently and the required value of adjustments has fallen. The average unadjusted CET1 ratio of the UK banks covered by the FPC's recommendation rose by 1.6 percentage points between end-2012 and 2014 Q1, to 10%, and their leverage ratios rose to 3.8% (**Chart 1.14**). After the adjustments to capital and risk weights, their average CET1 ratio rose by 1.8 percentage points, to 8.4%.

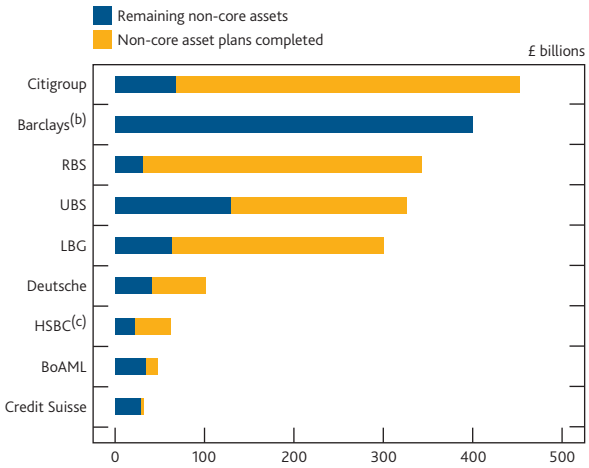
…and banks continued to prepare for future losses…

UK banks' actions to recognise costs related to past misconduct remained a drag on their profits. During 2013, major UK banks[(2)] incurred £10 billion of conduct costs, which brought cumulative conduct-related provisions since 2011 to around £28 billion. Of this, around £20 billion related to mis-sold payment protection insurance. That was more than twice as large as total UK mortgage write-offs since 2008.

(1) Unless otherwise noted the banks included in the FPC's capital exercise were: Barclays, Co-operative Bank, HSBC, Lloyds Banking Group, Nationwide, Royal Bank of Scotland, Santander UK and Standard Chartered. Further details are available at www.bankofengland.co.uk/publications/Pages/news/2013/081.aspx.
(2) Unless otherwise noted, 'major UK banks' refers to: Banco Santander, Bank of Ireland, Barclays, Co-operative Bank, HSBC, Lloyds Banking Group, National Australia Bank, Nationwide, Royal Bank of Scotland and Virgin Money. Annual data used for National Australia Bank are for the period ending end-March, due to the bank's different reporting cycle.

Chart 1.16 Banks planned further non-core asset reductions

Selected banks' non-core asset reduction plans[a]

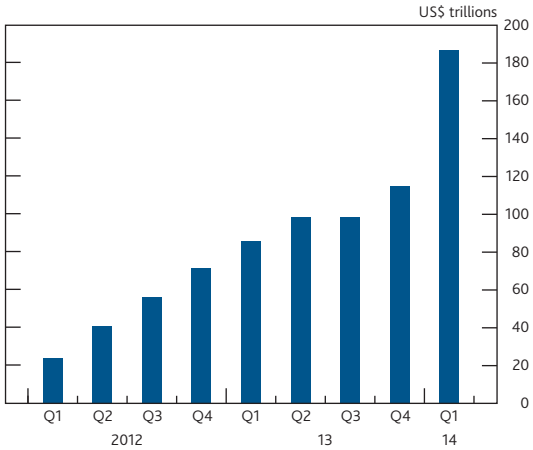


Sources: Bank of England, published accounts and Bank calculations.

(a) Data show each bank's planned non-core asset reductions when the non-core division was first created, and the remaining non-core assets based on most recent disclosures available. The difference between these values is assumed to be the completed non-core asset plans.
(b) Barclays figure shows the leverage exposure of its non-core division created on 8 May 2014. This excludes Exit Quadrant and other prior disposals.
(c) Data for HSBC refer to the consumer mortgage and lending portfolio in North America only.

Chart 1.17 Some banks reduced assets by eliminating offsetting derivative contracts

Cumulative notional value of derivative contracts eliminated through TriOptima



Sources: TriOptima and Bank calculations.

Some measures of UK banks' asset quality improved. For example, UK mortgage arrears continued to decline during 2013, to around two thirds of their 2009 peak level, and corporate liquidations remained contained. Partly reflecting these improvements, major UK banks' non-performing loans fell to £165 billion (**Chart 1.15**). At the same time, their loan loss provisions remained stable, at around £90 billion, and rose as a proportion of non-performing loans, to 55%.

Euro-area banks increased the level of their provisions for future loan losses during 2013. But that came against a backdrop of increased non-performing loans. In particular, non-performing loans in Ireland, Italy and Spain exceeded 10% of total loans at end-2013. In part, the recent rise in non-performing loans reflected new rules, being introduced as part of the ECB's asset quality review, which will harmonise the definition of non-performing loans across banks.

...including by reducing non-core assets...

A number of banks improved their capital and leverage ratios by shedding non-core assets. During 2013, total assets of European G-SIBs fell by 10%. And a number of banks continued to plan further reductions of non-core assets (**Chart 1.16**). While these plans are expected to create additional costs in the near term, the reduction in assets should strengthen banks' resilience.

Some banks achieved reductions in their assets using trade compression services, which eliminate offsetting derivative contracts between counterparties. Since 2012, one trade compression service, run by TriOptima, eliminated derivatives with a notional value of nearly US$190 trillion (**Chart 1.17**). And more than US$70 trillion of that took place during 2014 Q1. The recent drive to reduce gross derivative contracts appeared to reflect, in part, the prospective implementation of leverage ratio disclosures. European Market Infrastructure Regulation (EMIR) and the US Dodd-Frank Act also encouraged portfolio compression. The resulting reduction and simplification of counterparty exposures should support financial stability.

...which contributed to lower-than-average profitability...

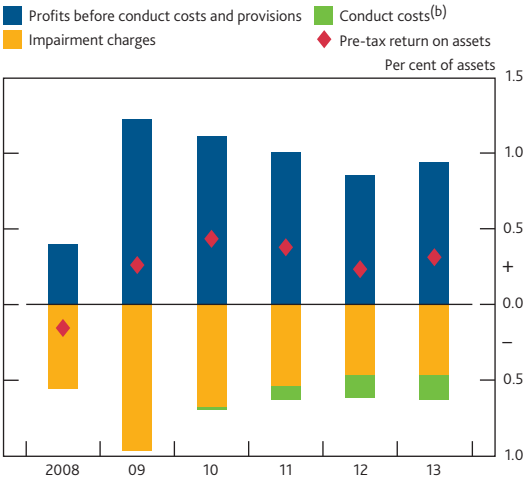
UK banks' average profitability remained relatively subdued, partly reflecting their continued recognition of legacy costs. Major UK banks' average pre-tax return on assets was around 0.3% in 2013 (**Chart 1.18**) — less than a third of the average pre-tax return since 1987. In part, that reflected continued low net interest margins. Major UK banks' operating expenses also rose to record levels in 2013.

...but should improve banks' resilience to a stress scenario.

Improvements to the quantity and quality of banks' capital should bolster their resilience to unexpected shocks. Earlier this year, the European Banking Authority (EBA) announced details of its 2014 stress-testing exercise, which will examine

Chart 1.18 UK banks' profitability remained below the long-run average

Major UK banks' pre-tax return on assets[a]

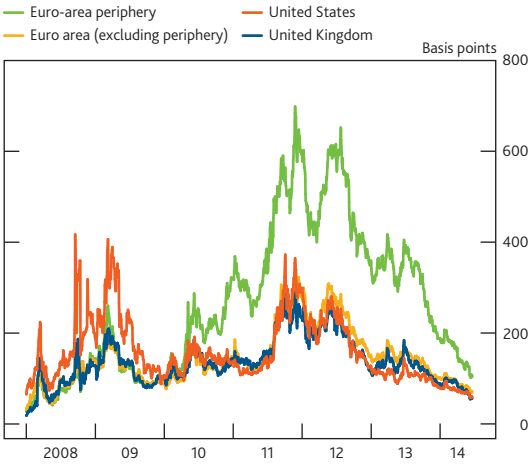


Sources: Bank of England, published accounts and Bank calculations.

(a) Excludes Virgin Money.
(b) Includes provisions for customer redress related to mis-sold payment protection insurance and interest rate swaps, and regulatory fines relating to the manipulation of Libor and lapses in anti-money laundering controls.

Chart 1.19 Indicators of banks' wholesale funding costs fell

Cost of default protection for selected banking systems[a]



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 2014 Q1.

banks' resilience to an unexpected contraction in global growth, in particular European growth, alongside a financial market shock. In addition, several UK banks and building societies will participate in a UK variant of the EBA's stress test, co-ordinated by the Bank of England. Box 2 outlines the main features of these tests.

In the United States, the results of the 2014 Comprehensive Capital Analysis and Review for US bank holding companies were announced in March. Projected losses in the adverse and severely adverse scenarios were around 30% and 50% of participating banks' Tier 1 capital, respectively. One bank did not achieve the minimum capital requirements of the test and four banks' capital plans were rejected due to concerns about the quality of their capital planning processes. That included the US subsidiaries of two UK banks.

Improved perceptions of banking systems' resilience led to lower funding costs…

Indicators of banks' wholesale funding costs fell during 2014 H1 (**Chart 1.19**), alongside perceived improvements in their resilience and falling sovereign funding costs. The cost of default protection against euro-area periphery banks fell by more than 50% during the period since the November *Report*. And the cost of default protection against banks in other advanced economies declined to levels last seen in 2008 H1. Banks' wholesale funding requirements also continued to fall in aggregate, due to reductions in their balance sheet size and deposit flows into some stronger banking systems.

…in turn, credit conditions eased in some advanced economies…

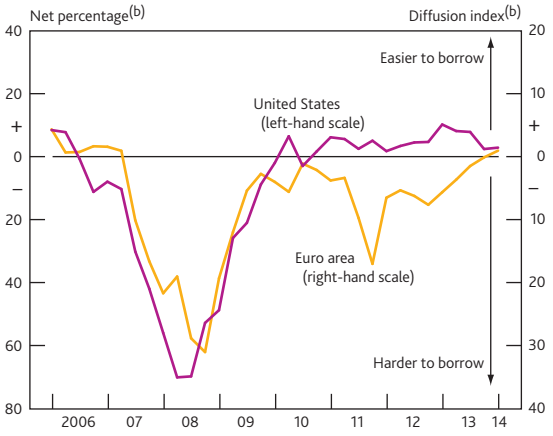
Lower bank funding costs facilitated further easing of credit conditions in some advanced economies. Access to credit in the United States — where the banking system recovered most rapidly after the recent crisis — eased again in 2014 Q1, for the fourteenth consecutive quarter (**Chart 1.20**). By contrast, the easing of credit availability in the euro area during 2014 Q1 was the first since 2007, and lending flows in euro-area periphery countries remained exceptionally weak.

…including for households in the United Kingdom…

UK households' access to credit improved further, despite a recent reduction in the number of mortgage approvals for house purchases (Section 2.1). In particular, lenders responding to recent *Credit Conditions Surveys* reported greater willingness to lend at loan to value (LTV) ratios above 90%. Consistent with this, the number of mortgage products available to borrowers with LTV ratios greater than 95% trebled over the year to May 2014. Many lenders attributed the increased availability of mortgages with higher LTV ratios to participation in the Government's Help to Buy mortgage guarantee scheme. While average mortgage rates on new lending rose in April and May, they remained at exceptionally low levels (**Chart 1.21**).

Chart 1.20 Credit conditions eased in the euro area for the first time since 2007

Credit conditions in major advanced economies[a]

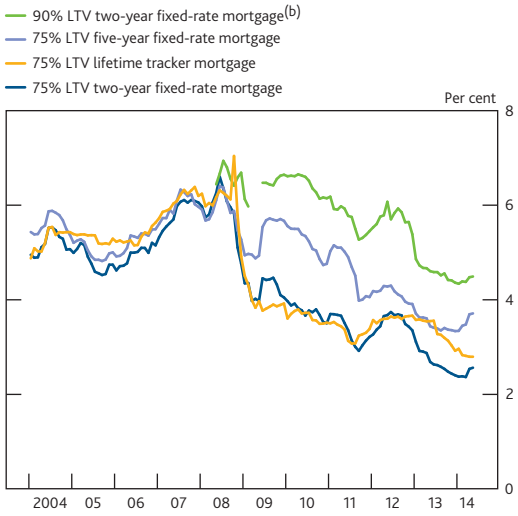


Sources: ECB, Federal Reserve, Thomson Reuters Datastream and Bank calculations.

(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 2014 Q1.
(b) Net percentage refers to the fraction of lenders that reported having loosened credit standards 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.

Chart 1.21 Mortgage rates remained at exceptionally low levels

Average UK mortgage rates on new lending[a]



Source: Bank of England.

(a) End-month sterling quoted rates on different mortgage products. Weighted averages of rates from a sample of banks and building societies with products meeting specific criteria. See www.bankofengland.co.uk/statistics/Pages/iadb/notesiadb/household_int.aspx.
(b) The two-year 90% LTV series is only available on a consistent basis from May 2008 and is not published for March to May 2009 as fewer than three products were offered.

...and credit spreads for large UK businesses fell...

Some measures of credit conditions for UK businesses eased further during the period since the November *Report*. Lenders responding to recent *Credit Conditions Surveys* reported significant falls in credit spreads for large and medium-sized corporates, while spreads for small businesses, which are more reliant on banks for external finance, were broadly unchanged (**Chart 1.22**). Demand for credit across all sizes of firm was reported to have picked up significantly during 2014 H1.

Despite these improvements, banks' net lending to companies remained weak, in part reflecting larger companies' elevated issuance of debt in capital markets. In the real estate sector, banks' lending fell at an increasing rate, driven partly by loan repayments (**Chart 1.23**). In addition, some banks have actively reduced their exposures to commercial real estate (CRE) companies, including through loan sales.

...accompanied by greater lending by non-banks.

Non-bank lenders also provided increasing amounts of credit to a number of UK sectors. In the CRE sector, data from the De Montfort survey suggested that non-banks originated nearly a quarter of all loans during 2013 H2. Some non-bank lenders are also important providers of household credit. For example, finance companies provided finance for around 75% of new car purchases in 2013.

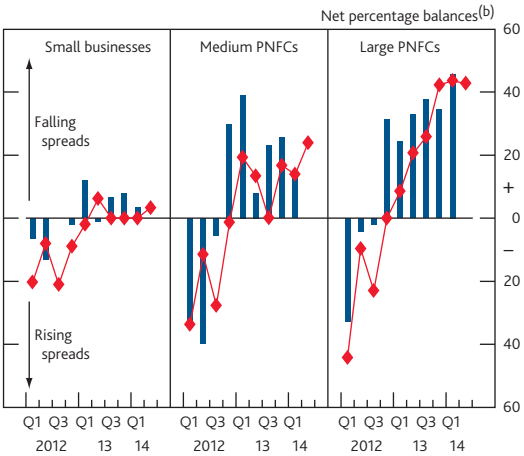
Lending by insurance companies and pension funds grew further during 2013. Loans to UK businesses from these companies rose to around £35 billion at end-2013 (**Chart 1.24**). That was equivalent to 8% of outstanding loans to UK businesses, compared with 4% in 2009. In the past, life insurers have obtained part of their funding by selling annuities to individuals who were investing savings accumulated through defined contribution pension schemes. Changes to the rules governing pension investments, announced in March, allow retirees to use their pension savings more flexibly. That, in turn, could reduce this source of funding for life insurers' lending.

The resilience of financial market infrastructure improved...

In March 2014, the Bank of England published its first Annual Report on its supervision of financial market infrastructures (FMIs). The Report highlighted a number of improvements to the resilience of UK FMIs. During 2013, UK central counterparties (CCPs) improved their risk management processes, including by enhancing margin models. And as part of initiatives to complete effective recovery plans for all FMIs (Section 3.2), UK CCPs have introduced arrangements to allocate losses that would arise in the event of a clearing member default. The implementation of the Market Infrastructure Resiliency Service, in February 2014, also established a more robust contingency option for the United Kingdom's large-value payment system,

Chart 1.22 Credit spreads fell for larger corporates but were little changed for small businesses

Spreads over reference rates on lending to corporates[a]

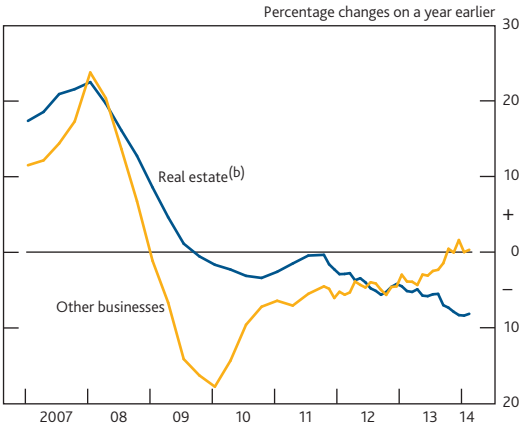


Source: Bank of England *Credit Conditions Survey*.

(a) Net percentage balances are calculated by weighting together the responses of those lenders that answered the question. The blue bars show the responses over the previous three months. The red diamonds show the expectations over the next three months. Expectations balances have been moved forward one quarter so that they can be compared with the actual outturns in the following quarter.
(b) A positive balance indicates that spreads have fallen such that, all else being equal, it is cheaper for companies to borrow.

Chart 1.23 The flow of bank lending to real estate companies remained weak

Loans to UK businesses[a]



Sources: Bank of England and Bank calculations.

(a) Loans by UK monetary financial institutions. Loans to UK businesses have been estimated by subtracting elements of the industrial breakdown for non-financial businesses thought to contain mainly public sector industries (public administration and defence, education, health and social work and recreational, personal and community services) from loans to non-financial businesses. Data cover loans in sterling and foreign currency, expressed in sterling. Non seasonally adjusted.
(b) The real estate sector is defined as buying, selling and renting of own or leased real estate; real estate and related activities on a fee or contract basis; and development of buildings.

CHAPS, in the event of a catastrophic failure of the real-time gross settlement (RTGS) infrastructure.

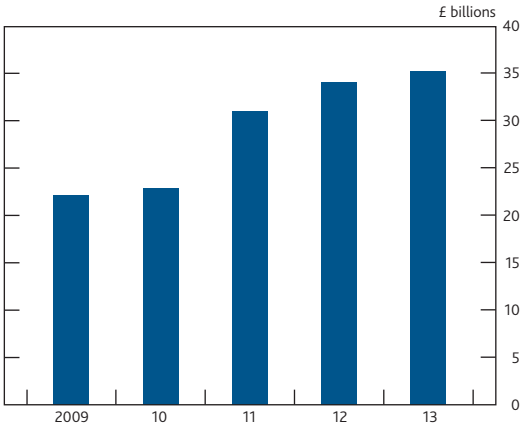
...and plans to mitigate the threat of cyber attack were developed.

Cyber attack remained a risk to banks and other financial institutions. Nearly 20% of respondents to the Bank of England's 2014 H1 *Systemic Risk Survey* highlighted cyber attack as one of the main risks to UK financial stability. While banks and payment systems may be able to mitigate attacks on their own systems, they cannot control directly the risks to third-party systems to which they connect.

The Bank of England has been working, together with other UK authorities, towards meeting the June 2013 recommendation of the FPC to assess, test and improve the resilience of core parts of the UK financial sector to cyber attack. In November 2013, the Waking Shark II exercise tested the wholesale banking sector's response to a sustained and intensive cyber attack. That suggested considerable progress had been made since the previous exercise in 2011 towards improving participants' collective response to attack. In May 2014, the Bank of England, supported by the UK Government's National Cyber Security Programme, launched a new framework — CBEST — for assessing the extent to which banks and FMIs are vulnerable to sophisticated and persistent cyber attack.

Chart 1.24 Some non-banks increased their lending to UK businesses

Outstanding lending to UK businesses by insurance companies and pension funds



Sources: ONS and Bank calculations.

Box 2
Stress testing of UK banks in 2014

In 2014, eight major UK banks and building societies[1] will participate in the first concurrent stress test of the UK banking system, conducted by the Bank of England. In addition, four of those banks[2] will participate in the EU-wide stress test, co-ordinated by the European Banking Authority (EBA). This box provides further detail on these exercises and explains the interaction between the two.

Background to the 2014 UK stress test

Last year, the FPC recommended that 'looking to 2014 and beyond, the Bank and Prudential Regulation Authority (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'. Subsequently, the Bank of England published a Discussion Paper setting out the main features of the proposed stress-testing framework over the medium term.[3] As outlined in that paper, the 2014 exercise will be a stepping stone towards the medium-term framework. For example, the 2014 stress test will cover a smaller number of institutions, be conducted over a longer time frame and incorporate a more limited assessment of system-wide amplification mechanisms.

Key elements of the UK and EU-wide stress tests in 2014

In April, the Bank of England published details of the key elements of the 2014 UK stress test. This will be run alongside the EBA's exercise and the four UK banks subject to both the UK and EU-wide stress tests will report results separately under each test. EU-wide stress-testing arrangements allow relevant authorities to explore country-specific risks, using their own scenarios and methodologies. In line with those arrangements, the UK stress test in 2014 is being conducted as a 'variant' of the EU-wide one. In particular, the UK stress test: covers a larger number of UK banks and building societies than the EU-wide exercise; assesses the impact of a variant of the EU-wide stress scenario; uses a different definition of capital to that used by UK banks taking part in the EU-wide exercise; and, correspondingly, uses a different hurdle rate framework relative to the EU-wide stress test to assess the need for supervisory and system-wide actions by the PRA Board and the FPC. The remainder of this section explains some of the key features of the UK and EU-wide stress tests in more detail.

Stress scenarios

The UK and EU-wide stress scenarios are not forecasts of macroeconomic and financial conditions. They are 'tail risk' scenarios that are designed specifically to assess the resilience of the respective banking systems.

The UK stress scenario seeks to explore domestic risks emanating from the UK household sector in particular. Debt levels of households and private non-financial companies in the United Kingdom remain historically high, at around 165% of GDP. While the ratio of UK household debt to income has fallen since 2008, as nominal incomes have increased more rapidly than household debt, it remains high by historical standards. And a strong recovery in domestic housing market conditions has continued (Section 2). Moreover, these developments have taken place in an unprecedented environment of low interest rates globally. The combination of these factors means that UK household and corporate balance sheets are likely to be highly sensitive to fluctuations in property prices and sharp rises in debt-servicing costs relative to incomes. Hence, a key part of the UK stress scenario will examine the resilience of the UK banking system to a housing market shock and a snap back in interest rates.[4]

To explore these domestic risks, the narrative of the UK stress scenario features an initial shock to productivity, which leads to an abrupt reassessment of prospects for the UK economy. This is associated with a sharp depreciation of sterling and a rise in inflationary pressures. Monetary policy is tightened in response to these adverse shocks. The downturn in activity leads to a sharp rise in unemployment and exposes vulnerabilities in the housing market. The stress scenario features sharp falls in a range of asset prices, including house prices, in part due to the marked increase in interest rates.

The EU-wide stress scenario seeks to explore risks that have been identified by the European Systemic Risk Board as representing the most pertinent threats to the stability of the EU banking system as a whole. These include: an increase in global bond yields; further deterioration in credit quality in countries with feeble demand; the risk of stalling policy reforms, raising renewed concerns over the sustainability of public finances; and a lack of necessary bank balance sheet repair.

To explore these risks, the narrative of the EU-wide stress scenario takes as its starting point a sharp rise in investor aversion to long-term fixed-income securities, causing an increase in global long-term bond yields. The financial shock spills over to real economic activity globally, including in emerging market economies. Within the EU, these shocks to activity expose domestic vulnerabilities, triggering a re-differentiation of sovereign bond yields across countries and funding difficulties for respective banking sectors.

In addition to the stress scenarios, both tests are using a common baseline designed by the European Commission. The baseline scenario assumes a continuation of the economic recovery in the United Kingdom. Unemployment continues to decline, though at a more gradual rate than in the recent past.

Annual CPI inflation remains close to the MPC's target of 2% throughout the projection horizon. And a range of asset prices — including property prices — continue to rise.

Hurdle rates

The results of the UK stress test will inform both system-wide policy interventions by the FPC and firm-specific supervisory actions by the PRA. A key threshold for the test will be set at 4.5% of risk-weighted assets (RWAs), to be met with common equity Tier 1 (CET1) capital in the stress. The definition of capital is broadly CRD IV end-point CET1 in line with the UK implementation of CRD IV.(5)

If a firm's capital ratio were projected to fall below the 4.5% CET1 ratio in the stress, there is a strong presumption that the PRA would require the firm to take action to strengthen its capital position. This is only one threshold, however. Depending on other factors — for example, firms' Tier 1 and total capital ratios in the stress, their Pillar 2A requirements, or their leverage ratios — they may be required to take remedial actions, even if their capital ratios are projected to remain above the 4.5% CET1 threshold in the stress. Firms that are already taking action to strengthen their capital position may not be required to take further action if, after considering the results of the stress test, the PRA is satisfied that the measures currently in place are sufficient. And the FPC will consider the stress-test results as it evaluates the overall capital adequacy and resilience of the UK financial system. In the baseline, firms are expected to meet a 7% end-point CET1 ratio and a 3% Tier 1 leverage ratio.(6)

The hurdle rates in the EU-wide exercise have been set at 5.5% and 8% of RWAs in the stress and baseline, respectively, using a transitional definition of CET1 capital determined at the national level. Relevant authorities will be responsible for specifying what remedial actions would be taken if firms were to fall below these thresholds.

A key difference between the UK and EU-wide tests is the definition of capital. For the purposes of the UK test, the relevant definition of CET1 will be end-point CET1 in line with the UK implementation of CRD IV. For the purposes of the EU-wide test, and in order to improve comparability and consistency across EU firms, UK banks will be assessed against a transitional definition of capital that follows the CRR(7) minimum transitional path for some key items.(8) The latter gradually phases in some of the key reforms agreed as part of the Basel III capital framework. For example, under the transitional definition, banks would deduct 60% of their intangible assets from their capital resources in 2016. Under the end-point definition, banks would be required to deduct 100% of their intangible assets.

Next steps

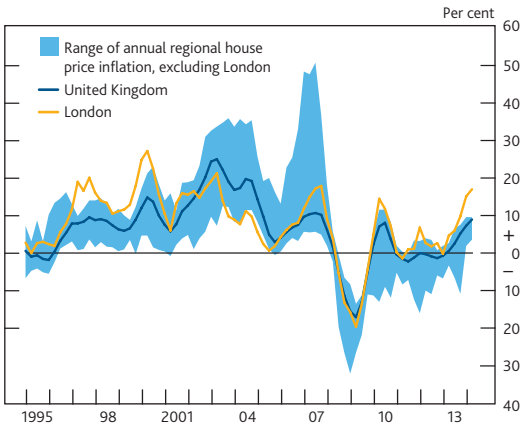
The Bank of England will publish the results of the 'UK variant' test towards the end of the year, following publication of the EBA results in the early part of 2014 Q4. The stress-test results are expected to be a key input into the FPC's assessment of risks stemming from the UK housing market, informing its judgement around the resilience of the banking system as a whole to a housing shock.

(1) Barclays, Co-operative Bank, HSBC, Lloyds Banking Group, Nationwide, Royal Bank of Scotland, Santander UK and Standard Chartered.
(2) Barclays, HSBC, Lloyds Banking Group and Royal Bank of Scotland.
(3) See 'A framework for stress testing the UK banking system: a Discussion Paper', available at www.bankofengland.co.uk/financialstability/fsc/Documents/discussionpaper1013.pdf.
(4) The UK stress scenario will assess the combined impact of the global macroeconomic and market elements of the EU-wide stress scenario and the UK macroeconomic elements of a stress scenario designed by the Bank of England.
(5) CRD IV (Capital Requirements Directive IV) is the EU legislative package that is intended to implement the Basel III regulatory framework for banks, building societies and investment firms through national law. The definition of capital is set out in the PRA Rulebook and in *Supervisory Statement SS7/13*.
(6) As set out in *PRA Supervisory Statement SS3/13*, 'Capital and leverage ratios for major UK banks and building societies', November 2013, available at www.bankofengland.co.uk/pra/Documents/publications/ss/2013/ss313.pdf.
(7) CRR (Capital Requirements Regulation) is part of CRD IV but is directly applicable to banks, building societies and investment firms and so does not need to be implemented through national law.
(8) www.bankofengland.co.uk/financialstability/Pages/fpc/capital.aspx.

2 Short-term risks to financial stability

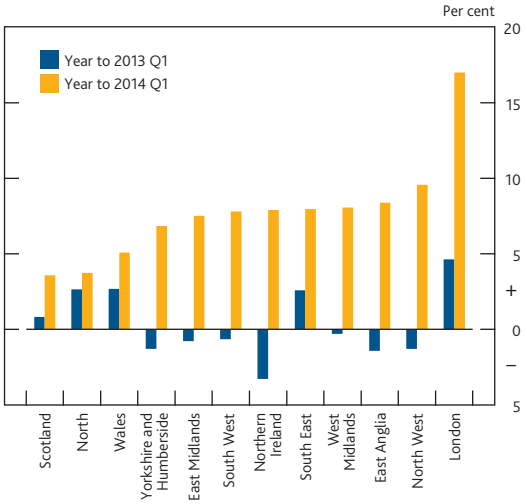
While housing market activity has eased recently, UK house prices have continued to rise and indicators of house price expectations point to continued strength. The share of new mortgages with high loan to income multiples has increased, which could result in more households encountering payment difficulties in the face of shocks to income and interest rates. In financial markets, against the backdrop of low global interest rates and volatility, some market participants may be underestimating the likelihood and severity of tail risks. The vulnerability of the financial system is amplified by structural changes in markets, which potentially reduce the availability of market liquidity at times of stress.

Chart 2.1 House price inflation has risen in the United Kingdom
Annual Halifax and Nationwide regional house price inflation



Sources: Halifax, Nationwide and Bank calculations.

Chart 2.2 House price inflation has increased in all areas of the United Kingdom during the past year
Annual house price inflation



Sources: Halifax, Nationwide and Bank calculations.

2.1 Domestic risks to UK financial stability

UK house price inflation has strengthened in line with an improved economic outlook…

UK house prices have continued to rise strongly since the November *Report*. Nationally, the average of Halifax and Nationwide house price indices rose by 9% over the year to 2014 Q1 (**Chart 2.1**). Much of this strength reflects increasing demand for house purchases, most likely emanating from reduced economic uncertainty and improved credit conditions.

Over the past year, UK house prices have risen faster than average earnings. As a result, some measures of house price affordability have started to deteriorate. For example, the UK house price to average earnings ratio — a crude measure of affordability — has risen to more than six times annual earnings in the past few months. That is still lower than the 2007 peak of more than seven times earnings, but higher than the average in the decade before 2007, of around five times earnings.

…across all areas of the United Kingdom…

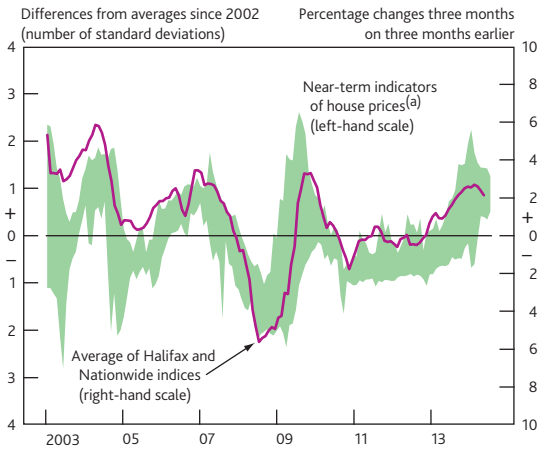
Over the past year, house price inflation has spread out across the United Kingdom. Quarterly house price inflation in London (4.5% in 2014 Q1), remains higher than the average rate in other areas (2%). But house price inflation has risen in all areas of the United Kingdom during the year to 2014 Q1 (**Chart 2.2**). Despite these recent rises, house price to earnings ratios in all areas of the United Kingdom, except London, remain below their pre-crisis peak levels.

…accompanied by expectations of future price rises…

Indicators of house price expectations point to continued near-term strength (**Chart 2.3**). While the Royal Institution of Chartered Surveyors' balance of house price expectations has

Chart 2.3 Near-term indicators of house price inflation have remained strong

House prices and near-term indicators of house price inflation[a]

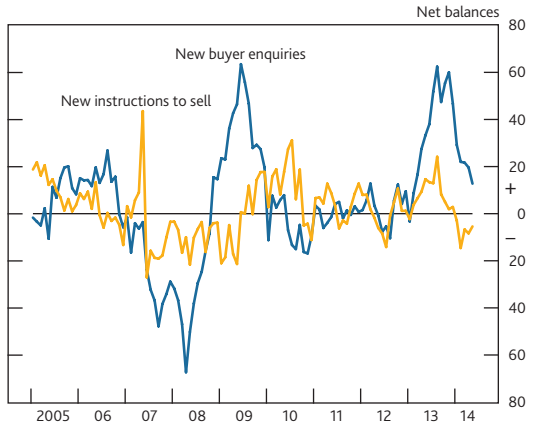


Sources: Halifax, Nationwide, Rightmove.co.uk, Royal Institution of Chartered Surveyors (RICS) and Bank calculations.

(a) Includes the RICS expected 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 three month on three months earlier growth rate of the Rightmove index of the average asking price trend. All series have been moved forward by three months. The Rightmove index has been seasonally adjusted by Bank staff.

Chart 2.4 Short-term imbalances between the supply and demand for housing have persisted

New instructions to sell and buyer enquiries[a]



Source: Royal Institution of Chartered Surveyors.

(a) Data are for England and Wales, and show the percentage balance reporting an increase in new instructions to sell/new buyer enquiries over the past month less the percentage reporting reduced instructions/enquiries.

fallen in recent months, it continues to indicate that price rises are expected over the next three months. In a survey by the Home Builders Federation, the balance of house price expectations over the next twelve months at the end of 2013 reached its highest level since early 2004 and remained at this level in 2014 Q1.

Households' price expectations have also been rising — although at times in the past, these have tended to lag actual house price inflation. Households surveyed in March by the Building Societies Association expected house prices to rise by around 4% over the next twelve months. Respondents to the 2014 H1 NMG Consulting survey also expected prices to rise nationally by around 4%, and to rise in London by around 6%.

...reflecting a continued gap between growth in housing demand and supply.

Recent market indicators suggest that a gap between new buyer enquiries and new instructions to sell remains, despite narrowing in recent months (**Chart 2.4**). That could suggest a relative shortage of properties coming onto the market. Reports from market contacts and the Bank of England's Agents suggest that there are growing concerns among estate agents of a shortage of houses for sale. This could reflect some prospective sellers holding back properties from the market in anticipation of higher future prices.

More generally, a longer-term gap remains between the growth in demand for housing in the United Kingdom and the rate of house building. The net new supply of private housing in the United Kingdom was 110,000 in 2013 — well below the 2000–07 average of 180,000 (**Chart 2.5**). And while annualised private enterprise housing starts have risen to nearly 150,000 in 2014 Q1, from less than 100,000 during the middle of 2012, they have remained below their pre-crisis average. By contrast, the most recent projections made by UK national statistical agencies,[1] based on population and demographic trends only, implied household formation in the United Kingdom of around a quarter of a million per year between 2011–21.

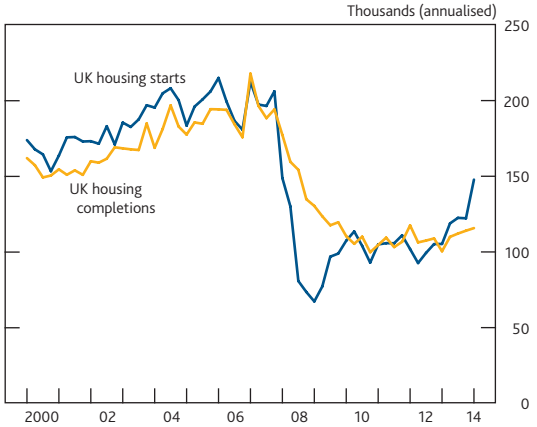
Gross mortgage lending has picked up...

Average gross mortgage lending rose to around £18 billion per month in the three months to April (**Chart 2.6**). But mortgage repayments also increased strongly. That reflects both an increase in households' regular mortgage repayments, as well as greater 'full redemptions' by households repaying an existing mortgage in full in order to move house or remortgage. As a result, monthly net lending flows have remained modest, at around £1.7 billion per month.

(1) Based on projections from the Department for Communities and Local Government, General Register Office for Scotland, Northern Ireland Statistics and Research Agency and StatsWales.

Chart 2.5 Housing completions have remained below their 2000–07 average

House building in the United Kingdom[a]

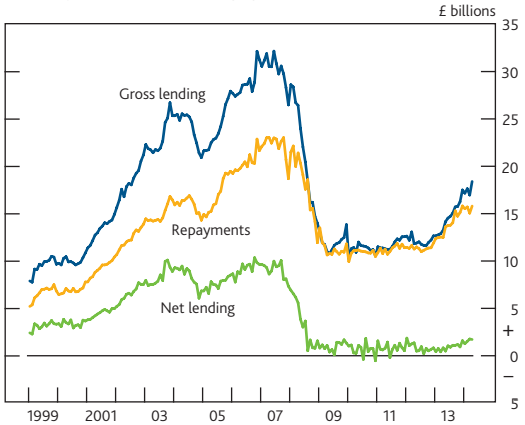


Sources: Department for Communities and Local Government and Bank calculations.

(a) Number of permanent dwellings in the United Kingdom started and completed by private enterprises. Permanent dwellings starts by private enterprises in Wales are assumed to grow in line with Welsh total permanent dwellings starts between 2011 Q2 and 2013 Q4. Data for 2013 Q4 and 2014 Q1 have been grown in line with permanent dwellings starts and completions by private enterprises in England. Data have been seasonally adjusted by Bank staff.

Chart 2.6 Gross mortgage lending has picked up, although net lending remains subdued

Monthly flows of UK mortgages[a]

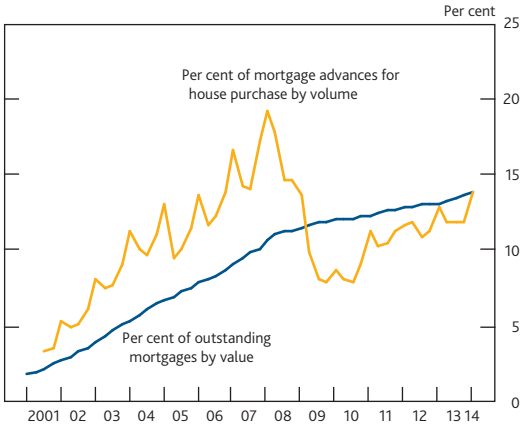


Source: Bank of England.

(a) Seasonally adjusted sterling lending secured on dwellings by UK-resident lenders. Net lending may not necessarily equal gross lending minus repayments, due to the seasonal adjustment methodology and small differences in coverage.

Chart 2.7 Lending to buy-to-let borrowers has been strong

Proportion of mortgage lending to buy-to-let borrowers[a]



Sources: Council of Mortgage Lenders and Bank calculations.

(a) Semi-annual data are interpolated where not available on a quarterly basis.

Beyond the residential mortgage market, there has been a stronger recovery in buy-to-let lending. The stock of mortgage lending to buy-to-let borrowers increased to nearly 15% of total mortgage lending in 2014 Q1, from around 10% at the end of 2008 (**Chart 2.7**). As a proportion of the mortgage market, the number of buy-to-let mortgages being issued is now greater than its 2004–07 average, of around 12%, though the absolute number of originations remains less than half its 2007 level. Information on underwriting standards in the buy-to-let market is limited, but published lending criteria suggest little evidence of rising loan to value (LTV) ratios. And, for the major lenders, minimum rental cover ratios on buy-to-let lending appear to have remained between 120% and 135%.

...although mortgage approvals have fallen recently...

Changes in mortgage approvals for house purchases tend to precede changes in gross mortgage lending and completed housing transactions. Between mid-2012 and January 2014, mortgage approvals for house purchases rose by around 60% (**Chart 2.8**). And during the same period, housing transactions rose by around 40%. But in recent months activity has ebbed. In particular, mortgage approvals in April were 17% lower than in January, though remain well above their average post-2008 level.

Part of the recent slowdown in approvals might reflect the shortage of properties coming onto the market (**Chart 2.4**). Delays associated with operational requirements arising from the introduction of the Mortgage Market Review (MMR) — carried out by the Financial Conduct Authority (FCA) to improve the functioning of the mortgage market — might also have weighed on approvals, as banks introduced new processes and trained staff. Those rules help to ensure that borrowers can afford the interest and repayments on their mortgage if interest rates were to rise. According to market contacts, lenders have been modifying their standards to align with MMR minimum requirements for some months already. As a result, mortgage approvals could rise in coming months, once new processes around implementing the MMR are established.

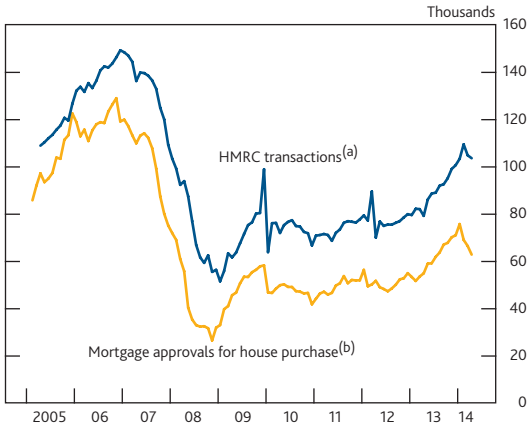
...and while loan to value ratios on new mortgages have remained low...

Over the past year, new mortgage lending at high LTV ratios has risen modestly (**Chart 2.9**). The proportion of new mortgages with an LTV ratio above 90% reached 16% in 2014 Q1, though it remains below the pre-2008 level. Despite this, the proportion of new mortgages with an LTV ratio greater than 75% has remained at around 50% during the past year.

Some of the recent rise in lending at higher LTV ratios may have been supported by the Government's Help to Buy mortgage guarantee scheme, which has increased the availability of mortgages for borrowers with an LTV ratio greater than 90%. The direct impact of the scheme has been

Chart 2.8 Housing market activity has eased since January

Loan approvals for house purchase and HMRC transactions

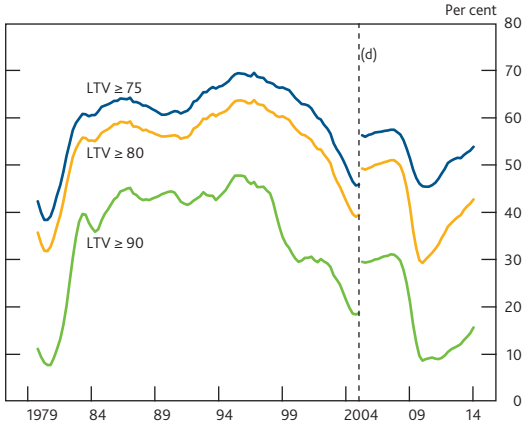


Sources: Bank of England, HM Revenue and Customs (HMRC) and Bank calculations.

(a) Number of residential property transactions in the United Kingdom with a value of £40,000 or above per month.
(b) Seasonally adjusted approvals for sterling loans secured on dwellings, net of cancellations.

Chart 2.9 New mortgage lending at high LTV ratios has risen modestly

New mortgages advanced for house purchase by LTV(a)(b)(c)



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

(a) Data are shown as a four-quarter moving average to remove seasonal patterns.
(b) Includes loans to first-time buyers, council/registered social tenants exercising their right to buy and homemovers.
(c) The FCA 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.
(d) Data from the FCA PSD are only available since 2005 Q2. Before 2005 Q1, data are from the discontinued Survey of Mortgage Lenders (SML), which was operated by the CML. These data are not directly comparable and shares are illustrative prior to 2005 Q2. SML data covered only around 50% of the mortgage market.

relatively small to date, with just over 7,000 completions up until April. But the indirect effects of the scheme — in supporting a reopening of the market for mortgages at higher LTV ratios — may be greater. For example, the number of mortgage products available to borrowers with LTV ratios greater than 95% trebled over the year to May 2014.

...loan to income multiples have risen further in 2014...

New mortgage lending to borrowers with higher loan to income (LTI) multiples has increased more significantly. While the proportion of new mortgages to borrowers with an LTI multiple above 5 has been stable, the proportion to borrowers with an LTI multiple greater than 4 rose to 22% in 2014 Q1 (**Chart 2.10**). That exceeded the former peak in 2007. And the proportion of mortgages to borrowers with LTI multiples greater than 4.5 has risen to 11% (**Chart 2.11**). Within this, LTI multiples are particularly high among borrowers purchasing high-value properties and properties in London.

...though debt-servicing ratios have remained low, reflecting longer mortgage tenors and low mortgage rates.

Despite rising LTI multiples, the average gross debt-servicing ratio (DSR) on new mortgage lending — the interest and principal repayments as a proportion of borrowers' incomes — has been less than 19% of borrowers' incomes in recent quarters. That is lower than at any point since at least 2005 and, in large part, reflects low mortgage rates. Had average mortgage rates in 2014 Q1 been 7%, for example, then the average gross DSR would have been 8 percentage points higher.

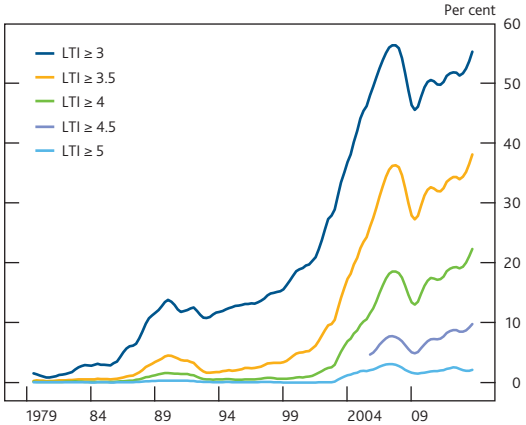
Rising mortgage tenors have also kept DSRs low. During 2013, nearly 25% of new mortgages had tenors of 30 years or more, compared with 15% in 2007. And the average mortgage tenor for first-time buyers with LTI multiples greater than 4.5 increased from 27 years in 2005 to over 30 years in 2014 Q1 (**Chart 2.12**). That can allow borrowers to smooth mortgage repayments across their working lives. But there are also risks. For instance, these borrowers will remain indebted for longer and may be less able to extend the tenor of their mortgage in future, in order to reduce their monthly payments, in the event that they experience payment difficulties.

Many existing mortgagors also remain highly indebted.

Borrowers with high debt to income ratios account for a large proportion of outstanding mortgage debt. The 2014 H1 NMG Consulting survey indicated that UK households with mortgage debts that exceed four times their income account for more than 20% of UK mortgage debt (**Chart 2.13**). And households with mortgage debts that exceed five times their income account for around 10% of mortgage debt. Households with higher mortgage debts also tend to have more unsecured borrowing. On average, households with mortgages that exceed four times their income have more than £7,000 of unsecured loans, compared with an average for all households of around £4,500.

Chart 2.10 The share of new mortgages with LTI multiples above 4.5 has risen to a new peak

New mortgages advanced for house purchase by LTI[(a)(b)]

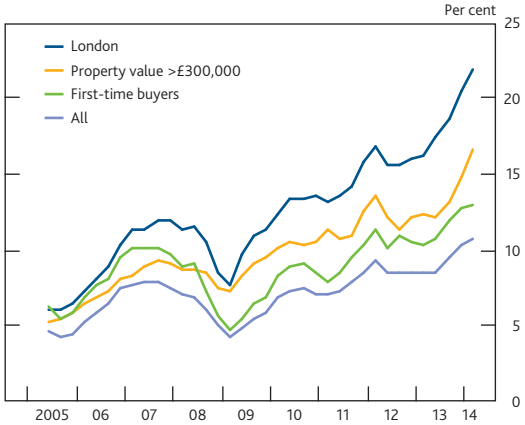


Sources: Council of Mortgage Lenders, FCA Product Sales Data (PSD) and Bank calculations.

(a) See footnotes to **Chart 2.9**.
(b) Prior to 2005 Q2 the FCA PSD have been grown in line with the SML data.

Chart 2.11 Loan to income multiples have risen, particularly for high-value properties and in London

New mortgages advanced for house purchase at loan to income multiples at or above 4.5[(a)]

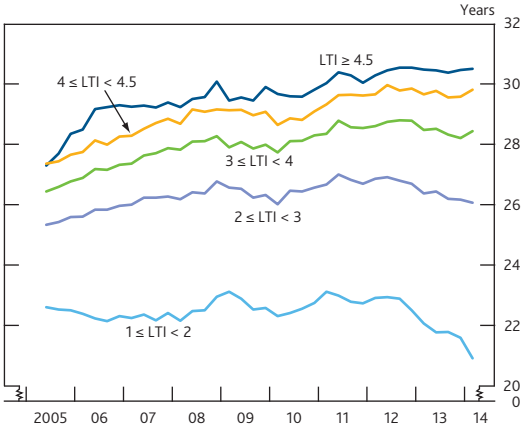


Sources: FCA Product Sales Data and Bank calculations.

(a) See footnotes (b) and (c) to **Chart 2.9**.

Chart 2.12 Mortgage tenors for first-time buyers have risen

First-time buyers' mean mortgage tenor[(a)(b)]



Sources: FCA Product Sales Data and Bank calculations.

(a) Includes loans to first-time buyers, and council/registered social tenants exercising their right to buy.
(b) See footnote (c) to **Chart 2.9**.

A rise in interest rates, or shocks to income, could create payment difficulties for some households. For example, results from the latest NMG Consulting survey indicate that if interest rates were to rise by 2 percentage points, and incomes remained unchanged, then nearly 12% of households with mortgages would need to take some kind of action, such as curtailing significantly their spending or seeking to earn more. That would rise to nearly 20% if interest rates were to rise by 3 percentage points. As Section 5 outlines, households with high LTI multiples are particularly vulnerable to these shocks.

Section 5 discusses the Financial Policy Committee's assessment of the ways in which these developments in housing and mortgage markets affect prospects for the level and concentration of indebtedness and, hence, the risks to UK financial stability.

UK commercial property market activity has increased…

Activity in the UK commercial property market has also increased rapidly since the previous *Report*, though it fell modestly in May (**Chart 2.14**). The value of commercial real estate (CRE) transactions during May 2014 was, nevertheless, around 40% higher than a year earlier. And the value of transactions in London exceeded the pre-crisis peak.

…accompanied by looser underwriting standards in prime CRE markets, where yields have been falling…

Foreign — predominantly unlevered — investors played an important role in the recent increase in activity, particularly in London. That is likely to reflect international investors' search for yield against the backdrop of a global low interest rate environment. As a result, commercial property yields in London — where around two thirds of foreign CRE investment has taken place — fell to 4.5% in 2014 Q1, compared with the average since 2003 of 5.7%.

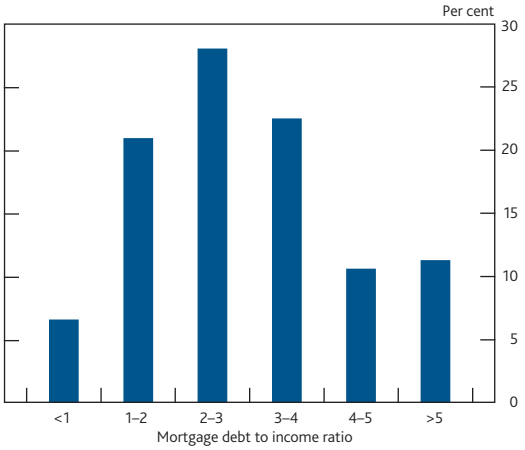
Increased competition for prime CRE lending has, in some cases, led to looser underwriting standards. For example, LTV ratios have edged up. And interest rate margins on prime CRE lending fell to around 260 basis points at end-2013, from around 340 basis points in 2012 Q3 (**Chart 2.15**).

…leading to an emerging but fragile recovery in secondary CRE markets.

Low and falling yields on prime commercial property have, in turn, contributed to greater investment in the secondary commercial property market, particularly from domestic investors. As a result, yields on secondary commercial property fell by around 50 basis points during 2014 Q1, to 8.8%. The recovery in secondary CRE markets has allowed banks to sell CRE loans more easily, and allowed some CRE companies to repay their loans at a faster rate. As a consequence, UK banks' exposures to the CRE sector have fallen.

Chart 2.13 Borrowers with high mortgage debt to income ratios account for a large share of mortgage debt

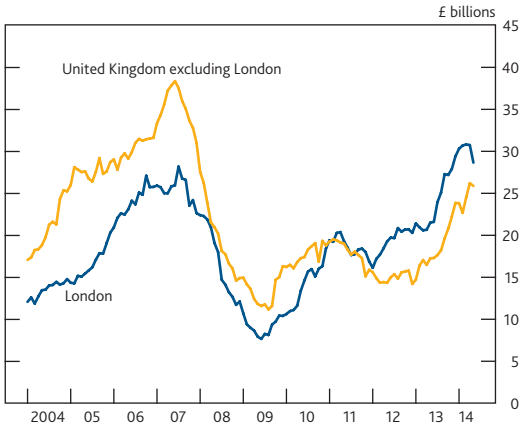
Distribution of mortgage debt



Sources: Bank of England, NMG Consulting and Bank calculations.

Chart 2.14 Commercial real estate activity has remained strong across the United Kingdom

Value of UK commercial real estate transactions[a]

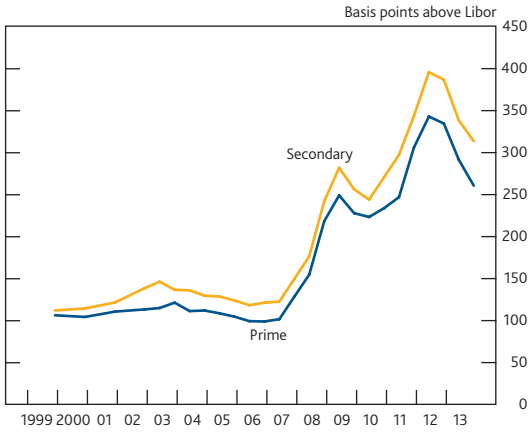


Sources: The Property Archive and Bank calculations.

(a) Twelve-month moving sum of the monthly value of transactions.

Chart 2.15 Lending spreads on loans to CRE companies have fallen

Average spread over Libor on new loans to commercial real estate borrowers[a]



Sources: De Montfort University and Bank calculations.

(a) Average of rates across major CRE lenders relative to Libor.

Deleveraging by CRE companies and falling lending spreads should help to reduce income gearing in the CRE sector. But vacancy rates remain relatively high, despite falling recently. As a result, some CRE companies could remain vulnerable to rising interest rates (Section 2.2).

2.2 Global risks to UK financial stability

Shocks might disrupt financial market conditions…

The global environment of low interest rates and low volatility across a number of markets has supported current asset valuations (Section 1.1). Markets are pricing in a gradual normalisation of both interest rates and volatility. But even anticipated tightening in monetary policy could present risks. For example, a rise in interest rates may expose potential fragilities from a weakening in underwriting standards and increased complexity in some asset classes. More pronounced adjustments to asset prices and volatility might arise from a fundamental shift in perceptions of risk following adverse tail-risk events.

…particularly given uncertainty around the path of monetary policy…

In the past, tightening in monetary policy has been associated with rising volatility. One example is heightened volatility in the US bond market in 1994.[1] This may be particularly pertinent given uncertainty around the exit from the current stance of monetary policy in advanced economies. Market participants already appear to anticipate that volatility will rise as monetary policy is tightened (Section 1.1).

In addition, there is scope for unexpected changes in interest rates to have a more marked impact on financial markets. Holders of fixed-income securities might be particularly vulnerable to sharp rises in interest rates — mechanically, a 100 basis point increase in yield equates to a price fall of between 5% and 8% for US, UK and euro-area investment-grade corporate bonds of average maturity. A rising rate environment may also expose a weakening in underwriting standards and other non-price terms on variable-rate loans. This could increase the risk of default, particularly for highly indebted borrowers (Section 2.1).

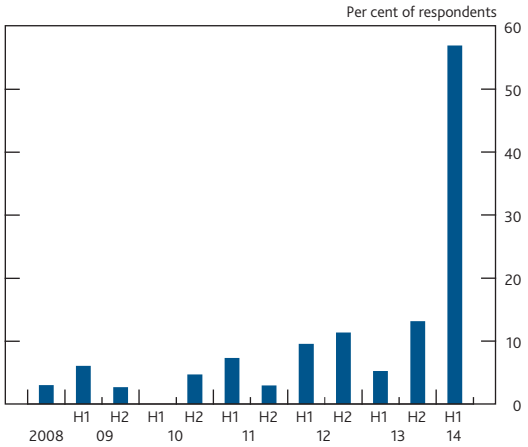
…and the potential for an escalation in geopolitical risks.

Heightened geopolitical risks might also prompt falls in risky asset prices. In the Bank's 2014 H1 *Systemic Risk Survey*, geopolitical risk was the second most-cited risk and identified as the most difficult to manage by respondents (**Chart 2.16**). UK political risks — for example, relating to Scottish independence and EU exit — also increased in prominence, though they were only cited as a key risk by around one in seven respondents.

(1) Box 1, 'The 1994 bond market sell-off', *Financial Stability Report*, December 2010, page 22, available at www.bankofengland.co.uk/publications/Documents/fsr/2010/fsrfull1012.pdf.

Chart 2.16 Concerns around geopolitical risk have risen

Systemic Risk Survey: respondents citing geopolitical risk as a key risk[(a)]

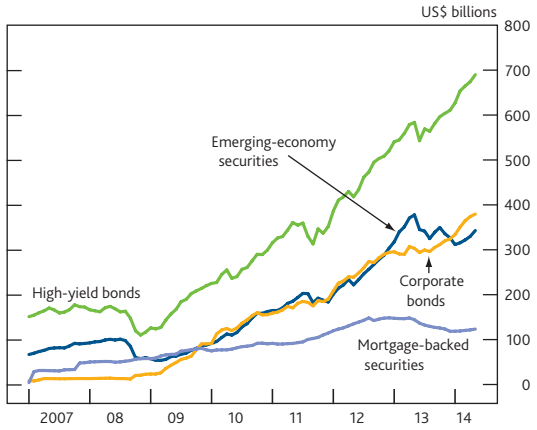


Sources: Bank of England *Systemic Risk Surveys* and Bank calculations.

(a) Percentage of respondents who cited geopolitical risk at least once, when asked to list the five risks they thought would have the greatest impact on the UK financial system if they were to materialise.

Chart 2.17 Investments in some less liquid asset classes have increased

Assets managed by selected specialised mutual funds



Sources: EPFR Global and Bank calculations.

Higher volatility could coincide with sharp moves in asset prices…

Against this backdrop, there is a risk that investors are underestimating the uncertainty around future macroeconomic and financial conditions. Were that to change, asset prices would be expected to adjust accordingly — since 2001, rises in the implied volatility of the S&P 500 equity index of more than 1.5 standard deviations from its average in a month have been accompanied by falls in the S&P 500 of between 8% and 25%.

…that could be amplified by poor market liquidity…

A retrenchment in risk appetite might prompt sharp moves in market prices given evidence of a deterioration in underlying market liquidity in recent years. Changes to banks' business models, brought about in part by regulations to improve their resilience, have seen a number of banks withdraw fully or partially from market-making and proprietary trading activities. This has had most impact on fixed-income markets where transactions are typically arranged 'over the counter', rather than traded on centralised exchanges (as used in, for example, equity markets). One indicator of market-making capacity — dealer inventories in corporate bond markets — has fallen by nearly three quarters since early 2008. Similarly, while the size of US corporate bond markets has doubled since 2002, the average number of transactions in secondary markets is little changed.

Market liquidity, especially during times of supply-demand imbalances, relies on the willingness and ability of market makers to take the risk of holding inventories of assets. Similarly, bank proprietary trading desks can sometimes act as a counterweight to selling pressure from other investor types. With banks' reduced capacity to absorb shifts in supply and demand for securities, market prices may be more volatile in response to shocks.

…similar trading strategies among investors…

Some asset managers have expressed concerns about this structural reduction in market liquidity. In particular, some funds offer redemption terms to investors that may be difficult to meet if liquidity conditions deteriorate. But despite those concerns, funds focused on less liquid asset classes, such as high-yield bonds, have seen rapid growth in recent years (**Chart 2.17**).

Moreover, these concerns do not appear to have prompted measures to reduce potential liquidity risks, such as larger holdings of liquid assets or changes to how funds are structured. Instead, market intelligence suggests asset managers, which are key intermediaries managing in excess of US$60 trillion of assets, have focused on how to exit positions quickly, for instance when they anticipate redemptions from their funds. The risk is that these strategies may not be effective if a number of funds attempt to exit positions

simultaneously. While regulation may have addressed many of the risks associated with leverage in the financial system, unlevered funds can still amplify market risks. For example, any herding to the exit in response to a shock could cause risk premia and volatility to move sharply higher, and adversely affect the of supply of market-based finance to the economy.

If market liquidity were to dry up in response to a shock, this might trigger a reappraisal of the recent reduction in compensation to investors for taking liquidity risk (Box 1). That could further amplify price moves. For example, some estimates suggest that liquidity risk premia on US high-yield corporate bonds are around 70 basis points below their historical average level (**Chart B** in Box 1). If liquidity risk premia on these bonds rose by 70 basis points, returning to their level in late 2012, prices of these securities would fall by around 3% all else equal, equivalent to a fall in their market value of around US$60 billion.

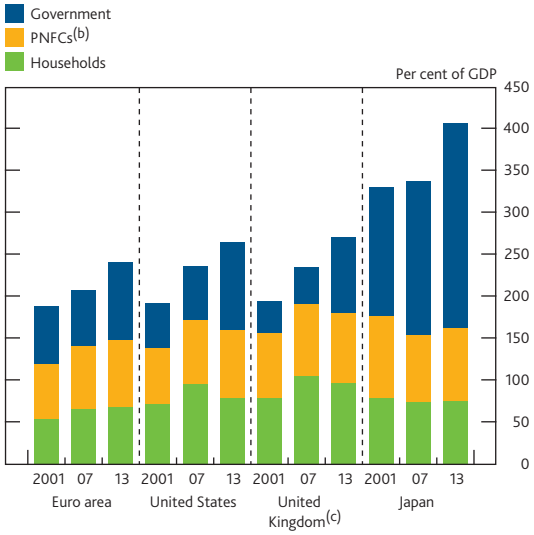
...and a reappraisal of the risks in complex assets.
The potential for losses may be particularly marked where investors do not fully understand the risks of an asset, because of complexity or opacity around some of their features. This may be the case with bank contingent capital instruments that convert to equity or where the principal is written down in the event of a trigger related to a bank's capital adequacy. Issuance of such securities has increased markedly since the November *Report*. But there is a risk that investors are underestimating the probability of losses on these securities (Box 3).

There are also vulnerabilities from macroeconomic imbalances, including advanced-economy debt levels...
Indebtedness in advanced economies continued to rise in 2013, relative to 2012, and remains well above pre-crisis levels (**Chart 2.18**). This largely reflects continued growth in government debt. In the euro area and Japan, household debt has also risen as a proportion of GDP since 2007.

Where debt is owed to foreign investors, this can make a country vulnerable to difficulties in refinancing this debt at maturity. In the past, the level of externally held liabilities has been an indicator of the probability and magnitude of a financial crisis.(1) Ahead of the recent financial crisis, a high level of savings in China and other emerging economies led to large capital outflows, pushing up asset prices and spending relative to domestic saving levels in advanced economies. In the United Kingdom, gross external liabilities remain large and were equivalent to around 350% of GDP at end-2013 (**Chart 2.19**). That is despite significant falls in the gross external liabilities of UK financial institutions since 2008, as

Chart 2.18 Advanced-economy indebtedness has continued to rise

Debt to GDP ratios of selected advanced economies(a)

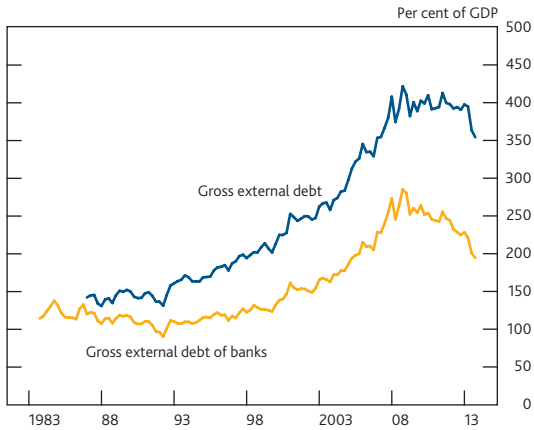


Sources: Bank of Japan, Eurostat, Federal Reserve Bank of St. Louis, IMF (*Global Financial Stability Report*, *WEO*), ONS and Bank calculations.

(a) IMF *WEO* data are based on the April 2014 *WEO*.
(b) Private non-financial corporations.
(c) For comparability, UK firm liabilities are defined as loans and securities other than shares. The measure used in the core indicators in **Tables A.1** and **A.2** on pages 77–79 also excludes derivatives, direct investment loans and loans secured on dwellings, and provides a figure approximately 15 percentage points lower.

Chart 2.19 Despite falling recently, gross UK external debt remains large

Gross external debt of the United Kingdom(a)



Sources: ONS and Bank calculations.

(a) Ratios computed using a four-quarter moving sum of GDP. Bank debt refers to debt of monetary financial institutions, and cover banks and building societies resident in the United Kingdom.

(1) See Al-Saffar, Y, Ridinger, W and Whitaker, S (2013), 'The role of external balance sheets in the financial crisis', *Bank of England Financial Stability Paper No. 24*, available at www.bankofengland.co.uk/research/Documents/fspapers/fs_paper24.pdf.

well as an improvement in the UK net external debt position.[1] There is a potential tail risk from a sharp adjustment to the current account and exchange rates, a scenario included in the UK stress test (Box 2).

...particularly for some euro-area periphery economies. Investors partly attribute the more benign financial environment in the past 18–24 months to increased confidence in authorities' resolve to avoid a breakup of the euro area and actions to mitigate sovereign vulnerabilities (Section 1). Euro-area periphery countries have improved their fiscal positions — Greece ran a primary balance[2] surplus in 2013 for the first time in a decade — though rising interest payments on a larger stock of debt in recent years has limited the reduction in the overall deficit. External imbalances have also declined, with Greece, Ireland, Italy, Portugal and Spain all reporting a current account surplus in 2013. Furthermore, agreement on the Banking Recovery and Resolution Directive, which establishes a policy framework for managing bank failures, should mitigate potential channels of contagion between European banks and sovereigns (Section 3). Against this backdrop, funding conditions in euro-area periphery countries improved during the past year (Section 1.1).

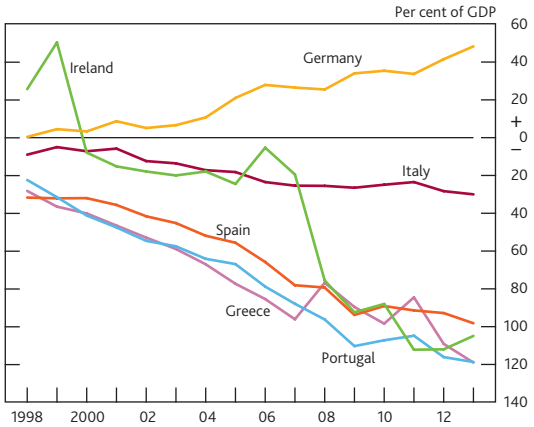
Euro-area periphery countries remain highly indebted, however. Net external liabilities, which continued to rise during 2013, exceed 100% of GDP in most cases (**Chart 2.20**). And gross whole-economy debt to GDP ratios exceed 250%. The fall in euro-area periphery government bond spreads appears to have outpaced improvements in the macroeconomic outlook: the IMF's most recent five year ahead projections of debt to GDP were above those made at the height of the euro-area crisis for most euro-area periphery countries (**Chart 2.21**).

Economic prospects also appear subdued in these economies. Over the past year, inflation in the euro area has fallen to low levels and the ECB expects it to rise only gradually in 2015 and 2016. Low and negative inflation may increase the challenges associated with the debt burdens in vulnerable periphery countries. Debt contracts are typically written in nominal terms. So, all else equal, lower inflation contributes to a slower decline in the real debt burden for households, corporates and governments. Rebalancing of competitiveness within euro-area member countries may also be more difficult if it takes place against a background of low average inflation.

There remains a risk that assets might reprice rapidly if confidence in the authorities' ability to achieve the rebalancing and adjustments required in the euro area were to deteriorate.

Chart 2.20 Net external liabilities of some euro-area periphery countries have continued to grow

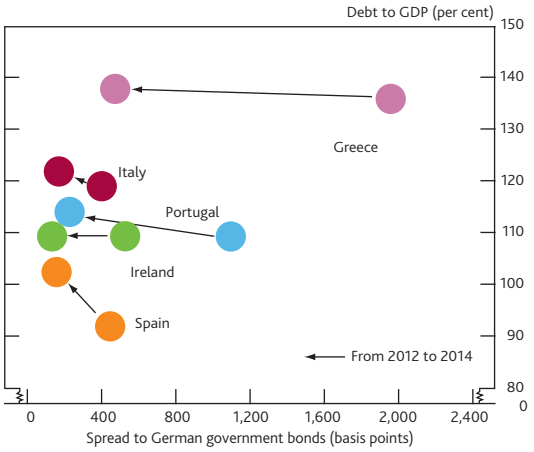
Net international investment position of selected euro-area countries



Source: Eurostat.

Chart 2.21 Fall in euro-area periphery spreads appears to have outpaced improvement in fundamentals

Sovereign spreads and five year ahead debt to GDP forecasts[a][b]



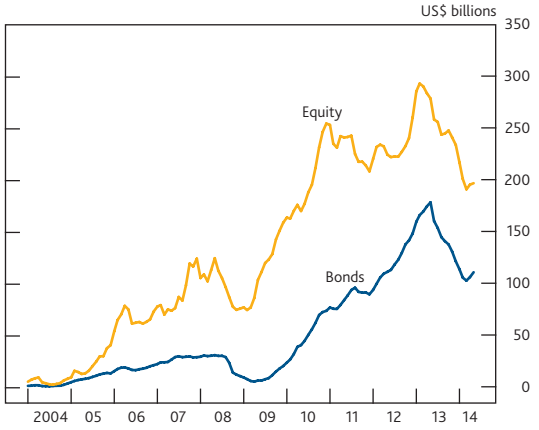
Sources: IMF *WEO*, Thomson Reuters Datastream and Bank calculations.

(a) Debt to GDP ratios five years ahead as projected in the April 2012 *WEO* and April 2014 *WEO*.
(b) Spread to German government bonds as of April 2012 and 2014.

(1) UK net external liabilities narrowed during 2013, despite a record current account deficit. And Bank staff estimate that this narrowing would be greater if foreign direct investment was measured at market value (see the box on page 22 of the May 2014 *Inflation Report*, available at www.bankofengland.co.uk/publications/Documents/inflationreport/2014/ir14may.pdf).
(2) Primary balance is government net borrowing excluding interest payments.

Chart 2.22 Flows into emerging-economy dedicated mutual funds reversed sharply in 2013

Cumulative net investment flows into dedicated emerging-economy mutual funds[a]

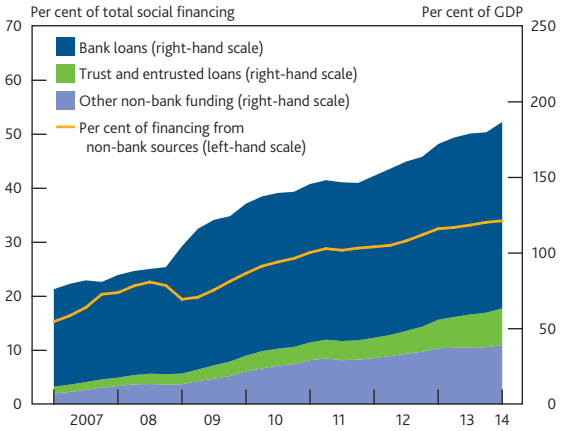


Source: EPFR Global.

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

Chart 2.23 Chinese credit growth has been rapid, particularly outside the banking sector

Total social financing in China



Sources: The People's Bank of China, Thomson Reuters Datastream and Bank calculations.

Such a reversal of spreads might be associated with broader volatility across financial markets. In mid-May, a short-lived jump in periphery sovereign yields of 20–50 basis points coincided with a rise in bank CDS spreads in these countries of up to 45 basis points.

Imbalances also remain in a number of emerging economies…

Nearly half the capital flows into emerging-economy dedicated mutual funds from 2009 to mid-2013 reversed in the second half of last year (**Chart 2.22**). This illustrated vulnerabilities that have built up in some countries, including foreign exchange mismatches (with issuance of foreign currency corporate debt more than doubling since 2008), high external financing requirements and reliance on strong domestic credit growth.

Though risks remain, the most affected emerging economies have made some progress in addressing their imbalances. In particular, current account deficits have narrowed a little, following monetary policy tightening and a weakening in exchange rates. And the potentially flightier retail and hedge fund investors that sold emerging-economy assets in 2013 no longer have large exposures.

…including in China, where credit has grown rapidly.

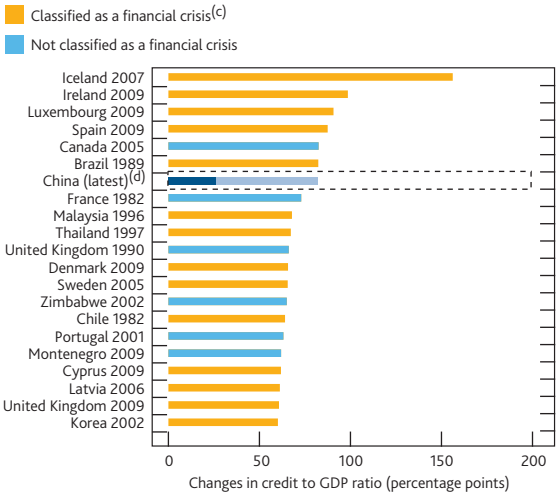
Imbalances have also risen in China. Property-related debt levels have risen particularly sharply. Chinese property market conditions have slowed in recent months, though, with falls in measures of sales and new construction, a steady rise in vacancy rates and a slowdown in price inflation. To some extent, this was the intended consequence of earlier policy measures.

More generally, financing to the private sector had grown rapidly. Whereas government debt levels have remained relatively low, China's broadest measure of new private sector credit issuance has risen by nearly 100% of GDP since 2008. An increasing share of this 'total social financing' originates from outside the traditional banking sector (**Chart 2.23**). In the past, episodes of rapid credit growth of this magnitude have often been followed by weak growth and financial crisis (**Chart 2.24**).

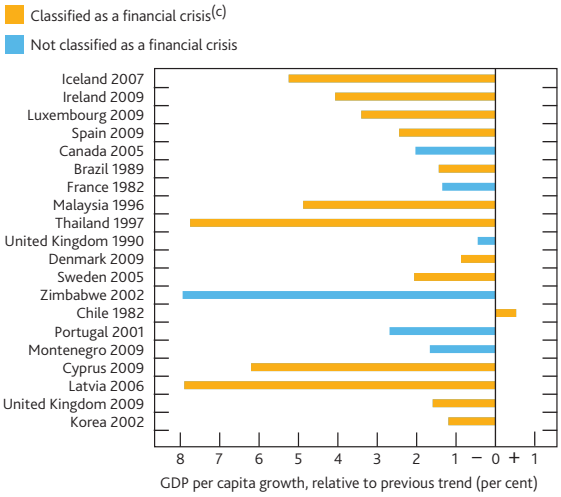
Increased concerns about the growth in private indebtedness in China could pose a trigger for adjustments in asset prices and volatility. Total UK-owned consolidated bank exposures to China represent 12% of UK GDP. Exposure to countries with large trade links to China (Hong Kong, Korea, Singapore and Taiwan) are more substantial, representing an additional 35% of GDP.

Chart 2.24 Rapid credit expansion has often presaged low growth and financial crisis

Episodes of rapid credit growth since 1970[a]



GDP per capita growth, relative to previous trend, following rapid credit growth[b]



Sources: IMF *WEO*, Laeven, L and Valencia, F (2013), 'Systemic banking crisis database', *IMF Economic Review*, No. 61, pages 225–70, Thomson Reuters Datastream, World Bank and Bank calculations.

(a) Rapid credit growth refers to a 60 percentage point rise in the ratio of domestic credit to the private sector by financial corporations to GDP (as measured by the World Bank) in the given year relative to this ratio five years earlier.
(b) Average annual GDP per capita growth in the five years after the given year, less average growth in the ten years before the given year. IMF *WEO* forecasts used for 2014.
(c) Except Cyprus, financial crisis according to Laeven and Valencia (2013).
(d) For China, the dark-coloured bar refers to the World Bank figure. The light-coloured bar refers to the separate Total Social Financing measure, which is the official Chinese data series for total lending to the private sector.

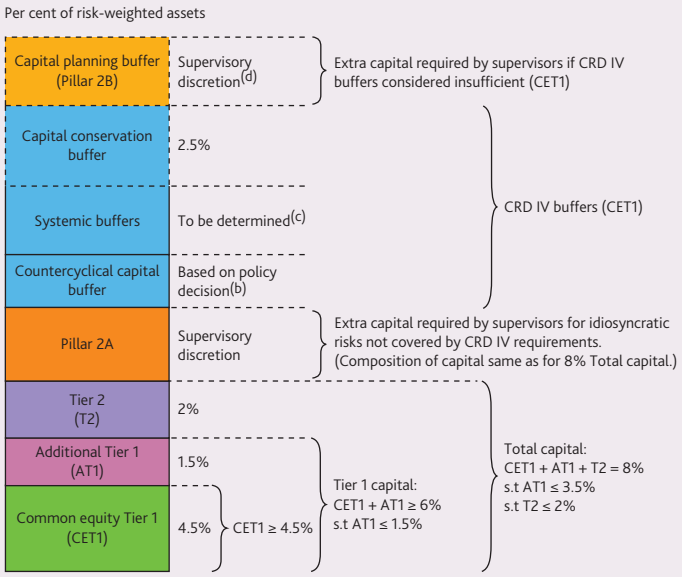
Box 3
Additional Tier 1 capital

Issuance of contingent convertible capital instruments (CoCos) by European banks has increased in recent months. CoCos are the only types of instruments that may be issued and count as additional Tier 1 capital (AT1) under EU legislation. This box highlights the main features of these instruments, their intended role, possible benefits, and some potential risks to financial stability.

Definition and role of AT1

As a result of the financial crisis, standards for both the quality and quantity of regulatory capital required by banks were overhauled by the Basel Committee on Banking Supervision. In the United Kingdom, these changes were implemented via domestic and EU legislation. The most significant was EU legislation comprising the Capital Requirements Directive and Capital Requirements Regulation (a legislative package commonly known as 'CRD IV'). **Chart A** provides a summary of the minimum risk-based capital requirements under UK and EU legislation, and how AT1 counts towards them.

Chart A Risk-based minimum capital requirements and buffers (under full implementation of CRD IV in 2019)[a]



(a) This chart should be read from the bottom up. It outlines minimum capital requirements (as percentages of risk weighted assets), additional firm specific requirements and capital buffers.
(b) FPC discretion in the United Kingdom.
(c) In the United Kingdom, the systemic buffer for ring-fenced banks will be the higher of the G-SIB buffer (1%–2.5%) and the ring-fence buffer (1%–3%). The latter is to be introduced through the CRD IV systemic risk buffer.
(d) The Prudential Regulation Authority (PRA) has signalled its intention to replace the Capital Planning Buffer with a PRA buffer and it will consult on the transition to the PRA buffer before the end of 2014. As indicated in CP 5/13, the PRA buffer, once introduced, will be set in CET1.

Under the new regime, AT1 is assumed to be the second most loss-absorbing form of capital on a going-concern basis, after common equity Tier 1 capital (CET1, which primarily consists of ordinary shares and retained earnings). AT1 counts towards the minimum risk-based Pillar 1 capital requirements in the regulatory framework: up to 1.5 percentage points of the 6% minimum Tier 1 capital ratio and up to 3.5 percentage points of the 8% minimum total capital ratio (**Chart A**). AT1 can also count towards Pillar 2A in the same proportion as for the Pillar 1 total capital ratio.

AT1 is also relevant to the leverage ratio, which banks are expected to disclose from 2015 and which may become a formal requirement for banks internationally from 2018 (Section 3.1). At present AT1 counts without limit towards the Tier 1 leverage ratio measure and large exposures limits (calculations for the latter are based on Tier 1 and Tier 2 capital for a bank). In practice, banks would be unlikely to meet leverage ratio requirements entirely with AT1, as minimum risk-based capital requirements (see above) also apply.

The required features for AT1 are designed to address flaws in the debt-equity hybrid instruments issued under the previous regulatory regime, and seek to ensure that AT1 instruments are loss-absorbing on a going-concern basis. AT1 issuers have full discretion to cancel coupon payments at all times. AT1 instruments may be written down or converted into CET1 instruments at a pre-agreed conversion rate. Write-down or conversion happens automatically when a pre-specified CET1 ratio is reached (CRD IV stipulates it must be at least 5.125%). Write-down may be permanent or temporary, in full or partial. Conversion may also be full or partial.

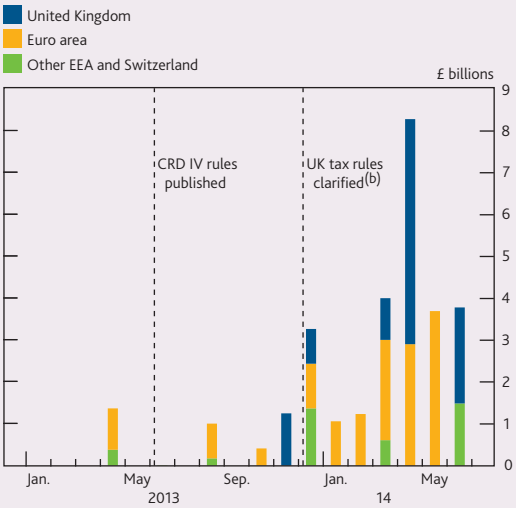
With the planned introduction of the Bank Recovery and Resolution Directive (see Section 3), resolution authorities will be obliged to write down or convert AT1 (and other capital instruments) at the point of non-viability if they have not already been converted into equity.

Market developments

European issuance of AT1 has accelerated sharply over the past 18 months (**Chart B**). The increase in activity followed the publication of the final CRD IV rules and the confirmation of the tax treatment in a number of jurisdictions, including the United Kingdom (where the treatment is favourable to issuers). Moreover, banks may have strong incentives to use AT1 for the leverage ratio. The leverage ratio is currently perceived as a more binding constraint for some banks than their risk-weighted capital requirements, and AT1 is seen as a cheaper form of capital than CET1.

Investor appetite for CoCos has been strong and market intelligence attributes some of this to a search for yield and an extension of investor mandates (which determine the type of investments that can be made). Market contacts anticipate further expansion of the market for AT1. If the largest four

Chart B AT1 public issuance by EEA and Swiss banks[a]



Sources: Bank of England, Dealogic, published accounts and Bank calculations.

(a) UK issuance in April and June 2014 include the exchange of existing capital instruments for new AT1 securities by Lloyds Banking Group (around £4 billion) and Barclays (around £2 billion).
(b) HMRC (December 2013), 'Draft Regulations — The Taxation of Regulatory Capital Regulations 2013 — Update', available at www.hmrc.gov.uk/drafts/reg-cap-technote.pdf.

UK banks issued AT1 up to 1.5% of risk-weighted assets, the maximum level of AT1 allowed to count towards minimum Pillar 1 Tier 1 capital requirements (**Chart A**), this would lead to additional issuance of around £22 billion (around £7 billion issued to date).

Potential benefits from and risks to financial stability

AT1 should allow the issuing banks to cushion losses on a going-concern basis and hence help safeguard financial stability. AT1 is meant to create CET1 at the point when banks need it the most, when losses large enough to drive capital ratios down to the trigger level have occurred. That boost in CET1 may help restore confidence in the banks under stress.

There are however a number of issues concerning how this new and untested form of capital will work to mitigate risks to financial stability. These are examined in the remainder of this box.

Are AT1 triggers adequate?

Trigger level: CRD IV requires AT1 to have a trigger CET1 ratio of at least 5.125%, below which the principal amount is written down or converts to a CET1 instrument. A bank with a CET1 ratio of 5.125% may, however, face issues that call into question its viability even at higher capital ratios. For example, it may struggle to access debt markets at a sustainable interest rate. So it is possible that AT1 will not convert early enough to ensure the issuer can continue as a viable going concern. AT1 instruments that have been publicly issued by UK banks are fully convertible at a CET1 ratio trigger of 7%.

Trigger quality: Some in the academic community have raised concerns about the use of regulatory capital ratios as effective triggers, given their poor track record as predictors of bank distress in the recent crisis and the fact that they may be open to manipulation.[1] Triggers linked to market prices, such as a bank's share price, may however amplify stress rather than act as a safety valve. For example, an increased expectation that a bank's share price will fall to a level that will trigger a conversion of AT1 into equity is likely to induce a fall in the bank's share price and, in itself, increase the probability of the trigger event.

Could AT1 create perverse incentives?

AT1 instruments have features that may change the incentives of bank management and shareholders. For example, banks may take actions, such as restricting lending, to support their regulatory capital ratios and avoid the potential negative signalling and adverse market reaction that might arise from breaching a trigger. That might have adverse implications for the economy as a whole.

The incentives of existing shareholders might also be affected. AT1 instruments with write-down features would absorb some losses ahead of equity holders, thereby reversing the usual creditor hierarchy (this occurs over the portion of losses covered by the write-down). As a result, existing shareholders could have weaker incentives to inject additional capital pre-emptively, instead preferring to wait until a trigger is breached and thereby forcing losses onto the holders of AT1 first.

Are AT1 instruments mispriced?

Market intelligence has suggested that current AT1 prices reflect investors' views that loss absorption (via conversion, write-down or even coupon cancellation) is unlikely. This suggests that investors have a significant degree of confidence in the ability of banks to ensure regulatory capital ratios do not reach trigger levels and that the discretion to cancel coupon payments will not be exercised.

There is a risk that investors are underestimating the probability that AT1 instruments will be required to absorb losses. A lack of disclosure around some elements of the capital requirements may also make pricing more challenging. For example, Pillar 2A (**Chart A**) is, in general, not disclosed to the market. But Pillar 2A is relevant to pricing coupon cancellation risk as it affects how close an issuing bank is to falling within CRD IV buffers, when distribution restrictions may apply. The Prudential Regulation Authority (PRA) will consult on banks' disclosure of Pillar 2A later this year.

While AT1 can potentially increase CET1 of banks under a stress, a sharp market reaction following a trigger event, or as

understanding of the features and risks of AT1 instruments evolve, could limit banks' ability to raise further capital and affect confidence in the banking system. It could also impose significant losses on holders of AT1 instruments, some of which may be systemically important. Market intelligence on the investor base for recent AT1 deals in Europe suggests it is dominated by fund managers and hedge funds in the United Kingdom. Ideally, there should be little correlation between the riskiness of the assets held by AT1 holders and the issuing banks. But with only limited information on the investor base available at present, it remains difficult to assess precisely this risk for financial stability.

Conclusions

AT1 instruments should cushion losses on a going-concern basis and hence safeguard financial stability. But, to be effective, they need to convert into CET1 well before capital ratios fall to levels at which there is a loss of confidence in the ability of a bank to continue to operate as a going concern. So far, public issuance by UK banks has been fully convertible at a 7% CET1 ratio, well above the 5.125% minimum in CRD IV.

The Financial Policy Committee (FPC) will continue to monitor the potential risks to the financial system and consider the issues described above. Given that AT1 can count towards leverage ratio calculations, these issues are relevant to the FPC's leverage ratio review and its broader work considering the adequacy of the overall capital framework. The PRA is also considering ways in which the risks identified in this box could be mitigated.

(1) See, for example: Flannery, M (2009), 'Stabilizing large financial institutions with contingent capital certificates', available at www.iiw.uni-bonn.de/seminare/2011/regulierung/unterlagen/Thema%203.4%20Flannery%202009.pdf; Bulow, J and Klemperer, P (2014), 'Equity recourse notes: creating counter-cyclical bank capital', available at www.nuff.ox.ac.uk/users/klemperer/ERNs.pdf.

3 Medium-term risks to financial stability

This section takes stock of regulatory reforms and other developments in the Committee's three broad priority areas: the medium-term capital framework for banks (Section 3.1); ending 'too big to fail' (Section 3.2); and diverse and resilient sources of market-based finance (Section 3.3). Significant progress has been made in some, but not all, aspects of reform in these priority areas.

Table 3.A Focus of the FPC's medium-term priorities

Establishing the medium-term capital framework	• Leverage ratio review • Usability and interaction of capital buffers • Overall calibration of UK bank capital requirements, following progress on relevant international agendas and taking into account FPC discussions on ending 'too big to fail'
Ending 'too big to fail'	• Process for identifying domestic systemically important banks in the United Kingdom • Macroprudential objectives to consider when setting the height of the ring-fence • Protocols around stays in derivative contracts • Policies on resolution and on recovery and resolvability • The UK framework for gone-concern loss-absorbing capacity
Ensuring diverse and resilient sources of market-based finance	• Assessing and mitigating systemic risks beyond the existing regulatory perimeter • Risks to stability arising from procyclicality in the availability of finance, including via collateral markets • Resilience of market liquidity

Source: Bank of England.

Table 3.B Basel III leverage ratio for public disclosure has now been defined

The phase-in timetable of Basel III leverage ratio

January 2013	Bank-level reporting of the leverage ratio to national supervisors. BCBS testing a minimum requirement of 3% during January 2013 –January 2017.
January 2014	Definition of the leverage ratio for the purpose of disclosure from January 2015 agreed. Leverage ratio = Tier 1 capital/(on balance sheet exposures + derivative exposures + securities financing transaction exposures + off balance sheet items).
January 2015	Public disclosure starts.
By 2017	Agree on the final calibration and complete any further adjustments to the definition.
January 2018	Plan to start implementing the Basel III leverage ratio as a minimum capital requirement.

Sources: BCBS and BIS.

3.1 Medium-term capital framework for banks

The Basel III leverage ratio has been defined…

Developing and communicating a robust medium-term capital framework for banks is a key priority for the FPC (**Table 3.A**). A large part of the framework is already pinned down by Basel III — the globally agreed regulatory standard for capital adequacy for banks — which is being phased in across jurisdictions with a view to full implementation by 2019.(1) The Capital Requirements Directive IV (CRD IV) package,(2) which came into effect in January, implements Basel III in the European Union.

The leverage ratio is a key element within the Basel III framework. As set out in the November 2013 *Report*, the leverage ratio is a simple, non risk-based measure to complement risk-based capital requirements that are model-based and therefore more susceptible to inaccurate risk measurement.(3) In January 2014, the Basel Committee on Banking Supervision (BCBS) agreed a definition of the leverage ratio, which banks are expected to disclose from 2015. Following an observation period, the BCBS will agree on the final calibration of the ratio and complete any further adjustments to its definition by 2017, with a view to the leverage ratio becoming a formal requirement for banks internationally from 2018 (**Table 3.B**).

In the United Kingdom, the eight largest banks and building societies are already expected to meet a 3% leverage ratio standard from the start of this year, except where the PRA and a firm have agreed a plan for that firm to meet the standard over a longer time frame.(4) In response to a request from the

(1) Capital instruments that no longer qualify as non-core Tier 1 capital or Tier 2 capital under Basel III will be phased out during the period from 2013 to 2022.
(2) The CRD IV package consists of the Capital Requirements Directive (CRD) and the Capital Requirements Regulation (CRR).
(3) See Box 2 of the November 2013 *Report* for high-level considerations on the leverage ratio, available at www.bankofengland.co.uk/publications/Documents/fsr/2013/fsrfull1311.pdf.
(4) See the PRA's *Supervisory Statement SS3/13*, 'Capital and leverage ratios for major UK banks and building societies', November 2013, available at www.bankofengland.co.uk/pra/Documents/publications/ss/2013/ss313.pdf.

Chancellor of the Exchequer, the FPC will consult on the role of the leverage ratio framework in the United Kingdom in July and expects to publish its conclusions towards the end of this year.[1]

…and progress is being made on other aspects of the international regulatory framework for banks.

Advances have been made on other aspects of the new capital framework. In March, the BCBS published a new standardised approach for measuring exposure at default for counterparty credit risk in derivative transactions.[2] The new approach reduces the need for discretion by national authorities, limits the use of banks' internal estimates, and avoids undue complexity by drawing upon prudential approaches already available in the capital framework. It thereby seeks to provide regulators with an alternative to reliance on internal models and is a step forward in delivering credible standardised approaches across all risk categories and asset classes. In April, the BCBS also published its final framework for the capitalisation of banks' exposures to central counterparties (CCPs).[3] This aims to balance the need to manage risks to banks from such exposures with the desirability of maintaining incentives to clear centrally.

Other aspects of the capital framework are yet to be finalised, including capital requirements for the trading book and securitisation exposures held in the banking book. In December 2013, a BCBS consultation paper on standards for securitised exposures proposed a more lenient capital treatment of securitisation exposures than in the previous proposal.[4] The final framework is likely to shape the future evolution of securitisation markets (see Section 3.3).

The FPC has provided more information on how it expects to use its power over capital requirements.

The FPC has powers to adjust capital requirements in order to contain emerging threats to financial stability (**Table 3.C**). In April 2013, the Government gave the FPC the power to issue Directions to the PRA requiring it to supplement sectoral capital requirements. In May 2014, the Government made the Bank the designated authority for the countercyclical capital buffer (CCB) with the FPC to take policy decisions.

To reduce uncertainty over the use of its powers, the FPC published in January 2014 a Policy Statement, which describes these instruments, the circumstances in which they might be used (including the core indicators that the FPC will routinely review), and the likely impact of these instruments on financial stability and growth.[5] The FPC discussed the setting of the

Table 3.C FPC and PRA can impose additional capital requirements and buffers

Capital requirements under full implementation of Basel III in 2019[a][b]

Per cent of risk-weighted assets

	Total (CET1 + AT1 + T2)[c]	*of which minimum CET1*
Minimum capital requirement		
Common minimum (Pillar 1) (i)	8.0	*4.5*
Additional firm-specific requirement (Pillar 2A) (ii)	PRA discretion	
(1) Total minimum requirement (i + ii)	**≥8.0**	***≥4.5***
Capital buffers		
Countercyclical capital buffer (iii)	FPC discretion	
Capital conservation buffer (iv)	2.5	*2.5*
Systemic buffers[d]		
– buffer for G-SIBs (v)	1–2.5	*1–2.5*
– buffer for ring-fenced banks (vi)[e]	1–3	*1–3*
Additional firm-specific buffer (Capital planning buffer (Pillar 2B)) (vii)[f]	PRA discretion	
(2) Total buffer		
– for G-SIBs (iii + iv + v + vii)	≥3.5–5	*≥3.5–5*
– for ring-fenced banks (iii + iv + vi + vii)	≥3.5–5.5	*≥3.5–5.5*
– for other banks (iii + iv + vii)	≥2.5	*≥2.5*
(3) Total capital requirements[g]		
– for G-SIBs (i + ii + iii + iv + v + vii)	≥11.5–13	*≥8–9.5*
– for ring-fenced banks (i + ii + iii + iv + vi + vii)	≥11.5–13.5	*≥8–10*
– for other banks (i + ii + iii + iv + vii)	≥10.5	*≥7*

Sources: BCBS, BIS, CRD IV, FSB, HM Treasury and PRA .

(a) **Chart A** in Box 3 of this *Report* decomposes these requirements to show the role of additional Tier 1 capital.
(b) Additionally, the FPC has a Direction power in respect of sectoral capital requirements.
(c) Under CRD IV, capital buffers consist of common equity (CET1). AT1 refers to additional Tier 1 capital, and T2 refers to Tier 2 capital.
(d) G-SIBs are global systemically important banks as identified by the FSB. The systemic 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.
(e) The authority responsible for setting the buffer for ring-fenced banks is yet to be determined.
(f) The PRA has signalled its intention to replace the capital planning buffer (Pillar 2B buffer) with a PRA buffer and it will consult on the transition to the PRA buffer before the end of 2014. As indicated in CP5/13, the PRA buffer, once introduced, will be set in CET1 capital.
(g) The total capital requirements for a firm may be greater than the numbers in (3) if at least one of the following is applied: additional firm-specific capital requirement (Pillar 2A), countercyclical capital buffer and additional firm-specific capital planning buffer (Pillar 2B).

(1) See the Terms of Reference for the leverage review; www.bankofengland.co.uk/publications/Pages/news/2014/062.aspx.
(2) See www.bis.org/publ/bcbs279.pdf.
(3) See www.bis.org/publ/bcbs282.pdf.
(4) See www.bis.org/publ/bcbs269.pdf.
(5) See Bank of England (2014), 'The Financial Policy Committee's powers to supplement capital requirements: A Policy Statement', available at www.bankofengland.co.uk/financialstability/Documents/fpc/policystatement140113.pdf.

CCB rate for the first time at its meeting in June. Its decision is set out in Section 5.

Under its Pillar 2 regime, the PRA also has powers to impose additional firm-specific capital requirements against risks that are not captured or not adequately captured in the minimum Pillar 1 capital requirements (**Table 3.C**). In December 2013, the PRA communicated its intention to reform the Pillar 2 regime with the aim of improving the transparency and consistency of its approach to assessing firms' internal capital adequacy.[1] The PRA expects to consult on its proposals before the end of this year with a view to implementing the new regime from January 2016.

The different elements of the new capital framework — including capital buffers that are additional to minimum requirements — are designed to tackle different sources of risk. To ensure that banks can absorb losses and continue to provide credit to the real economy under stress, these capital buffers need to be 'usable', such that banks are willing and able to lower their capital ratios by running down the buffers in stressed periods, instead of cutting back on lending. In March 2014, the FPC agreed that it would examine how the various elements of the capital framework fit together to ensure the usability and coherent interaction of capital buffers, as well as the overall calibration of UK bank capital requirements from a macroprudential perspective. This exercise will follow a review by the FPC of progress made on relevant international agendas and taking into account its discussions on 'too big to fail' (see Section 3.2).

Other reforms will strengthen bank resilience.
In addition to reforms related to the FPC's priority areas on capital, progress has also been made on other measures to enhance bank resilience. This includes: the finalisation of the large exposure framework, which aims to protect banks against large losses from the default of a single counterparty and to reduce the risk of contagion between the global systemically important banks (G-SIBs) (**Table 3.D**); and further progress in implementing the Basel III Liquidity Coverage Ratio (LCR) and defining the Net Stable Funding Ratio (NSFR) (**Table 3.E**).

3.2 Ending 'too big to fail'

Reforms are under way to reduce the probability and impact of systemic institutions failing…
The 'too big to fail' problem arises when an institution is so systemically important that its failure would cause instability

(1) See *PRA Policy Statement PS7/13*, 'Strengthening capital standards: implementing CRD IV, feedback and final rules', available from www.bankofengland.co.uk/pra/Documents/publications/policy/2013/strengtheningcapitalps713.pdf. See also *PRA Policy Statement PS3/14,* 'Implementing CRD IV: capital buffers', available at www.bankofengland.co.uk/pra/Documents/publications/policy/2014/capitalbuffersps314.pdf.

Table 3.D The framework for regulating banks' large exposures has been finalised

- The BCBS large exposure framework aims to protect banks from suffering large losses from the default of a single counterparty and to reduce the risk of contagion between the global systemically important banks (G-SIBs).
- The BCBS finalised the framework in April. The framework limits a bank's total exposure to a single private sector counterparty to 25% of its Tier 1 capital.[a] It also restricts the total exposure of one G-SIB to another to 15% of the bank's Tier 1 capital.
- The framework will be implemented across jurisdictions by 2019.

Sources: BCBS and BIS.

(a) The BCBS will consider the appropriateness of setting out a large exposure limit for banks' exposures to qualifying central counterparties (QCCPs) after an observation period that will be concluded in 2016. In the meantime, the BCBS's assumption is that banks' exposures to QCCPs related to clearing activities are exempted from the large exposures framework.

Table 3.E Progress is being made on Basel III liquidity and stable funding requirements

Liquidity Coverage Ratio (LCR)

- The LCR will become a requirement in 2015. National authorities must set a minimum requirement of at least 60% in 2015, rising to 100% gradually in subsequent years.
- Until the LCR is introduced through the European Commission's Delegated Act in 2015, the PRA's liquidity regime will continue to apply to PRA-authorised banks, building societies and designated investment firms. The PRA will consult on changes to its liquidity regime in due course.

Net Stable Funding Ratio (NSFR)

- The NSFR is designed to reduce banks' funding risk over a longer time horizon by requiring them to fund their exposures with sufficient stable funding.
- The BCBS released a consultation paper on the NSFR in January, with a view to implementing a minimum standard by 2018.

Sources: BCBS, BIS and PRA.

Table 3.F Reform is in progress to reduce the probability of systemic financial institutions failing

International progress on identifying SIFIs and requiring additional going-concern loss absorbency

	Identification of institutions	Additional loss absorbency
Banks	The Financial Stability Board (FSB) publishes a list of global systemically important banks (G-SIBs) annually.	Additional capital buffers for G-SIBs to be implemented in phases during 2016–19.
	Other systemically important institutions (O-SIIs) are to be identified by 2016 in the EU based on EBA guidelines.	EU Member States have the option to apply additional capital buffers on O-SIIs from 2016.
Insurers	The FSB publishes a list of global systemically important insurers annually. The FSB is expected to make a decision on whether any reinsurers should be identified as global systemically important insurers in November.	The International Association of Insurance Supervisors (IAIS) will finalise the Basic Capital Requirement by November, to which Higher Loss Absorbency (HLA) requirements for global systemically important insurers can be applied. The IAIS expects to develop the HLA requirements by end-2015.
Non-bank non-insurers	The FSB and the International Organization of Securities Commissions (IOSCO) consulted on a methodology for identifying non-bank non-insurer global systemically important financial institutions.	

Sources: CRD IV, EBA, FSB and IAIS.

Table 3.G Further international work is required to increase the resolvability of financial institutions

Banks	Member States are required to adopt and apply the necessary legislation to comply with the EU Bank Recovery and Resolution Directive (BRRD) by January 2015. Implementation of a bail-in tool and minimum requirement for own funds and eligible liabilities (MREL) is due by January 2016.[(a)]
	The EBA is to provide technical standards and guidelines relating to the BRRD in the coming years; and to report on implementation of MREL in individual Member States by end-October 2016.
	The FSB is to submit a proposal on gone-concern loss-absorbing capacity (GLAC) for G-SIBs to the G20 in November.
Insurers	Recovery and resolution planning under the FSB's Key Attributes is being applied to global systemically important insurers. This includes the establishment of crisis management groups by mid-2014 and the development of recovery and resolution plans by end-2014. The home authorities for global systemically important insurers are required to provide an interim report to the FSB on progress in these areas by mid-2014.
Non-bank non-insurers	The FSB is determining the core elements that it considers necessary for the resolution of failing financial market infrastructures (FMIs) and failing members of FMIs. It is expected to include these as an Annex to the Key Attributes in 2014. In addition, the FSB is finalising an Annex covering the treatment of client assets in resolution.
	The European Commission is expected to present a proposed framework on recovery and resolution for non-bank financial institutions, including CCPs, later this year.

Sources: BRRD, EBA, European Commission and FSB.

(a) In the United Kingdom, the primary legislation for a bail-in tool is already in place in the Financial Services (Banking Reform) Act 2013.

across the financial system as a whole without a bailout by public authorities. The expectation of such bailouts in turn distorts the cost of funding for systemically important financial institutions (SIFIs) and creates incentives for them to take excessive risks.

Reforms to end 'too big to fail' are advancing. Progress is being made on identifying SIFIs and subjecting them to measures to reduce their probability of failure (**Table 3.F**). Measures are also being implemented to reduce the impact of failure by enabling the authorities to resolve institutions without triggering economic disruption and without recourse to public funds (**Table 3.G**). Significant advances are planned on both of these fronts ahead of the G20 Summit in November.

…beginning with development of frameworks for identifying systemic institutions.

Progress is being made in determining how to identify global and domestic systemically important institutions (**Table 3.F**). In June, the European Banking Authority (EBA) published the final draft technical standards for identifying global systemically important institutions in the European Union. This will implement the G-SIBs framework of the Financial Stability Board (FSB) in the European Union. The EBA is also expected to publish by January 2015 guidelines to support EU Member States in their identification of other systemically important institutions (O-SIIs).[(1)]

Identification of O-SIIs is important from a macroprudential perspective, given that the distress or failure of an individual firm can potentially have a destabilising effect on the system as a whole. In the United Kingdom, the PRA is responsible for identifying O-SIIs, which will include domestic systemically important banks (D-SIBs) as described by the BCBS, from January 2016. The FPC will review the process for identifying different types of D-SIBs in the United Kingdom as part of its efforts to end 'too big to fail'.

The FSB, with the International Association of Insurance Supervisors (IAIS), is expected to make a decision on whether any reinsurers should be identified as global systemically important insurers in November. Jointly with the International Organization of Securities Commissions (IOSCO), the FSB also held a public consultation on its assessment methodologies for identifying non-bank non-insurer global SIFIs.[(2)]

The EU Bank Recovery and Resolution Directive will facilitate resolution of banks within the EU…

The EU Bank Recovery and Resolution Directive (BRRD) was approved by the European Parliament in April 2014 and was

(1) O-SIIs in CRD IV cover both domestic and regional systemically important banks and investment firms engaged in certain types of activities.
(2) The FSB-IOSCO consultation paper is available at www.financialstabilityboard.org/publications/r_140108.pdf.

published in June. This is a milestone in the EU legislative framework for the recovery and resolution of banks and large investment firms. In the United Kingdom, the Bank of England plans for and implements resolutions of failing financial institutions under the special resolution regime (except when a firm is placed into temporary public ownership by HM Treasury). The BRRD enhances the special resolution regime and facilitates the resolution of banks and large investment firms within the European Union (**Table 3.G**).

The Directive will ensure that the EU framework for these firms complies with the FSB's 'Key attributes of effective resolution regimes for financial institutions'[1] (Key Attributes). The BRRD equips resolution authorities with powers to take steps to preserve the critical functions of a bank in resolution and to impose losses on the existing holders of its liabilities, including through a bail-in. These powers are a fundamental element of the package of measures that are needed to ensure that failing banks can be resolved while minimising the impact on financial stability (see Box 4).

The BRRD requires that at least 8% of the total liabilities, including own funds, of a firm in resolution must be exposed to loss before resolution funds can be used. The BRRD also introduces the concept of a minimum requirement for own funds and eligible liabilities (MREL), which aims to ensure that all firms have adequate total loss-absorbing capacity, including sufficient liabilities that could credibly be exposed to loss in resolution. All EU banks and investment firms will be subject to MREL, which will be set on a firm-by-firm basis, from 2016 at the latest.

Separately, the FSB is working on a proposal on gone-concern loss-absorbing capacity (GLAC) — such as long-term bonded debt — that will apply for G-SIBs (**Table 3.G**). The forthcoming FSB proposal will aim to establish criteria that bank liabilities should meet in order to be considered as GLAC and ensure that sufficient amounts of GLAC are in the right location within a financial group to support firm-specific resolution strategies. By ensuring that there are liabilities available to be bailed in at the point of resolution, GLAC will complement the BRRD requirements. The UK framework for GLAC is a part of the FPC's medium-term priority to end 'too big to fail'.

As shown in **Table 3.H**, a number of credit rating agency actions have already cited the potential impact of the BRRD in reducing the likelihood of government support.

...but recovery plans and resolution regimes for non-bank financial institutions are not as developed.

Although the BRRD is a major step in facilitating the recovery and resolvability of EU banks and large EU investment firms,

(1) FSB (2011), 'Key attributes of effective resolution regimes for financial institutions', available at www.financialstabilityboard.org/publications/r_111104cc.pdf.

Table 3.H Rating agencies judge government support to be less likely for EU banks due to BRRD[a]

Moody's	Revised down outlooks for supported ratings of 82 banks in the EU, Liechtenstein and Norway to Negative, including six G-SIBs, in May.
S&P	Revised outlooks for eleven EU banks to Negative from Stable, including three G-SIBs, in April.
Fitch Ratings	Revised the outlooks for 18 EU commercial banks' long-term issuer default ratings to Negative from Stable, including four G-SIBs, in March.

Sources: Fitch Ratings (2014), 'Fitch revises outlooks on 18 EU commercial banks to negative on weakening support' (26 March); Moody's (2014), 'Reassessing systemic support for EU banks' (29 May); and S&P (2014), 'Standard & Poor's takes various rating actions on European banks following government support review' (29 April).

(a) The S&P's disclaimer of liability, which applies to the data provided, is available at www.bankofengland.co.uk/publications/Documents/fsr/2014/fsr14jun3.xls.

feasible and credible resolution arrangements for non-bank SIFIs are not as developed (**Table 3.G**). In the United Kingdom, the Financial Services Act 2012 extends the special resolution regime — which originally covered banks and building societies — to also include large investment firms, banking group companies (including holding companies) and CCPs. The secondary legislation required to implement this was submitted to Parliament in June.

International initiatives on the resolution of non-bank financial institutions could enhance the special resolution regime in the future. The FSB is expected to publish later this year an Annex to the Key Attributes that sets out the core elements that the FSB considers necessary for the resolution of failing financial market infrastructures (FMIs) and failing members of FMIs. The European Commission is expected to present a proposed framework on crisis management and resolution for non-bank financial institutions, including CCPs, later this year.

In the United Kingdom, the Bank of England is responsible for supervising various kinds of FMIs, including CCPs, securities settlement systems and recognised payment systems.(1) The post-crisis reforms have expanded the role of CCPs in mitigating counterparty risk between firms, thus increasing the importance of ensuring that CCPs have adequate incentives to manage risks.

A recent incident at Korea Exchange (KRX), a Korean CCP, highlights a number of risks associated with CCPs. In December 2013, a clearing member of KRX defaulted with a loss exceeding its initial margin, which did not reflect the intraday risk of its positions. The remaining loss had to be borne by other clearing members via the default fund to which they contribute. Thus, KRX itself did not suffer any loss on its own capital from its clearing member default. In the European Union, CCPs are required to commit part of their own capital to meet losses from a clearing member default, in order to incentivise strong risk management. This is part of a package of new regulatory rules for EU CCPs that have helped to catalyse improvements in risk management across the industry.

Structural reforms will also enhance resolvability of affected institutions.

Structural reforms are being implemented in a number of jurisdictions in order to ensure the continuity of provision of core banking services, facilitate effective resolution of systemic banking groups and increase their resilience. In the United Kingdom, the focus is on ensuring that deposit, payment and overdraft services are continuously available to individuals and small businesses even when a banking group is distressed. These core services will be ring-fenced from

(1) See the first *Annual Report* on FMIs by the Bank of England for an account of its responsibilities for FMI supervision and how it has exercised those responsibilities, available at www.bankofengland.co.uk/publications/Documents/fmi/fmiap1403.pdf.

Table 3.I The Financial Services (Banking Reform) Act 2013 is now in the implementation phase

- The Banking Reform Act received Royal Assent in December 2013.
- Secondary legislation will set out criteria for determining which institutions are subject to ring-fencing and will provide more detail about the activities that ring-fenced banks will be allowed to undertake.
- The Act requires the PRA to make rules for the purposes of ring-fencing. One effect of this will be a degree of separation between the ring-fenced bank and other entities within a banking group.
- The ring-fence will be implemented by 2019.

Sources: Financial Services (Banking Reform) Act 2013 and HM Treasury.

Table 3.J Structural reforms are also in progress in other jurisdictions

The European Union

- Following a report by the Liikanen Group, the European Commission issued a legislative proposal in January 2014 on structural changes for the biggest and most complex banks to further enhance the stability and resilience of the European banking sector.
- It proposes to prohibit these banks from engaging in proprietary trading through dedicated desks and personnel; and investing in hedge funds from January 2017. It also proposes to give the competent authority powers to require separation of certain potentially risky trading activities, such as market-making, from a deposit-taking entity within a banking group if pursuit of such activities is deemed to compromise financial stability. It is proposed that the provisions on separation of trading activities will become effective in July 2018.

The United States

- In December 2013, five Federal agencies issued final rules to implement the Volcker rule, and the Federal Reserve Board extended the conformance period by one year to July 2015. The final rules prohibit banking entities from engaging in proprietary trading and impose limits on their investments in, and other relationships with, hedge funds or private equity funds, subject to certain exemptions.
- In February, the Federal Reserve Board also approved a final rule to strengthen supervision and regulation of large foreign banking organisations. The rule requires a foreign banking organisation with a significant US presence to establish an intermediate holding company over its US subsidiaries. The intermediate holding company will generally be subject to the same prudential standards as those applicable to US bank holding companies. Foreign banking organisations will be subject to the final rule from July 2016.

Sources: European Commission and Federal Reserve Board.

investment banking activities by 2019 under the Banking Reform Act (**Table 3.I**). Similar structural reforms are also in progress in other jurisdictions (**Table 3.J**).

Individually, these structural reforms can enhance domestic and regional financial stability and improve the resolvability of institutions. It is possible, however, that taken together they may constrain somewhat the international flow of capital and liquidity. For example, if a cross-border banking group becomes distressed, protecting domestic creditors can potentially have a detrimental effect on the resolvability of the overall group. The FSB will report to the G20 in November its assessment of the cross-border consistency and global financial stability implications of structural banking reforms.

3.3 Diverse and resilient sources of market-based finance

Non-bank and market-based finance can contribute to financial stability if risks are managed appropriately.

Non-bank and market-based provision of finance can play a number of useful roles in the financial system. For example, they can offer companies alternatives to, and provide competition for, bank lending. They can also help distribute risk exposures among a wider group of counterparties. Resilience and liquidity of markets could also be improved by greater diversity of bank and non-bank participants.

Nevertheless, activities outside the regulated banking sector could potentially present systemic risk, underscoring the need for a mechanism to detect, monitor and manage such risks appropriately. In June, the FPC conducted a review of the regulatory perimeter, in particular of channels through which stress in selected parts of the non-bank financial system could affect wider UK financial stability. This review, and the statutory powers of the FPC in this area, are described in more detail in Section 5.4 and Box 9.

One source of risk to stability arises from procyclicality in the availability of finance. For example, securities financing markets play important roles in enabling firms' risk and collateral management, and supporting secondary market liquidity. But market participants may vary the terms at which they will lend in these markets according to the prevailing economic environment — for example, by demanding more collateral during times of stress. In extreme circumstances, such procyclical behaviour could tighten funding conditions across firms and prompt asset 'fire sales', thus undermining secondary market liquidity.

The FSB is expected to finalise its policy framework regarding collateral haircuts — the degree of overcollateralisation required by market participants — in securities financing and repo markets later this year. This is designed to alleviate

procyclicality in the availability of such financing and the risks associated with non-bank entities using secured financing to obtain leverage and engage in maturity transformation outside the regulated banking sector.

Reforms in over-the-counter derivative markets are being implemented across jurisdictions…

In over-the-counter (OTC) derivative markets, reforms are progressing across jurisdictions to improve transparency in these markets, mitigate systemic risk, and protect against market abuse.

In the European Union, mandatory trade reporting began in February 2014 to help provide greater visibility to the authorities and participants on market activity. A process of mandating products for central clearing is expected to start later this year which will improve the management of counterparty risks.

In the United States, central clearing of certain OTC derivatives is already required. From February 2014, it became mandatory to trade certain OTC derivatives on swap execution facilities — trading systems or platforms in which multiple participants have the ability to execute or trade swaps.

Although this should improve transparency and help market participants find the most competitive prices, there are signs that non-US investors are avoiding trading on US swap execution facilities until their own jurisdictions' rules for trading facilities are introduced. Such behaviour could potentially fragment the market into non-US and US pools of liquidity, which could increase risks when shocks hit specific markets. This risk is likely to persist until jurisdictions recognise each other's regulatory regimes as equivalent, so non-US investors would not have to comply separately with US regulations.

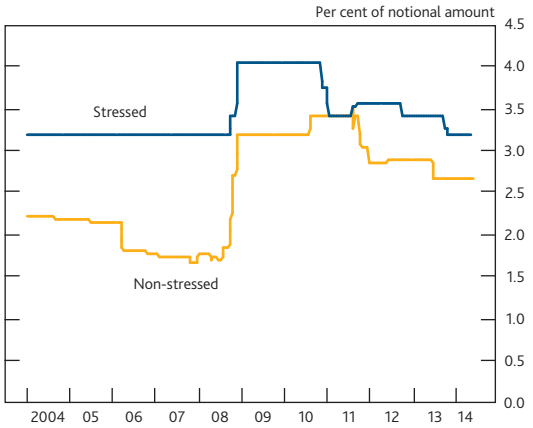
…and measures to reduce procyclicality of margining requirements have been proposed.

Following the finalisation of the BCBS-IOSCO framework for margin requirements for non-centrally cleared derivatives in September 2013, all financial firms and systemically important non-financial entities will be required to exchange initial and variation margin on non-centrally cleared contracts starting in December 2015. Although more comprehensive margining will reduce counterparty credit risk, market participants may at times need to sell assets or borrow unexpectedly to meet margin calls. This could amplify market volatility.

To alleviate this problem, policy proposals include measures to limit potential increases in margins without undermining risk coverage. For example, the EBA recently published a consultation paper on implementing these margining rules in

Chart 3.1 Margin requirements would be more stable if calculated using data from stressed periods

Illustrative effect of stressed calibration on margin requirements[a]

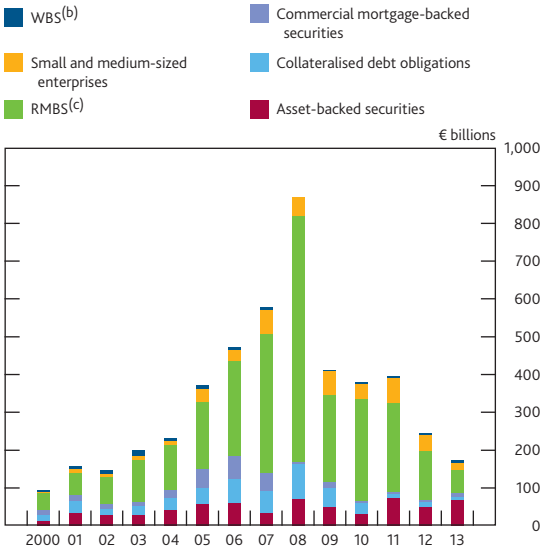


Sources: Bloomberg, Thomson Reuters Datastream and Bank calculations.

(a) Both lines show margin requirements for a ten-year euro interest rate swap, computed as 99th percentiles of ten-day mark-to-market losses over three years' worth of data. In the non-stressed case, the margin calculation is based only on the most recent historical data, whereas in the stressed case, it combines the recent historical data with data from the late 2008 and early 2009 stress period.

Chart 3.2 European securitisation has not recovered since the crisis

European securitisation issuance[a]



Sources: Association for Financial Markets in Europe, Securities Industry and Financial Market Association, Thomson Reuters Datastream and Bank calculations.

(a) Includes retained issuance.
(b) Whole business securitisation and public finance initiatives.
(c) Residential mortgage-backed securities and mixed mortgage-backed securities.

the European Union.[1] It proposed that, where initial margin calculations are based on internal models, stressed observations should constitute at least 25% of the data sample. This is aimed at limiting the scope for large procyclical increases in margin requirements, while still adequately covering counterparty credit risk. As shown in **Chart 3.1**, such measures can reduce the size and frequency of increases in margin requirements, though they are likely to result in higher average levels of margin requirements.

Work is under way to tackle other structural issues related to FPC priorities, such as the robustness of markets…

Financial markets may need a central bank backstop in order to prevent crises of confidence from threatening financial stability and the wider economy. As part of its effort to make markets more robust, the Bank announced in June that it will widen access to its liquidity facilities in the coming year to include the largest broker-dealers regulated in the United Kingdom and CCPs authorised to operate in UK markets. The Bank will also look into whether it should further develop its capacity to lend in currencies other than sterling.

In addition, the Government announced in June a joint review by HM Treasury, the Bank of England and the Financial Conduct Authority into the way wholesale financial markets operate. The objectives of this Fair and Effective Financial Markets Review are to reinforce confidence in the fairness and effectiveness of wholesale financial market activity conducted in the United Kingdom; and to influence the international debate on trading practices. The review will produce a substantive consultation document in the autumn and a final report by June 2015.[2]

…facilitating better functioning securitisation markets…

Well-functioning securitisation markets can also support market-based finance, and help banks access funding from a diverse range of investors. But securitisation issuance in Europe has not recovered since the financial crisis (**Chart 3.2**).

Impediments to a resumption of securitisation in Europe could include uncertainty over the final form of regulations relating to securitisation. Market participants may have concerns about the potential for stricter capital requirements (applied to banks and insurers) for asset-backed securities exposures, relative to exposures to other securities, such as covered bonds. Securitisation issuance might also be hampered by the difficulties that investors face in assessing and managing risks, including credit risk and risks associated with market liquidity. Moreover, potential issuers may be unable or unwilling to offer

(1) The EBA's consultation paper can be found at www.eba.europa.eu/documents/10180/655149/JC+CP+2014+03+%28CP+on+risk+mitigation+for+OTC+derivatives%29.pdf.
(2) The Terms of Reference of the review can be found at www.bankofengland.co.uk/publications/Documents/news/2014/tor120614.pdf.

sufficiently attractive spreads to investors given the availability of cheaper alternative sources of funding.

A recent joint Bank of England and ECB Discussion Paper outlined the case for a better functioning securitisation market in the European Union and suggested policy options to facilitate this.(1) The key recommendations include the development of high-level principles for 'qualifying securitisation' to promote securitisations where risks and pay-offs are easily understood; further standardisation of prospectus and investor reports; and, as discussed further below, the creation of credit registers.

…and improving the availability of data on commercial borrowers, which could support the provision of credit.
The Bank also recently published a Discussion Paper that sets out the potential benefits of improving the availability of credit data.(2) Such an improvement would support more informed lending decisions and enhance competition by removing barriers to entry and expansion. That in turn is likely to improve the availability and stability of credit, particularly for small and medium-sized enterprises. Access to more comprehensive and timely credit data would also greatly assist policymakers — for example, by informing stress tests of banks' resilience and assessments of the impact of macroprudential policy tools. The paper outlines several possible solutions, including some that involve credit reference agencies and the possible establishment of a Central Credit Register.

(1) Bank of England and European Central Bank (2014), 'The case for a better functioning securitisation market in the European Union: A Discussion Paper', available at www.bankofengland.co.uk/publications/Documents/news/2014/paper300514.pdf.
(2) Bank of England (2014), 'Should the availability of UK credit data be improved? A Discussion Paper', available at www.bankofengland.co.uk/publications/Documents/news/2014/dp300514.pdf.

Box 4
Effective resolution strategies

Introduction

One of the key strands of the G20's programme of fundamental reform of the global financial system[1] is the development of effective resolution strategies that ensure full resolvability of global systemically important financial institutions (G-SIFIs). Full resolvability means that G-SIFIs must be able to fail without causing excessive disruption to the financial system, without interruption to critical services provided to the real economy, and without cost to public funds. This box explains the role of resolution strategies in the process of achieving feasible and credible resolution, and the key elements that are necessary for resolution strategies to be effective.

Resolution strategies

The Key Attributes[2] require the development of firm-specific resolution strategies for G-SIFIs. These strategies should outline the authorities' preferred approach for resolving the failing firm in a way that protects the critical functions provided by the firm, financial stability, and public funds. Guidance on the development of effective resolution strategies has been published by the FSB.[3] Resolution strategies should be supported by detailed operational plans, setting out the specific actions that must be taken by the relevant authorities. The strategies need to be accompanied by detailed assessments of the resolvability of the firm, which identify any potential barriers to carrying out the strategy and the actions needed to remove those barriers.

As an example, the resolution strategy for a G-SIFI might involve the home resolution authority[4] conducting a bail-in at the group holding company. The bail-in would write down and/or convert to equity the claims of the holding company's shareholders and unsecured creditors. If losses were concentrated at a particular operating bank (a subsidiary of the holding company), this would be accompanied by a reduction of the holding company's claims on the operating bank, thereby serving to recapitalise that bank's balance sheet. Following this initial stabilisation of the group, the authorities would then have time to restructure the bank to address the causes of its failure while ensuring that critical services continue to be provided.

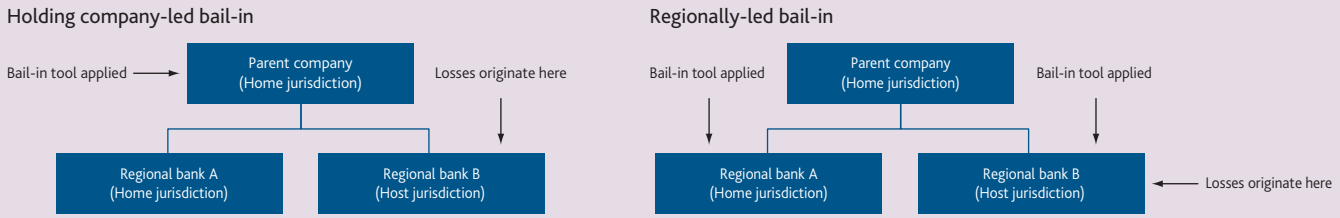
Alternatively, the preferred resolution strategy could involve authorities in the major jurisdictions in which the G-SIFI operates conducting local resolutions, such as bail-in at the relevant level, to ensure that the local entities can be stabilised (**Figure A**). Again this would be followed by any reorganisation that may be needed.

Fundamental elements to support strategies

In order for a resolution strategy to be feasible, the authorities in relevant jurisdictions must have the necessary powers and the capacity to apply them. In order for the strategy to be credible, use of these powers should not result in unacceptable adverse consequences for the financial system and the real economy. In its guidance, the FSB sets out the fundamental elements that must be in place to ensure that resolution strategies for a G-SIFI can be carried out, if the need should arise. These elements have been further specified by the Bank Recovery and Resolution Directive (BRRD). The elements include that:

- **The necessary powers are available to the relevant authorities.** These would include, for example, powers to transfer some or all of the shares, assets and liabilities of the failing firm to another institution or to a bridge bank, powers to conduct a bail-in of the uninsured, unsecured creditors at the relevant entity of the failing firm, and powers to wind down non-critical parts of the balance sheet — either directly or through transfer to an asset management vehicle. The resolution authority will also need to be able to require the resolved firm or a successor entity to adopt a new business plan, to overhaul the internal governance of the firm and in particular to remove senior management responsible for the firm's failure.
- **There is sufficient gone-concern loss-absorbing capacity (GLAC), in the appropriate form and at the right location in the group.** This is essential to achieve a recapitalisation or orderly wind-down of the firm (or part of the firm) without the use of public funds. The FSB guidance recognised that authorities may need to introduce requirements for firms to hold a sufficient amount of GLAC (Section 3.2), so that there are liabilities available to bail in at the point of entry into resolution.[5] The FSB will also need to consider whether GLAC should only be held by those who can most readily absorb losses — in the event that the firm fails — without generating adverse effects on

Figure A Stylised resolution strategies



financial stability and the real economy. And the choice of resolution strategy for the group will affect where GLAC needs to be located within the group, in order to achieve the desired result (**Figure A**).

- **There is sufficient legal certainty that resolution authorities' powers will be effective across borders.** Ultimately this would require that the statutory framework in each jurisdiction recognises the resolution actions of other jurisdictions in an appropriate way. This should include both recognition of the resolution actions (such as bail-in) of other jurisdictions, and that entry into resolution does not by itself give counterparties the right to terminate financial contracts they have entered into with the firm being resolved. Until the necessary statutory changes have been adopted in key home and host jurisdictions of G-SIFIs, amendments need to be made to contractual arrangements to achieve a similar effect.

  For example, clauses recognising resolution actions by the home resolution authority may need to be included in debt or other financial instruments subject to the law of a host jurisdiction, so that a bail-in will be enforceable across borders. Individual jurisdictions are seeking to ensure that the necessary contractual terms are included in newly issued instruments. Amendments to netting agreements will also be required, to prevent large-scale, uncoordinated close out of financial contracts (such as derivatives and repo transactions) entered into with the entity being resolved. Such close-outs are likely to be very disruptive, both for the firm itself — which would become exposed to the market and credit risks that these transactions were intended to protect against — and to the wider market. The FSB and its members are working with the International Swaps and Derivatives Association to develop a protocol that would amend master agreements in order to prevent entry into resolution from triggering close-out rights.

- **The operational and legal structure of the firm supports continuity of the firm's critical functions in resolution.** The firm in resolution, or the entity to which critical functions have been transferred, must be able to continue to rely on services provided by other entities in the group (such as shared service companies), third-party providers (such as outsourced service companies), and of course the financial market infrastructures in which it participates. The method for ensuring access to such services must be clear from the resolution strategy.

- **The amount and method of providing temporary liquidity to the firm in resolution**, or a successor that assumes the critical functions of the firm, **has been identified in the strategy**. The FSB is conducting further analysis of this issue.

- **There is agreement between the home and host authorities of a G-SIFI over the arrangements for co-operation and co-ordination** to implement the resolution strategy and operational plan. For example, the circumstances in which the home and relevant host authorities would be prepared to co-operate to carry out a group-wide resolution strategy should be clear, as well as what conditions might apply to ensure co-operation.

As well as the above elements, resolution strategies should be supported by clear arrangements for co-ordination between supervisory authorities and resolution authorities as the firm approaches failure, an understanding of the approvals and authorisations that will be required from different authorities during resolution, and fallback options in the event that the preferred resolution strategy cannot be carried out.

Outstanding priorities

The key outstanding priorities for the FSB to ensure that the necessary elements are in place to support effective resolution strategies are: agreement of a proposal for GLAC to be applied to G-SIBs, being developed for the G20 summit in Brisbane in November 2014; progress on the contractual and statutory approaches to ensuring that financial contracts are robust to the entry of a firm into resolution; and more detailed individual assessments of the resolvability of the group of G-SIFIs — including what barriers to resolution exist and how these can be removed — as part of the FSB's resolvability assessment process (RAP).

Given recent advances in the United Kingdom's statutory arrangements for resolution and the adoption of the BRRD, the above priorities are also core concerns for the United Kingdom.

(1) See G20 (2010), 'Seoul Summit Leaders' Declaration 11–12 November 2010', available at www.g20.utoronto.ca/2010/g20seoul.html.
(2) FSB (2011), 'Key attributes of effective resolution regimes for financial institutions' which sets out the core elements that the FSB considers to be necessary for an effective resolution regime, available at www.financialstabilityboard.org/publications/r_111104cc.pdf.
(3) See FSB (2013), 'Guidance on developing effective resolution strategies', available at www.financialstabilityboard.org/publications/r_130716b.pdf.
(4) The home resolution authority is the authority for the country in which the regulated financial institution is headquartered. The host authority is the resolution authority for a country where the firm operates, for example through a branch or subsidiary, but is headquartered elsewhere.
(5) The position of GLAC in the creditor hierarchy must also be assessed when considering the feasibility of any resolution strategy. The authorities will need to respect the normal creditor hierarchy during a resolution, including treating similarly situated creditors equally, except where the latter approach gives rise to financial stability concerns or is not technically feasible.

4 Progress on previous macroprudential policy decisions

The Financial Policy Committee (FPC) has reviewed progress against its existing recommendations since the November 2013 *Report*. It assessed that there had been sufficient progress since November to close eight of its existing recommendations, given the positive contribution that each had made towards the FPC meeting its objectives. These included the recommendations made in March 2013 on the capital adequacy of the UK banking system and the recommendation from November 2013 on making available an instrument on interest rate stress tests to use in the assessment of mortgage affordability. Continued action is under way to implement the FPC's other existing recommendations.

The table below describes progress in implementing the FPC's recommendations since the November *Report*. Each recommendation has been given an identifier to ensure consistent referencing of recommendations over time. For example, the identifier 11/Q3/4 refers to the fourth recommendation made following the 2011 Q3 Committee meeting.

11/Q3/4	**Contingency planning should be as comprehensive as possible**	Implemented — closed in June 2014

The Committee made an initially private recommendation to HM Treasury (in September 2011) that its contingency planning should be as comprehensive as possible and include arrangements for recapitalisation, and the restructuring of bank liabilities in circumstances in which their survival was threatened.

In September 2011, the interim Committee was concerned that conditions in Europe could deteriorate rapidly, with the potential for widespread dislocation spreading across interconnected global financial markets, and thought that the Treasury should prepare for a full range of eventualities. In some especially severe scenarios it believed that far-reaching solutions might be required, which some members of the Committee felt should extend to the potential write-down of some private sector holdings of bank debt.

Since this recommendation was made, substantial progress has been made in the United Kingdom and internationally on arrangements for bank resolution. Both the European Bank Recovery and Resolution Directive and the Financial Services (Banking Reform) Act 2013 include 'bail-in' powers, which allow for certain classes of unsecured bank debt to be written down, or converted into equity claims, as an alternative to either insolvency or publicly funded bailouts. These powers will come into force in the United Kingdom by January 2015 and will support the medium-term framework for resolution. Risks to the UK banking sector from the euro area have also reduced, including as a result of action under recommendation 12/Q2/3 below.

The recommendation was initially made privately by the interim FPC because it judged, in the context at the time of stressed market conditions and without legislative powers for bail-in in place, that its publication could undermine already fragile market sentiment and would therefore be against the public interest. At its June meeting the Committee judged that, given that legislation for bail-in powers was now awaiting commencement, the closure and publication of this recommendation was justified.

12/Q2/3	**Manage and mitigate balance sheet risks from euro-area stress**	Implemented — closed in June 2014

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.

Major UK banks have taken steps to mitigate balance sheet risks from vulnerable euro-area periphery (VEAP) countries. As noted in the November *Report*, by the end of 2013 H1 UK banks had reduced their exposures to VEAP countries by around £11 billion from when this recommendation was made, to around £140 billion. Since then, VEAP exposures have been broadly stable.

Local liabilities have not fallen substantially since this recommendation was made. As a result of the fall in exposures, redenomination risks have diminished, with local exposures now better matched by local liabilities relative to 2012 Q2, reducing the potential loss from currency devaluation in the unlikely event of a breakup of the euro.

Banks have also increased their capital resources (see Section 1.2), leaving them better placed to absorb any potential losses from euro-area stress. The FPC will evaluate risks arising from exposure to the euro area via regular stress-testing exercises, and the PRA will also continue to monitor risks from the euro area as part of ongoing supervision.

13/Q1/2	**Ensure capital resources of at least 7% of risk-weighted assets on basis described in 13/Q1/1 by end of 2013**	Implemented — closed in June 2014

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.(1) Relative to that benchmark, major UK banks and building societies in aggregate currently have a shortfall in capital of around £25 billion.

The PRA has taken steps with firms to address the capital shortfall highlighted by the interim FPC in March 2013. The PRA was asked to assess capital adequacy using the Basel III definition of equity capital but after: (i) making deductions from currently-stated capital to reflect an assessment of expected future losses and a realistic assessment of future costs of conduct redress; and (ii) adjusting for a more prudent calculation of risk weights. On that basis, all major UK banks and building societies had either met the 7% CET1 standard at end-2013 or have put plans in place with the PRA to meet it.

In future, the factors captured by the adjustments used in this exercise will be embedded into the PRA's ongoing supervisory regime(2) and into stress testing.

13/Q1/4	**Meet 13/Q1/2 and 13/Q1/3 in a way that does not hinder lending to the economy**	Implemented — closed in June 2014

The PRA should ensure that major UK banks and building societies meet the requirements in Recommendations 13/Q1/2 and 13/Q1/3(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.

Major UK banks and building societies have improved capital ratios through reductions in risk-weighted assets and increases in capital resources. The PRA asked firms to ensure that all plans to address shortfalls do not reduce lending to the real economy; reductions in risk-weighted assets have largely been achieved through selling of non-core assets and scaling back of investment banking operations.

(1) 'The Prudential Regulation Authority (PRA) should assess current capital adequacy using the Basel III definition of equity capital but after: (i) making deductions from currently-stated capital to reflect an assessment of expected future losses and a realistic assessment of future costs of conduct redress; and (ii) adjusting for a more prudent calculation of risk weights.' This recommendation was closed in June 2013.
(2) For further details, see *PRA Supervisory Statement SS3/13*, 'Capital and leverage ratios for major UK banks and building societies', November 2013, available at www.bankofengland.co.uk/pra/Documents/publications/ss/2013/ss313.pdf.
(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.' This recommendation was closed in September 2013.

13/Q1/5	**Ensure credible plans to transition to higher future capital requirements**	Superseded — closed in June 2014

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.

Major UK banks and building societies are now being asked to adhere to a 7% CET1 capital ratio and 3% Tier 1 leverage ratio standard, using definitions of capital and leverage consistent with the international standards expected to come into effect in 2019. This, and the progress on firms' capital positions noted under 13/Q1/2 above, should make the transition path to full end-point capital requirements, including buffer requirements (such as G-SIB buffers), less onerous. In future, the credibility of firms' capital plans will be assessed through the stress-testing framework (see 13/Q1/6) and the PRA's supervisory regime. The results of the 2014 stress-testing exercise will offer the FPC an opportunity to review firms' progress towards future capital standards, including under more adverse economic and financial conditions. Therefore the FPC judged that this recommendation had been superseded by these new developments and could be closed.

13/Q1/6	**Develop proposals for regular stress testing of the UK banking system**	Action under way

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.

In April, the Bank announced the details of the first concurrent UK stress-testing exercise. The 2014 stress test is now under way, co-ordinated with the EU-wide stress test initiated by the European Banking Authority.

In May, the Bank also published a summary of responses to its October 2013 Discussion Paper on the medium-term stress-testing framework. Overall, respondents were supportive of regular, concurrent stress testing. Following the 2014 stress test — and taking into account both the responses to the Discussion Paper and the lessons learned from the 2014 exercise — the Bank will determine how it intends to develop the stress-testing framework.

13/Q2/1	**Assess vulnerability to sharp upward movements in long-term interest rates**	Implemented — closed in March 2014

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.

Analysis by Bank staff presented to the Committee in March 2014 suggested that the UK banking sector would be resilient to direct losses caused by a moderate increase in long-term interest rates. But the work noted significant uncertainty around potential amplification effects operating through the wider financial system, for example through the effects of interest rate shocks on financial markets. Assessment of risks from this channel is now an ongoing part of staff risk assessment work.

13/Q2/3 13/Q2/4	**Work towards consistent and comparable Pillar 3 disclosures** **Implement EDTF recommendations**	Action under way

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.

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 is undertaking detailed work to assess the major UK banks' and building societies' 2013 disclosures related to both the October 2012 recommendations of the Enhanced Disclosure Task Force (EDTF) and Pillar 3. The PRA intends to report back to the Committee in 2014 Q3.

13/Q2/5	**Assess feasibility of calculating capital ratios using Basel III standardised approach**	Implemented — closed in March 2014

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.

At its November 2013 meeting, the FPC had asked the PRA to assess the costs and benefits of asking firms regularly to calculate and disclose their capital ratios using the standardised approach to credit risk, alongside other metrics.

The PRA noted in its response to the Committee that reporting and disclosure of banks' capital ratios using the standardised approach could help to mitigate financial stability risks arising from observed loss of investor confidence in the risk-weighting framework. It also noted that work was under way internationally to address flaws in the measure and to improve confidence in the risk-weighting framework more broadly. Committee members observed the potential benefits of regulators and investors being provided with a range of metrics for assessing banks' capital adequacy, including the standardised metric: all capital adequacy measures are faced with a range of risks which they seek to capture or address, and no single metric can capture all of these risks all of the time.

In its March 2014 meeting, the FPC concluded that it was minded to recommend that firms report and disclose their capital ratios using the standardised approach to credit risk. But before doing so it would in 2015 H1 review the progress made in Basel to improve the standardised approach to credit risk and progress on improving confidence in the risk-weighted framework more generally.

13/Q2/6	**Improve resilience to cyber attack**	Action under way

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.

HM Treasury and regulators are working to develop durable tools for measuring and mitigating cyber resilience across the financial sector. Regulators have issued questionnaires to core firms, and have begun to analyse responses, to help formulate benchmarks of resilience to cyber attack. A cyber vulnerability testing framework (CBEST) was launched to the financial sector on 23 May. The FPC plans to take stock of further progress in 2014 Q4.

13/Q4/1	**Require mortgage lenders to have regard to any future FPC recommendation on appropriate interest rate stress tests**	Implemented — closed in June 2014

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.

Effective from 2 May 2014, the FCA has amended its mortgage rules to include the requirement that lenders have regard to both market expectations and any prevailing FPC recommendation when taking account of likely future interest rates in order to assess affordability. Compliance with the rule will be monitored by the FCA.

5 Prospects for financial stability

The recovery in advanced economies has continued, supported by highly accommodative monetary policies. Strengthening economic growth has bolstered the resilience of global and UK banks, and market concerns about tail risks have declined. According to the Bank's latest *Systemic Risk Survey*, the perceived probability of a high-impact event in the UK financial system has fallen to its lowest level since the crisis. Yet financial stability risks remain.

Historically low levels of interest rates globally and the current backdrop of low volatility across financial markets may encourage market participants to underestimate the likelihood and severity of tail risks. There are increasing signs that investors, in searching for yield, may be increasing the vulnerability of the financial system to shocks. This vulnerability is amplified by structural changes in markets potentially reducing the availability of market liquidity at times of stress.

The recovery in the UK housing market has been associated with a marked rise in the share of mortgages extended at high loan to income multiples. At higher levels of indebtedness, households are more likely to encounter payment difficulties in the face of shocks to income and interest rates. This could pose direct risks to the resilience of the UK banking system, and indirect risks via its impact on economic stability.

The FPC does not believe that household indebtedness poses an imminent threat to stability. But it has agreed that it is prudent to insure against the risk of a marked loosening in underwriting standards and a further significant rise in the number of highly indebted households. The FPC has recommended that:

- When assessing affordability, mortgage lenders should apply an interest rate stress test that assesses whether borrowers could still afford their mortgages if, at any point over the first five years of the loan, Bank Rate were to be 3 percentage points higher than the prevailing rate at origination.

- The PRA and the FCA should ensure that mortgage lenders limit the proportion of mortgages at loan to income multiples of 4.5 and above to no more than 15% of their new mortgages.

These steps will be supported by the UK banking sector stress-test exercise, to be completed by the end of 2014, which will assess the resilience of UK banks to a marked fall in house prices and substantial increases in interest rates.

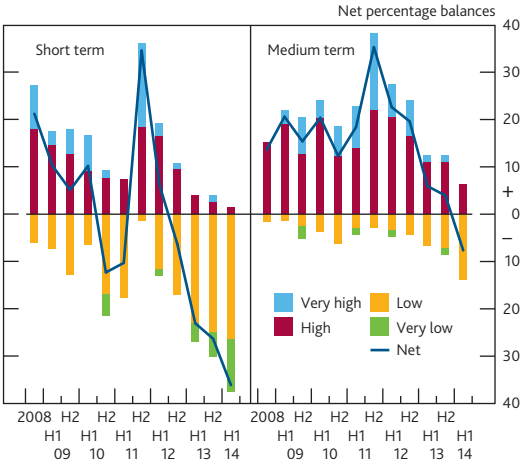
In light of its assessment of the outlook for financial stability and the FPC's recommendations, the FPC also decided at its June meeting to set the countercyclical capital buffer rate for UK exposures at 0% (as set out on pages 68–69).

The FPC also reviewed risks beyond the core banking sector, in particular channels through which stress in selected parts of the non-bank financial system could affect wider UK financial stability. Based on that assessment and initiatives under way to improve understanding and manage risks within these sectors, the FPC did not at present see a case for recommending changes to the regulatory framework.

This section sets out the decisions taken by the Committee at its June 2014 meeting in the light of its assessment of the outlook for financial stability and its statutory objectives. It covers the Committee's assessment of global developments, highlighting the risk of a sudden rise in volatility and a reassessment of financial risk (Section 5.1); and domestic developments, focusing on risks from the UK housing market and setting out associated policy decisions (Section 5.2). The FPC's decision on the countercyclical capital buffer (CCB) rate is set out in Section 5.3, and structural developments since the November 2013 *FSR* are described in Section 5.4. The section also includes boxes on: the impact of the FPC's policy recommendations; experiences with mortgage product interventions in other countries; the impact of macroprudential policy on monetary policy; the FPC's responsibilities for setting the CCB; and the FPC's assessment of risks beyond the core banking system.

Chart 5.1 Perceived risks of UK financial instability diminished further

Perceived probability of a high-impact event in the UK financial system[(a)]

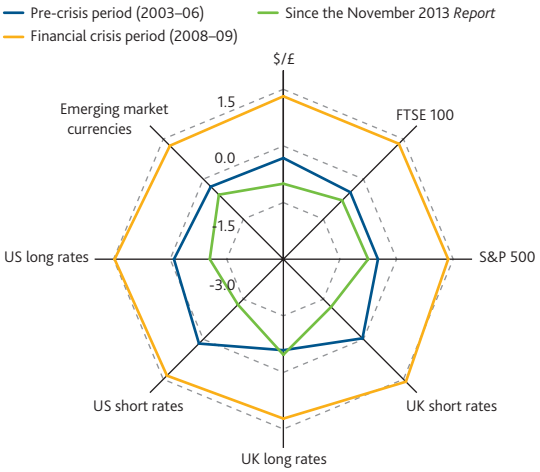


Sources: Bank of England *Systemic Risk Surveys* and Bank calculations.

(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 At short horizons, implied volatility was historically low across asset classes

Differences from averages since 2003, in standard deviations, of three-month option-implied volatilities[(a)]



Sources: Barclays Live, Bloomberg, Chicago Mercantile Exchange, NYSE Liffe and Bank calculations.

(a) Three-month option-implied volatilities of the US dollar into sterling exchange rate, the FTSE 100 and S&P 500 equity indices, and the sterling and US dollar one-year and ten-year interest rates, as well as of the JPMorgan emerging market foreign exchange volatility index.

5.1 Global risks to financial stability

Recent developments

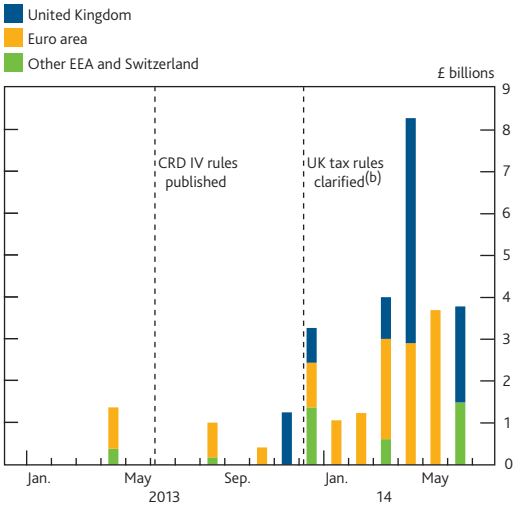
The recovery in advanced economies has continued since November 2013, particularly in the United Kingdom. Perceived tail risks — such as from a euro-area break-up — have decreased. According to the Bank's latest *Systemic Risk Survey* of risk managers at major financial firms — discussed in more detail in Section 1.1 — concerns around tail risks are at their lowest level since the financial crisis (**Chart 5.1**).

Advanced-country central banks have generally maintained highly accommodative monetary policies. The ECB has eased policy further in the euro area and in the United Kingdom the MPC has indicated that Bank Rate is likely to rise only gradually. Meanwhile, implied and realised volatility have been very low across a range of assets (**Chart 5.2**), despite heightened geopolitical and event risks.

Growth in emerging economies has generally slowed. But flows into emerging-economy bond and equity funds resumed in 2014 Q1, reflecting an improvement in market sentiment towards a number of countries that had seen heightened volatility last summer.

The more favourable economic environment and relatively benign market conditions, along with higher regulatory capital requirements, have led to an improvement in global banking system resilience. Capital ratios for the major UK banks have risen to an average of 8.4% in 2014 Q1 on a Basel III CET1 basis, after adjustments by the PRA for a more prudent valuation of vulnerable assets, potential future conduct costs, and a prudent calculation of risk weights. On an unadjusted basis, capital ratios rose to 10% (Section 1.2). This has been achieved through raising new capital and a reduction in non-core assets.

Chart 5.3 AT1 public issuance by EEA and Swiss banks[a]

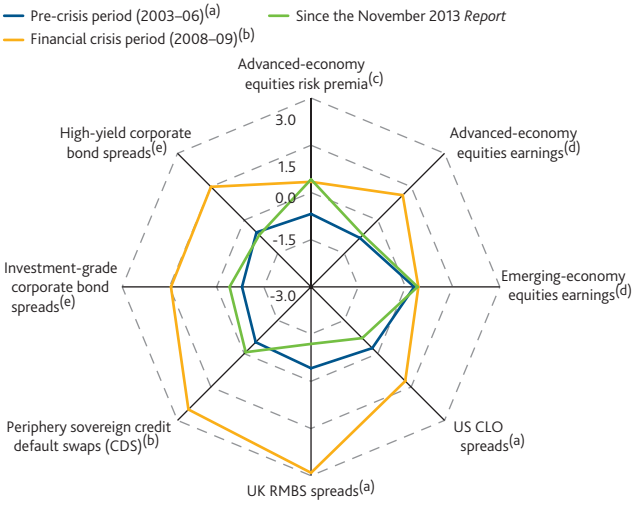


Sources: Bank of England, Dealogic, published accounts and Bank calculations.

(a) UK issuance in April and June 2014 include the exchange of existing capital instruments for new AT1 securities by Lloyds Banking Group (around £4 billion) and Barclays (around £2 billion).
(b) HMRC (December 2013), 'Draft Regulations — The Taxation of Regulatory Capital Regulations 2013 — Update', available at www.hmrc.gov.uk/drafts/reg-cap-technote.pdf.

Chart 5.4 There were signs of compressed risk premia for some asset classes

Differences from averages since 2003, in standard deviations, of risk premia measures



Sources: Bloomberg, BofA Merrill Lynch Global Research, JPMorgan Chase & Co., Markit Group Limited, Thomson Reuters Datastream and Bank calculations.

(a) US collateralised loan obligation (CLO) spreads and UK residential mortgage-backed security (RMBS) spreads time series from January 2006. BBB-rated. Spreads to Libor.
(b) Financial crisis period for Periphery sovereign CDS 1 June 2011 to 31 May 2012. Average five-year CDS spreads for Greece, Ireland, Italy, Portugal and Spain.
(c) Average equity risk premia on FTSE All-Share, S&P 500 and Euro Stoxx 50.
(d) Earnings-price ratio. Advanced-economy is average of US and UK series.
(e) Average option-adjusted spreads on US dollar, Sterling and Euro series.

Most recently, UK banks have been among the major issuers of contingent convertible capital instruments (CoCos) that qualify as additional Tier 1 capital (**Chart 5.3**). These instruments should cushion losses on a going-concern basis and hence safeguard financial stability. But, to be effective, they need to convert to CET1 well before capital ratios fall to levels at which confidence is lost in the ability of a bank to continue to operate as a going concern. So far, the instruments issued by UK banks have been fully convertible at a 7% CET1 ratio (Box 3 in Section 2).

Risks from a sudden rise in volatility and a reassessment of financial risk

Against the current backdrop of low long-term interest rates globally and subdued volatility across financial markets, some market participants may be underestimating risks that could arise either as monetary policy in advanced economies returns to more normal settings or in the event of tail-risk events.

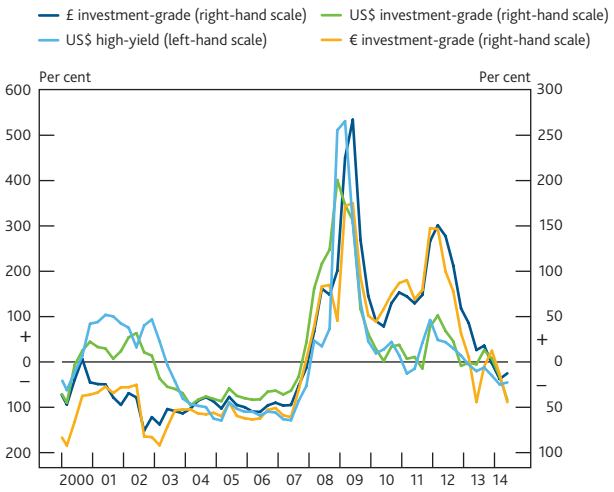
As highlighted in Section 1.1, there are increasing signs across markets of an excessive 'search for yield', with compressed spreads for risky debt, increased leveraged lending and greater appetite for complex assets (**Chart 5.4**). Given this, the Committee intends to examine conditions in leveraged lending markets in more detail over coming months.

In addition to falls in credit risk premia, investors appear to be expecting lower compensation for bearing the risk of secondary market illiquidity (**Chart 5.5** and Box 1). That is despite signs of a potential structural decline in market liquidity stemming from reduced appetite on the part of banks and broker-dealers to make markets in response to increased capital requirements and other changes in regulation. There are indications that some asset managers may be operating on the basis that they can sell assets quickly in the event of possible redemptions — a strategy which, if pursued simultaneously by many funds, could amplify increases in risk premia and volatility. Taken together, these developments suggest that liquidity risk may be underpriced.

The future path of monetary policy is one factor that will affect whether recent benign market conditions will be sustained. Market participants are already anticipating that monetary policy will be tightened over time and that volatility will rise. Despite their recent compression, credit risk premia are likely to reflect that prospect. Previous work in response to an FPC recommendation found that the UK banking sector would be resilient to direct losses caused by the impact of anticipated gradual increases in long-term interest rates, particularly if that also reflected a strengthening in the economy. But even an anticipated monetary tightening is likely to have some effect on market stability. It could expose the recent weakening in underwriting standards and other non-price terms in some market segments. There is also uncertainty around potential amplification effects operating

Chart 5.5 Model-based measure of liquidity risk premia

Deviations of estimated corporate bond liquidity risk premia from historical averages[(a)(b)(c)]

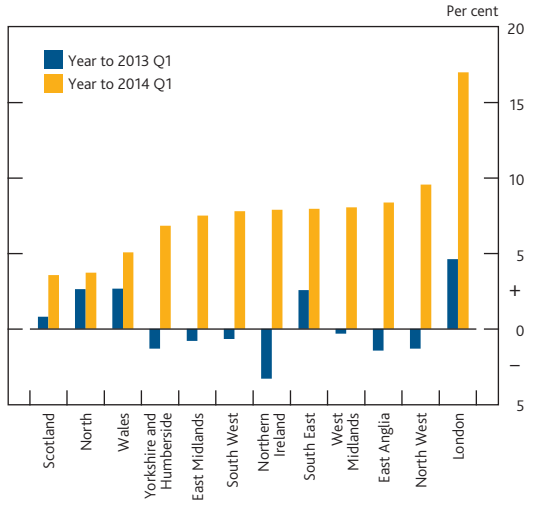


Sources: Bloomberg, BofA Merrill Lynch Global Research, Thomson Reuters Datastream and Bank calculations.

(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, by decomposing 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.

Chart 5.6 House price inflation has increased in all areas of the United Kingdom during the past year

Annual house price inflation



Sources: Halifax, Nationwide and Bank calculations.

through the wider financial system if the recent narrowing of market liquidity risk premia were to unwind.

More pronounced adjustments in asset prices and volatility would arise in the event of a more fundamental shift in risk appetite or in perceptions of risk. Potential tail risks that could trigger a more marked adjustment include:

- an escalation of geopolitical tensions or other event risk;
- increased concerns about growth in private indebtedness in China, which is increasingly financed from outside the traditional banking sector;
- a sharp current account and exchange rate adjustment in the United Kingdom, as modelled in the Bank's stress-test scenario; and
- a sharp decline in confidence in the ability of authorities to achieve the rebalancing and adjustments required in the euro area.

5.2 Risks to financial stability from the UK housing and mortgage market

Recent developments

Recent developments in house prices, activity and mortgage lending are discussed in Section 2.1 of this *Report*. In the Committee's view, the key developments were:

- A strong recovery over the past year in the UK housing market supported by the improved economic outlook and easier credit conditions.

- An ongoing gap between the rate of house building and growth in demand: in 2013 private housing completions in the United Kingdom were 110,000, well below projections of household formation, based on population and demographic trends, of around a quarter of a million a year.

- House prices growing well in excess of earnings, with pronounced rises in London and signs of a broadening to other parts of the United Kingdom (**Chart 5.6**).

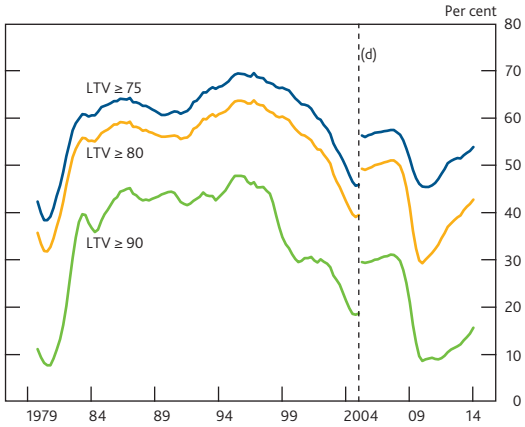
- A recent fall in mortgage approvals and housing transactions, most probably reflecting both a shortage of residential properties coming onto the market and delays associated with operational requirements arising from the introduction of the Mortgage Market Review (MMR), rather than a weakening in demand.

- A modest increase in new lending at higher loan to value (LTV) ratios (**Chart 5.7**), supported by the Help to Buy mortgage guarantee scheme, and a broader increase in the number of high LTV products on the market.

- Sustained increases in the share of mortgages extended at higher loan to income (LTI) multiples to above pre-crisis peaks (**Chart 5.8**).

Chart 5.7 New mortgage lending at high LTV ratios has risen modestly

New mortgages advanced for house purchase by LTV[(a)(b)(c)]

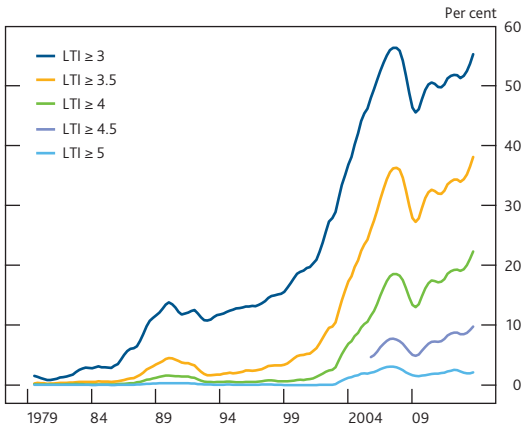


Sources: Council of Mortgage Lenders (CML), FCA Product Sales Data (PSD) and Bank calculations.

(a) Data are shown as a four-quarter moving average to remove seasonal patterns.
(b) Includes loans to first-time buyers, council/registered social tenants exercising their right to buy and homemovers.
(c) The FCA 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.
(d) Data from the FCA PSD are only available since 2005 Q2. Before 2005 Q1, data are from the discontinued Survey of Mortgage Lenders (SML), which was operated by the CML. These data are not directly comparable and shares are illustrative prior to 2005 Q2. SML data covered only around 50% of the mortgage market.

Chart 5.8 The share of new mortgages with LTI multiples above 4.5 has risen to a new peak

New mortgages advanced for house purchase by LTI[(a)(b)]



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

(a) See footnotes to **Chart 5.7**.
(b) Prior to 2005 Q2 the FCA PSD have been grown in line with the SML data.

Risks from the housing and mortgage markets

The FPC is required under its primary objective to identify, monitor, and take action to '*remove or reduce, systemic risks with a view to protecting and enhancing the resilience of the UK financial system*', including, among other risks, systemic risks associated with '*unsustainable levels of leverage, debt or credit growth*'. Subject to achieving that objective, the FPC is required to support the Government's economic policy of '*strong, sustainable and balanced growth*'. Against that background, the FPC is concerned about developments in the housing and mortgage markets for two main reasons.

First, mortgage lending is the single largest asset class on UK banks' balance sheets and so poses direct risks to the resilience of the UK banking system and financial stability (**Chart 5.9**). As such, an increase in distress on mortgage lending has the capacity to lower banks' capital, particularly if associated with sharp falls in house prices that reduce the value of collateral held against such loans. Losses might also increase on related exposures, such as those to the construction and commercial property sector. Pressures on banks could be exacerbated to the extent that they rely heavily on unstable forms of wholesale market funding as they increase mortgage lending, though new liquidity regulation under development is intended to mitigate such risks.

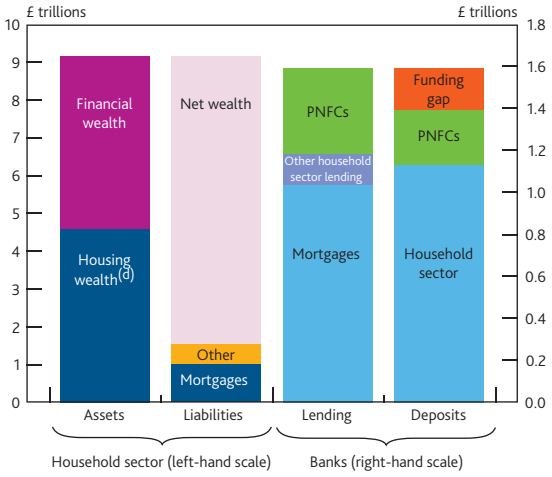
Second, mortgages are the single largest liability on the UK household sector's balance sheet. In the event of a fall in incomes or an increase in interest rates, in order to keep servicing their mortgages, households' initial response may be to cut back on other spending. That would have knock-on effects for the rest of the economy.

International empirical evidence (IMF (2012))[(1)] suggests a strong link between rapid and widespread increases in household debt — particularly those associated with housing booms — and financial crises. In the United Kingdom more heavily indebted households tended to consume a higher proportion of their income pre-crisis, and subsequently cut spending by more during the recession, than did less indebted households (**Chart 5.10**). As discussed in Section 2, the latest NMG Consulting survey indicates that if interest rates were to rise by 3 percentage points, and incomes remained unchanged, nearly 20% of households with mortgages would have to curtail significantly their spending or seek to earn more. Among those households with mortgages greater than or equal to 4.5 times income, the proportion that would need to act rises to around 50% (**Chart 5.11**).

(1) IMF (2012), *World Economic Outlook*, Chapter 3, April, available at www.imf.org/external/pubs/ft/weo/2012/01/pdf/c3.pdf.

Chart 5.9 Housing is central to UK private balance sheets

Stylised balance sheets of UK households and banks, end-2012[(a)(b)(c)]

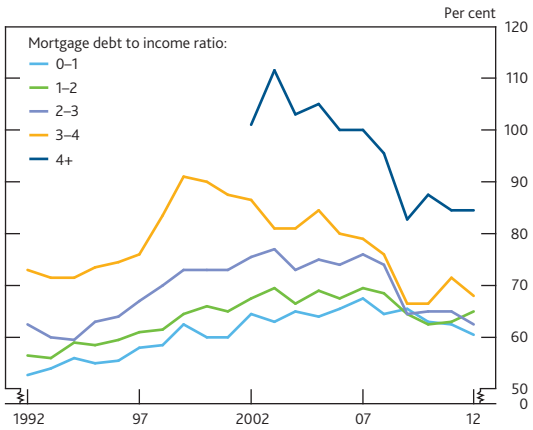


Sources: Bank of England, ONS and Bank calculations.

(a) These are stylised balance sheets based on end-2012 data (latest available) and for sterling only.
(b) The household sector is composed of households and non-profit institutions serving households (NPISH).
(c) Banks' balance sheets are constructed using data on monetary financial institutions, which includes banks and building societies.
(d) 'Housing wealth' is estimated from households' non-financial assets.

Chart 5.10 Households with higher debt to income ratios cut spending by more in the crisis

UK mortgagors' non-housing consumption as a share of income by debt to income ratio group[(a)]



Sources: Department of Communities and Local Government, Living Costs and Food Survey, ONS and Bank calculations.

(a) Data for 4+ not shown before 2002 as they are erratic and are based on a small sample. Non-housing consumption as a share of income net of mortgage interest payments. Data are scaled so that the total matches the National Accounts. Debt to income is calculated using secured debt only.

FPC assessment of the actions needed to mitigate risks from the housing market

At its June meeting, the FPC assessed the risks posed through these channels and the need for policy action.

Direct risks to UK banks' resilience

The resilience of UK banks and building societies to potential losses from mortgage lending and related sectors depends on lenders having sufficient loss-absorbing capital to cover both existing exposures and new lending.

As set out above, the capital adequacy of UK banks has improved over the past year. Furthermore, the Bank will undertake a full assessment of credit risks to major UK banks and building societies emanating from the housing market as part of the 2014 UK banking system stress test. This test includes a marked increase in short-term interest rates, a very sharp fall in UK house prices and an increase in the unemployment rate (Box 2 in Section 1). In light of the results of this test, which will be completed towards the end of 2014, the FPC and the PRA will consider what further action, if any, is needed to bolster banks' capital.

In terms of risks to funding resilience, the major UK banks' customer funding gaps are generally relatively small, so the banking system is not particularly reliant on wholesale funding for the extension of credit. UK banks' stated plans are broadly to maintain this position, while the planned introduction of international liquidity standards should provide further protection. But in the run-up to the recent crisis, large increases in household lending were associated with a widening of this funding gap. The FPC will therefore continue to monitor closely UK banks' wholesale funding positions and, in particular, their reliance on short-term wholesale funding.

Risks from UK household indebtedness

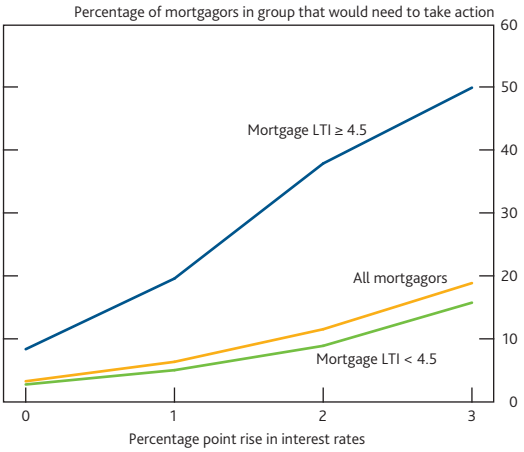
In aggregate, the household sector remains vulnerable to shocks. While the aggregate debt to income ratio of the UK household sector has fallen from its pre-crisis peak and is now at similar levels to 2004, it remains high relative to the 1990s. And the share of lending at higher LTI multiples on new lending for owner-occupier house purchase has increased in recent years (**Chart 5.8**). In the four quarters to 2014 Q1, around 10% of lending for house purchase was extended at an LTI at or above four and a half times income; this compares to 6.5% in the immediate pre-crisis period, 2005–07.

Continued growth in housing activity and sustained increases in house prices relative to incomes would be likely to lead to further increases in the share of mortgages advanced at higher LTI multiples, increasing the proportion of highly indebted households.

The future path for the housing market is uncertain. The MPC has noted that forward-looking surveys suggest that recent

Chart 5.11 Households with high mortgage debt to income ratios are more likely to need to take action if interest rates rose

Percentage of mortgagors that would need to take action if interest rates rose, by mortgage debt to income group[a]

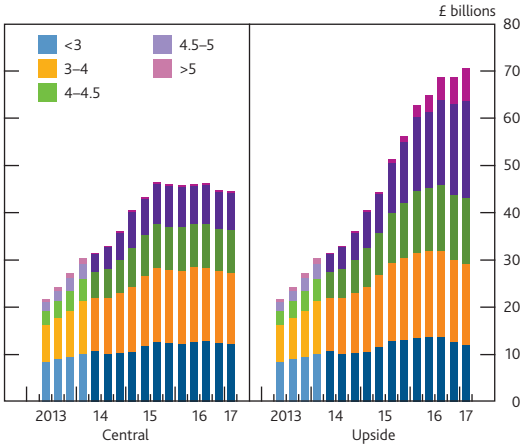


Sources: Bank of England, NMG Consulting and Bank calculations.

(a) The NMG Consulting survey asks households how much of their monthly income is left after tax, National Insurance, housing costs (eg rent, mortgage repayments, council tax), loan repayments (eg personal loans, credit cards) and bills (eg electricity). The chart estimates, for each group of mortgagors based on loan to income ratios, the percentage of households with mortgage debt in the group that would have to curtail significantly their spending or seek to earn more, after making higher interest payments on their secured and unsecured debt. The calculations do not account for the effect of fixed rates of interest on some loans.

Chart 5.12 Projected gross lending by LTI

Gross lending by LTI under two alternative scenarios[a][b][c][d]



Sources: FCA Product Sales Data and Bank calculations.

(a) Uses data consistent with **Chart 2.9**.
(b) Seasonally adjusted.
(c) First four quarters show actual distribution; projections from 2014 Q2.
(d) Appendix A of Section 3 of *PRA Consultation Paper CP11/14* contains details of the loan-level modelling of the scenarios.

rates of house price increases will continue in the near term but, further ahead, it has assumed that house price inflation will fall back to rise broadly in line with nominal incomes at around 4% per year. Under this central scenario, mortgage lending for house purchase would pick up from around £30 billion to around £45 billion a quarter by mid-2015 (**Chart 5.12**). The FPC estimates that, under such a central scenario, the share of lending at LTI multiples at or above 4.5 times income would increase from around 10% to 15%. But as well as this central view, there is a risk that housing activity could grow more rapidly and house prices could increase faster relative to earnings than expected over the next few years. In that case, the proportion of lending at higher LTI multiples would be likely to increase sharply.

LTI ratios are only a proxy for the potential difficulties borrowers may face in meeting their mortgage obligations, or the extent to which other expenditure would be squeezed if mortgage costs rose. Debt-servicing ratios (DSRs) — the share of income required to meet monthly mortgage payments — provide an alternative indicator by taking into account the prevailing interest rate and tenor of the mortgage. As discussed in Section 2, relative to the increase seen in high LTI lending, DSRs have remained relatively low. This is due primarily to the current low interest rate environment. But they would rise sharply if mortgage rates were to increase significantly (**Table 5.A**). In the four quarters to 2014 Q1, the proportion of mortgages extended with DSRs at or above 35% was 2%. But if mortgage rates were to increase to 7%, this figure would rise to 21%. As an approximate guide, at a mortgage rate of 7%, DSRs in the range of 35%–40% are roughly equivalent to LTI ratios of around 4.25–4.75 for a 25-year mortgage, and 4.5–5 for a 30-year mortgage.

There is evidence to suggest that, even in the stable economic period preceding the financial crisis, UK households with gross DSRs (ie before tax) in excess of around 40% were more likely to experience payment difficulties. International comparisons suggest a similar relationship between arrears and DSRs. In more volatile periods, such as the early 1990s, payment difficulties arose at much lower DSRs (**Chart 5.13**).

The increased share of borrowers with higher LTI multiples predates the implementation of the Mortgage Market Review (MMR) — a new policy introduced by the FCA that should embed higher mortgage underwriting standards. The MMR imposes a degree of constraint on the DSRs allowed by lenders. Under the MMR's affordability test requirement, lenders must assess the ability of borrowers to meet their mortgage payments over a five-year period, not just at current mortgage rates but also with reference to expected future levels based on market expectations. Following an earlier FPC recommendation, in May of this year the FCA amended its MMR rules so that lenders must also 'have regard' to FPC

Table 5.A An increase in mortgage rates would significantly increase DSRs

Percentage of borrowers crossing gross DSR thresholds on alternative mortgage rates[a]

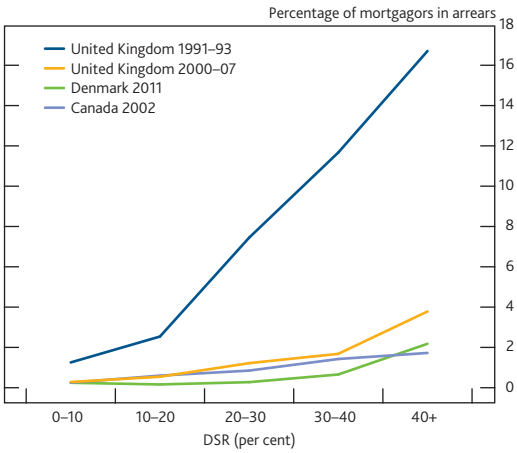
	2013 Q2–2014 Q1	At 7%
DSR ≥ 30%	5%	42%
DSR ≥ 35%	2%	21%
DSR ≥ 40%	1%	7%
DSR ≥ 45%	1%	2%

Sources: FCA Product Sales Data and Bank calculations.

(a) Debt-servicing ratio (DSR) defined as mortgage payment as a percentage of gross income. For DSR over the period 2013 Q2–2014 Q1, mortgage payment is computed using actual mortgage rates at origination and actual mortgage terms. The stressed DSR is computed assuming a 7% mortgage rate and actual mortgage term. All mortgages with known interest rate are included.

Chart 5.13 Mortgages with higher debt-servicing ratios have been associated with more payment difficulties

Mortgage arrears and DSRs[a][b][c]



Sources: Bank of Canada, British Household Panel Survey (BHPS), Danmarks Nationalbank and Bank calculations.

(a) Bank of Canada probability of mortgage debt delinquency, by DSR bucket, aggregated up from 5 basis points buckets to 10 basis points by taking a simple average (Chart A1 in *Bank of Canada Review*, Summer 2008). Arrears defined as being two or more months behind on mortgage loan payments. Calculation of DSR uses gross income.
(b) Danmarks Nationalbank probability of default constructed from Table 3 and Chart 9 in 'Danish families in mortgage arrears', *Monetary Review*, 2013 Q3 — Part 2. Arrears defined as being 105 days or more behind on payments exceeding 1,000DKK for the June instalment in 2011. Calculation of DSR uses both mortgage and other debt, and income net of tax.
(c) UK DSR calculation uses BHPS mortgage repayment data and gross income. Arrears defined as being more than two months behind on housing payments.

guidance on the appropriate interest rate stress to use in assessing affordability.

Market contacts suggest that, in their affordability tests, most major lenders have been using an interest rate of around 7%, compared with current SVRs largely in the region of 4%–4½%. This implies a 'stress' of 2½ to 3 percentage points, which compares to an increase implied by current market expectations of around 2¼ percentage points.

In current circumstances, this level of stress seems prudent. In order to prevent any relaxation in these standards, the FPC decided at its June meeting to recommend that all mortgage lenders should assess whether borrowers could still afford their mortgages if, at any point over the first five years of the loan, Bank Rate were to be 3 percentage points higher than the prevailing rate at origination of the loan.

Given that this level appears to be broadly in line with current practice by most major lenders, the FPC expects the incremental impact of this guidance on mortgage lending to be relatively small. But the FPC expects that this step should help to reinforce prudent standards currently used by most major institutions. Box 5 provides more detail on the FPC's assessment of the impact of this action.

Recommendation 1

When assessing affordability, mortgage lenders should apply an interest rate stress test that assesses whether borrowers could still afford their mortgages if, at any point over the first five years of the loan, Bank Rate were to be 3 percentage points higher than the prevailing rate at origination. This recommendation is intended to be read together with the FCA requirements around considering the effect of future interest rate rises as set out in MCOB 11.6.18(2).[1]

This is a stress test not a forecast for Bank Rate. The FCA has said it will monitor how firms have regard to this recommendation.

Robust affordability tests as part of the MMR can discourage an increase of borrowers with extreme levels of indebtedness. But, as discussed above, recently there has been an increase in the proportion of new loans being extended at high income multiples, but which would still be permissible under the MMR rules. While lenders expect that these borrowers are likely to be able to continue servicing their mortgages as interest rates rise, payments would become an increasingly large proportion of their income. That could make these borrowers, and the economy as a whole, more vulnerable to adverse shocks.

(1) The Mortgages and Home Finance: Conduct of Business sourcebook (MCOB) 11.6.18(2) states that in coming to a view as to likely future interest rates, a mortgage lender must have regard to market expectations and any prevailing FPC recommendation on appropriate interest rate stress tests.

Box 5
Assessing the impact of the FPC's recommendations on the mortgage market

As described in Section 5, the FPC has provided guidance to lenders on the interest rate stress test to use in assessing mortgage affordability as part of the FCA's Mortgage Market Review (MMR) and recommended to the PRA and FCA the introduction of a limit on the share of very high loan to income (LTI) mortgages in new lending. The aim of the policy package is to limit the risks to economic and financial stability from excessive household indebtedness. This box summarises the FPC's analysis of the likely impact of the package, including an assessment of its costs and benefits.

The FPC's recommendations are designed and calibrated to provide insurance against a marked loosening in underwriting standards and a further significant increase in the number of very highly indebted households. These measures are not expected to have a material impact on mortgage lending and housing transactions in the near term. Indeed in a scenario — consistent with the MPC's central projection — where in the near term annual house price inflation remains at high levels and mortgage approvals pick up, but further ahead house price inflation moderates and mortgage approvals level off, the impacts of the FPC's policy measures are likely to be minimal. But the policy measures guard against the risk of a build-up of excessive household indebtedness if the underlying strength in the housing market turns out to be greater than expected. In doing so, they help to ensure the sustainability of the expansion over the medium term.

Affordability test
What action is the FPC recommending?
The FPC recommends that when assessing affordability, mortgage lenders should apply an interest rate stress test that assesses whether borrowers could still afford their mortgages if, at any point over the first five years of the loan, Bank Rate were to be 3 percentage points higher than the prevailing rate at origination.

This recommendation is intended to be read together with the FCA requirements around considering the effect of future interest rate rises as set out in MCOB 11.6.18(2).[1]

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.

What is its expected impact on the mortgage market?
This recommendation is formulated with a view to reinforcing prudent standards currently practiced by most major lenders. The MMR requires lenders to take account of possible future increases in interest rates in assessing affordability. In considering the appropriate interest rate stress test to use, lenders must currently reference market expectations, subject to that implying an increase in interest rates of at least 1%. The increase in interest rates over five years implied by the three-month forward overnight index swap curve is currently around 2¼ percentage points. Market intelligence suggests that most major lenders are currently using stressed mortgage rates of around 7%. This is broadly equivalent to a 2½–3 percentage point 'stress', relative to current standard variable rates, which are largely in the region of 4%–4½% for most major lenders.

Given available information on current market practices by a number of lenders, the FPC expects the incremental impact of applying this recommendation on the volume of mortgage lending to be small, though some individual lenders may need to enhance their current practices to meet this recommendation.

LTI flow limit
What action is the FPC recommending?
The FPC recommends that the PRA and the FCA should ensure that mortgage lenders do not extend more than 15% of their total number of new residential mortgages at LTI ratios at or greater than 4.5. This recommendation applies to all lenders which extend residential mortgage lending in excess of £100 million per annum. The recommendation should be implemented as soon as is practicable.

The FPC considered that the recommendation would not prejudice the advancement by the PRA of its objectives and the FCA of its operational objectives, and does not affect the United Kingdom's international obligations.

What is its expected impact on the mortgage market?
The FPC's recommendation is calibrated to provide insurance against a significant increase in lending at very high LTI multiples.

As set out in Section 5, the FPC's policy judgement has been informed by a range of analysis. While the future path for the housing market is uncertain, in order to provide some quantitative assessment, the FPC considered estimates of the impact of its action against two alternative scenarios — a central view and an upside housing scenario. The scenarios are used to illustrate how the housing and mortgage markets might evolve, including the resulting effect on the distribution and overall level of household indebtedness.

The scenarios

The **central view** consistent with the MPC's central projection for developments in the housing and mortgage market in the May 2014 *Inflation Report*, assumes that:

- annual house price inflation continues at current levels until mid-2015, following which it slows to a growth rate that is broadly in line with income from 2016;
- income grows near its average rate over the past fifteen years of around 4%; and
- by the second quarter of 2015, total mortgage approvals pick up to an average level of 270,000 per quarter for the remainder of the scenario period — slightly below their 1987–2007 average.

The **upside housing scenario** is intended to consider how risks might evolve if momentum in the housing market continues to build — similar to patterns seen in the UK housing market in the early 2000s. In this scenario, mortgage approvals rise quickly to 350,000 per quarter and annual house price inflation rises to around 15% — similar to rates of house price inflation in the early 2000s.

These aggregate scenarios for the housing and mortgage markets are used to model how the underlying distribution of lending might evolve in the three-year period, 2014 Q2–2017 Q1.

Table 1 shows estimates of the increase in total lending and very high LTI lending in these scenarios, assuming a continuation of recent patterns of behaviour by lenders and borrowers.(2) The proportion of lending at higher LTI multiples increases under the central view, and increases further in the upside scenario (**Chart 5.12**).

Table 1 Summary of central view and upside housing scenario — 2014 Q2–2017 Q1(a)

Cumulative 2014 Q2–2017 Q1	Central	Upside	Memo: 2003–05
Rise in house prices	20%	45%	39%
Mortgage approvals (millions)(b)	3.0	3.5	3.8
Net secured lending(c)	15%	25%	35%
Share of mortgages with LTI at or above 4.5(d)	15%	25%	5%(e)
Change in GDP relative to central view(f)	n.a.	0.2%	n.a.

Sources: Bank of England, FCA Product Sales Data, Halifax, Nationwide, ONS and Bank calculations.

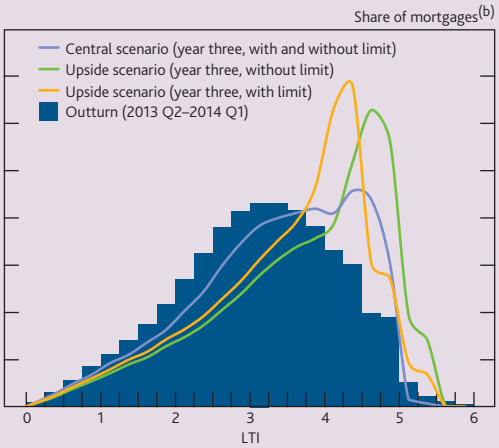
(a) All numbers in the table relating to the projections have been rounded to reflect modelling uncertainty.
(b) All approvals for house purchase, including buy-to-let.
(c) As a share of the stock of secured lending to households in 2014 Q1.
(d) Mortgage lending includes loans to first-time buyers and homemovers, for mortgage contracts only. It excludes other regulated mortgage products such as home purchase plans and home reversions, and unregulated products such as second charge lending and buy-to-let mortgages.
(e) Share of mortgages advanced in 2005 with an LTI at or above 4.5.
(f) The impact on GDP is estimated using an empirical mapping between the estimated impact on net lending, which is translated into an impact on the cost of credit for households, household consumption, and GDP (see *Bank of England Working Paper No. 442*, available at www.bankofengland.co.uk/research/Documents/workingpapers/2012/wp442.pdf; and the box on pages 20–21 of the November 2013 *Inflation Report*, available at www.bankofengland.co.uk/publications/Documents/inflationreport/2013/ir13nov.pdf). Change is relative to central forecast at end of period.

Impact of the LTI flow limit on the distribution of LTI multiples and mortgage lending

The impact of the limit on the distribution of LTIs is assessed on the basis of current market practices for judging affordability of mortgages. That is consistent with lenders testing affordability at higher interest rates broadly in line with the FPC's recommendation on affordability. Hence, the following illustrations provide a metric for the impact of the policy package as a whole.

If house prices and mortgage approvals grow in line with the central view, the impacts of the policy actions are likely to be minimal, including on the projected distribution of LTIs. In contrast, the LTI recommendation is expected to affect the distribution of LTIs on the flow of new lending in the upside housing scenario (**Chart A**). In practice, the precise impact will depend on how lenders and borrowers treat mortgage applications that fall beyond the flow limit.

Chart A Illustrative impact of LTI flow limit on distribution of mortgages advanced in year 3 of the central and upside scenarios(a)



Sources: FCA Product Sales Data and Bank calculations.

(a) See footnotes for **Chart 5.12**.
(b) Height of lines indicate frequency of population at given LTI. Area under each curve sums to 100%.

The policy measures are consistent with providing insurance against the possibility that the underlying strength in the housing market turns out to be greater than expected. Relative to the upside scenario, the share of lending at or above 4.5 times income is reduced — from 25% to 15% (**Tables 1 and 2**).

Table 2 Estimated impact of the FPC's recommendation to impose an LTI flow limit relative to alternative scenarios in Table 1(a)(b)

Cumulative impact 2014 Q2–2017 Q1	Relative to central view	Relative to upside scenario
Rise in house prices	0	-5 percentage points
Mortgage approvals	0	-0.2 million
Net secured lending	0	-2.5 percentage points
Share of mortgages with LTI at or above 4.5	0	-10 percentage points
Change in GDP	0	-0.25%

Source: Bank calculations.

(a) Estimates are shown as changes relative to numbers provided in **Table 1** for each scenario. Footnotes to **Table 1** also apply here.
(b) Both the central view and upside housing scenarios are consistent with current market practices around assessing affordability, and the FPC's recommendation on the appropriate interest rate stress to use in assessing affordability, being applied by lenders in the three-year scenario horizon. Therefore, no incremental impact of this action is shown here.

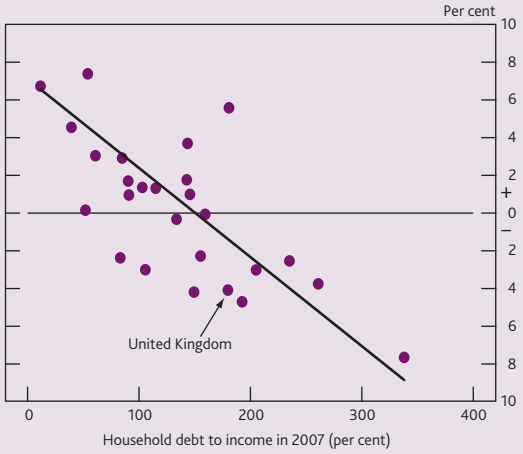
Benefits and costs of the policy package

The aim of the policy package is to insure against risks to economic and financial stability from excessive household indebtedness, consistent with the FPC's statutory objectives. Moreover, by acting at this stage, the FPC recommendations can reinforce existing protections against an erosion in lending standards in a strengthening housing market, and so also help to protect directly the resilience of banks' balance sheets.

As described in Section 5, increased household indebtedness may be associated with a higher probability of household distress, which can cause a sharp fall in consumer spending. This arises from the fact that households with the highest debt to income ratios tend to spend a greater proportion of their income on consumption than less indebted households. That was seen clearly during the recent financial crisis, with the share of income attributed to consumption falling sharply for households with higher debt to income ratios (**Chart 5.10**). There is also evidence internationally that higher household debt to income ratios were associated with larger falls in consumption (**Chart B**).

Chart B Higher household indebtedness was associated with sharper falls in consumption during the crisis

Adjusted consumption growth over 2007–12[(a)]



Sources: Flodén, M (2014), 'Did household debt matter in the Great Recession?' and OECD National Accounts.

(a) Change in consumption is adjusted for the pre-crisis change in total debt, the level of total debt and the current account balance. See www.martinfloden.net.

Falls in consumption can in turn weigh on wider economic activity. Furthermore, rapid growth in aggregate credit — which could be associated with a sharp increase in highly indebted households — is strongly associated with subsequent economic instability and the risk of financial crisis (IMF (2012) and Jordà, Schularick and Taylor (2013)).[(3)]

In the upside housing scenario, the policy package may dampen economic growth in the near term slightly (**Table 2**). But by guarding against a build-up in household debt the policy package aims to ensure that households can contribute to a durable expansion, and so should support stronger, sustainable growth further out.

Without policy action, the risk of excessive household indebtedness is material. The policy package is targeted to mitigate this risk in a prudent and proportionate fashion. It focuses on lending which causes the largest adverse risks for the economy — very high LTI loans — without providing a strict cap. It comes at limited cost.

What are the likely other impacts of this policy?

In the central case, the likely impact of this policy is minimal. To the extent that the upside scenario materialises and the policy begins to act as a restraint, the precise distributional impact would depend on the behaviour of lenders. It is possible that some potential borrowers would be more affected than others. In particular, those buying more expensive houses and houses in London and the South East and South West and, at the margin, first-time buyers have a greater reliance on high LTI borrowing. In the four quarters to March 2014, 20% of lending in London was at LTIs at or above 4.5, as was 12% of lending to first-time buyers for house purchase. That compares to 10% of overall mortgage lending for house purchase.

In addition, lenders may elect to focus their share of high LTI mortgage lending towards higher-value transactions. The FPC, with the PRA, will monitor such developments and take action accordingly.

It is also possible that, in the context of an upside scenario, activity is displaced to the buy-to-let market. Buy-to-let lending poses different risks to financial stability. Its consequences for bank resilience will be covered in the forthcoming stress tests. And the FPC will remain vigilant to developments in this market.

(1) http://fshandbook.info/FS/html/FCA/MCOB/11/6.
(2) The loan distribution has been modelled as explained in the Appendix in *PRA Consultation Paper 11/14*, 'Implementing the Financial Policy Committee's recommendation on loan to income ratios in mortgage lending', June 2014.
(3) IMF (2012), *World Economic Outlook*, Chapter 3, April, available at www.imf.org/external/pubs/ft/weo/2012/01/pdf/c3.pdf; Jordà, Ò, Schularick, M and Taylor, A (2013), 'When credit bites back', *Journal of Money, Credit and Banking*, Vol. 45, Issue S2, pages 3–28.

Box 6
International experience with macroprudential mortgage product instruments

In recent years there has been increasing use of macroprudential policies to reduce risks associated with the provision of mortgage debt. Instruments used have included various limits on loan to value (LTV) ratios, loan or debt to income (L/DTI) ratios, debt-servicing ratios (DSRs) and loan tenors.(1) A range of national authorities have deployed such policies: an IMF survey of 42 countries found that more than one third had implemented product tools on mortgages, including two thirds of EU countries.(2) **Table 1** sets out some examples of the use of such instruments.

Objectives and design features

The IMF survey suggests that macroprudential mortgage product instruments have most frequently been used to tackle risks from household overindebtedness. These risks include direct losses on mortgage lending in the event of a shock but also losses on lending more broadly as a result of reduced consumption and economic activity. Some authorities have used product instruments to mitigate the risks associated with an easing of lending standards during booms, or to reduce speculative activity and overheating in particular market segments. A few countries have noted the potential for these policies to reduce the sensitivity of bank loan losses to changes in house prices.

The choice of, and in some cases combination of, instruments deployed has varied across countries, depending on the source of risk that the authorities have been seeking to control.

Both LTV and L/DTI limits have been used, often in combination, to mitigate risks from household indebtedness, albeit from different angles. LTV limits lower the likelihood that borrowers will get into negative equity, where the value of a property falls below the value of the original mortgage loan. L/DTI and DSR limits seek to reduce risks associated with changes in affordability and the volatility of spending. From the perspective of bank resilience, LTV limits help lower bank losses in the case of a mortgage default while L/DTI and DSR limits can reduce the probability of default.

Several countries, particularly in South East Asia, have placed limits on the total exposure individual banks may have to the property sector. New Zealand recently introduced a 'speed limit' policy, to restrict the proportion of new mortgage loans that banks can make at high LTV ratios.

The application of these policies can be temporary or permanent. Permanent caps give certainty to consumers and provide ongoing insurance against future risk. In other cases, authorities intend to vary the settings of their mortgage product instruments depending on their assessment of the risks.

Examples of mortgage product instruments

New Zealand: In October 2013 the authorities introduced a limit which restricts the proportion of new mortgage lending

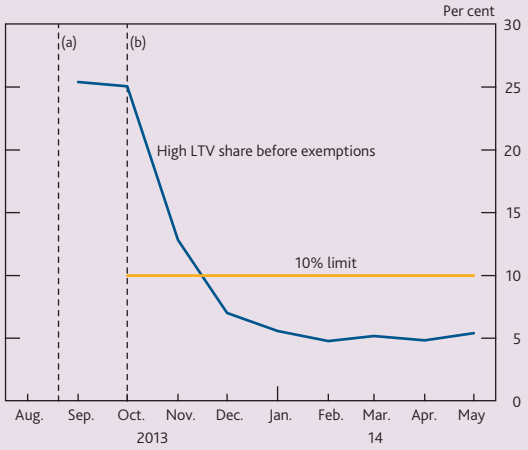
Table 1 Selected macroprudential policies

Country	Action	Motivation	Implementation	Impact
Canada	LTV cap, DSR and loan tenor cap for government-insured mortgages.	Limit household vulnerability and protect the government against losses on mortgages it insures.	Introduced in 2008 but tightened several times since.	Dampened growth in household debt.
Hong Kong	Multiple LTV limits, applied cyclically. DSR limit includes an interest rate stress.	Reduce borrower defaults on mortgages and bank vulnerability to a house price shock.	Multiple limits, differentiated by property value. Frequently co-ordinated with fiscal measures.	Low defaults compared to international levels, and defaults are less sensitive to house price fluctuations.
Israel	Limiting variable interest rate component, LTV limit, DSR limit, maximum term limit, increased capital requirements.	Reducing bank losses in the event of a housing or economic downturn, by restricting the supply of risky mortgages.	Taken measures while both loosening and tightening monetary policy.	Considerable reduction in the proportion of high-risk loans. No reduction in house price increases or mortgage expansion.
New Zealand	Only 10% of new loans may be at 80% LTV or above.	Strengthen household and bank balance sheets and reduce the impact of future interest rate increases on debt-servicing ability.	Close supervision to ensure compliance with 'spirit of regulation'. A few exceptions for desirable lending (eg construction lending).	High LTV lending is now well below the 10% limit. Fall in new housing loan approvals and house sales.
Norway	Guidelines on LTV, stressed DSR and LTI limits.	Address high household debt, including risk of spillovers to corporate loans.	These are guidelines to banks, rather than strict limits.	Evidence that lending standards tightened but household debt remains high.
South Korea	LTV and DTI limits. Banks have targets to increase the proportion of fixed interest rate loans.	To reduce cyclicality in the mortgage market and reduce speculative purchases; and to reduce risks from household indebtedness.	LTV and DTI limits are differentiated by area, property value and tenor of the loan. Regulations expanded to cover non-banks following leakages.	Prevented defaults as house prices fell from 2008. Expectations of housing as a speculative asset are said to have decreased.

Sources: Bank of Canada *Financial System Review* (June 2013); Hong Kong Monetary Authority (2011), 'Loan-to-value ratio as a macroprudential tool — Hong Kong's experience and cross-country evidence', *HKMA Working Paper No. 01/2011*; Igan, D and Kang, H (2011), 'Do loan-to-value and debt-to-income limits work? Evidence from Korea', *IMF Working Paper No. 11/297*; Israel Article IV (2014); Norges Bank *Financial Stability Report* (2010); and Rogers, L (2014), 'An A to Z of loan-to-value ratio (LVR) restrictions', Reserve Bank of New Zealand *Bulletin*, Vol. 77, No. 1, pages 3–14.

above 80% LTV to 10% of a bank's total mortgage lending by value. The authorities were concerned that strong house price growth had increased the vulnerability of banks and borrowers to a possible house price fall, particularly as household indebtedness was already near record highs. Prior to the introduction of this policy, the proportion of new mortgage lending above 80% LTV had been around 25%. Following implementation, this proportion fell sharply (**Chart A**), with lending significantly below the limit, partly due to much lower use of exemptions than expected, and potentially large sanctions for breaching the limit.(3) The authorities expect the risk of avoidance to be mitigated by the approach of allowing some high LTV lending to continue.

Chart A New Zealand: new lending at above 80% LTV before and after the speed limit



Source: Reserve Bank of New Zealand.

(a) 20 August — 10% limit was announced.
(b) 1 October — 10% limit was implemented.

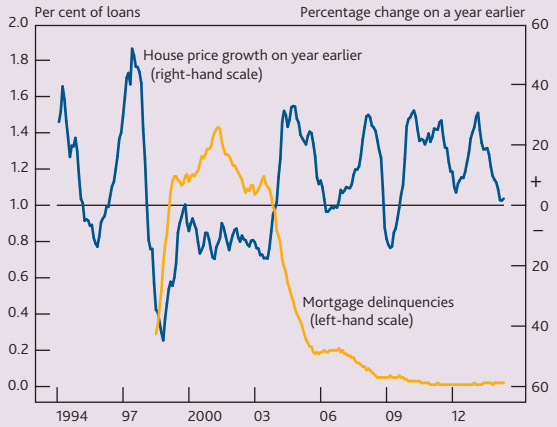
While the authorities have noted that it will be some months before the impact can be reliably estimated, house sales, new house loan approvals and house price expectations appear to be softening. Banks have tended to increase the price of lending above the 80% LTV limit and decreased the price of lending below it. Initial estimates suggest that the price of lending above 80% LTV is 1 percentage point higher than lending at below 80% LTV.

Norway: In March 2010 Finanstilsynet (the Norwegian bank supervisor) issued guidelines for mortgage lending. These included limits on LTI multiples (3 times) and on stressed debt-servicing capacity (after an interest rate increase of at least 500 basis points) as well as a maximum LTV ratio (90%, since changed to 85%). These measures were motivated by concerns about increasing household debt burdens, and the potential wider economic impact of a future reduction in household demand. The policies were designed to insure against future risks as the prevailing low interest rate environment meant that households' capacity to service debt was strong at the time. There were indications that banks changed their internal lending policies and reduced high-risk lending as a result of the policy. Since then, Norges Bank has also activated the countercyclical capital buffer, citing high house price to income ratios as a factor, and Finanstilsynet has increased the loss given default floor on residential mortgages, effectively raising some risk weights.

Israel: Since 2009 Israel has introduced a number of policy measures including limiting the variable-rate component of loans, limiting LTV, DSR and maximum term and also changing capital requirements for a subset of housing loans. These measures have been aimed at increasing bank resilience in the event of a downturn, limiting risky loans and reducing the sensitivity to interest rate increases. The policies appear to have had success in reducing the risks to the financial system as high LTV and high DSR loans have fallen considerably, though house prices have continued to increase.

Hong Kong: LTV caps are a long-standing policy instrument in Hong Kong. The cap was reduced to 70% in 1991 and left largely unchanged, for most properties, until 2009. In recent years, the authorities have tightened the policy several times in response to emerging risks, differentiating the use of the instrument across particular segments of the market: residential LTV limits range from 30% when borrower income is derived from abroad to 70% for lower-value properties. The authorities have also introduced DSRs, including an interest rate stress — which has since been tightened — and maximum tenors for borrowing.(4) The motivation of these policies has been primarily to reduce the sensitivity of delinquency rates to house price fluctuations. This appears to have been successful; mortgage delinquencies have remained very low by international standards, despite large swings in property prices, including during the Asian financial crisis, and they did not rise in the years following the global financial crisis (**Chart B**).

Chart B Hong Kong: house prices and residential mortgage delinquencies(a)



Sources: BIS Residential Property Price database www.bis.org/statistics/pp.htm, Hong Kong Monetary Authority, national sources and Bank calculations.

(a) The fall in delinquencies in the mid-2000s likely reflects an improving macroeconomic situation rather than being attributable to any policy change.

Effectiveness and lessons learned

These policy measures appear to have typically reduced risk in the financial system and made it more resilient to shocks. In particular, low LTV ratios have helped to reduce the fall in property prices after a housing bust and have lowered bank loan losses and mortgage defaults.(5)

Although mortgage product instruments have not typically been aimed directly at house price growth, there is some evidence of a *modest* effect on house price growth, with a lag of about a year.(6)

Experience suggests, however, that there can sometimes be unintended consequences associated with the implementation of such policies. For example, the Canadian authorities initially had a three-month lag between policy announcement and implementation — this led to a bringing forward of housing transactions to avoid the restrictions; the policy implementation lag has subsequently been reduced to two weeks. The Reserve Bank of New Zealand had a six-week gap between announcement and implementation but did not see pre-emptive lending activity. They attribute this to the setting of clear supervisory expectations of compliance with the spirit of the measure.

Another unintended impact of product instruments has been leakages into other sectors or types of lending, as borrowers seek to avoid the measures. One example has been households supplementing mortgages with an unsecured loan. While leakage is usually small, unchecked it can be significant: in Slovakia banks offered 'other housing loans' to bypass the limits on housing loans, undermining the intent of the policy. In Korea, regulators were cognisant of this risk and therefore expanded the scope of regulation following increasing activity by non-banks. Circumvention and non-compliance has also tended to be less of a problem when exposure limits have been used since they allow some portion of the targeted lending to continue.

(1) Loan to value limits require borrowers to make a minimum down-payment before getting a loan. Debt-servicing ratios limit the repayment on a loan to a certain proportion of a borrower's income. Loan to income (LTI) and debt to income (DTI) limits differ slightly in that DTI limits take into account the borrower's *total* debt, not just the loan in question. DTI limits are more often used internationally; they require good information about a borrower's total debt.
(2) In a few cases this is an 'implicit cap' as the cap applies for mortgages in pools backing covered bonds.
(3) Exemptions average around 1% of new loans compared to projections of 5%.
(4) The interest rate stress was tightened from 200 basis points to 300 basis points on 22 February 2013, as part of a package of tightening measures.
(5) IMF (2011), 'Housing finance and financial stability — back to basics?', *Global Financial Stability Report*, April, and Hong Kong Monetary Authority (2011), 'Loan-to-value ratio as a macroprudential tool — Hong Kong's experience and cross-country evidence', *HKMA Working Paper No. 01/2011*.
(6) Lim, C, Columba, F, Costa, A, Kongsamut, P, Otani, A, Saiyid, M, Wezel, T and Wu, X (2011), 'Macroprudential policy: what instruments and how to use them', *IMF Working Paper No. 11/238*; Ahuja, A and Nabar, M (2011), 'Safeguarding banks and containing property booms: cross-country evidence on macroprudential policies and lessons from Hong Kong SAR', *IMF Working Paper No. 11/284*.

Box 7
The impact of macroprudential policy on monetary policy

The primary objective of the Financial Policy Committee (FPC) is to protect and enhance the resilience of the UK financial system. The primary objective of the Monetary Policy Committee (MPC) is to maintain price stability, as defined by the Government's 2% target for CPI inflation. Both Committees share a common secondary objective to support the economic policies of the Government. Taken together, price and financial stability are necessary conditions for macroeconomic stability in the short and long run.

The assignment of the price stability objective to the MPC and the financial stability objective to the FPC reflects the comparative advantage of the tools that each has at its disposal. Changes in Bank Rate or the stock of asset purchases affect overall spending in the economy through a variety of channels and are thus well suited to the task of stabilising the inflation rate. By the same token, macroprudential policy is likely to be relatively more efficient at maintaining financial stability because the FPC can target its actions more precisely to mitigate risks building in a particular part of the financial system.(1)

Nevertheless, sometimes an action taken by one of the policy committees may affect the appropriate decision of the other policy committee. For instance, if the MPC lowers Bank Rate or purchases assets in order to boost aggregate demand so as to prevent inflation falling below the target, it may also encourage more private borrowing and in some circumstances that could be associated with an increase in the risks to financial stability, requiring countervailing action by the FPC.(2) Similarly, the FPC may introduce measures to discourage excessive borrowing because of financial stability concerns, but in doing so that may reduce aggregate demand and lead inflation to undershoot the target, necessitating compensatory action by the MPC.(3) Because of these potential interactions, each committee is required to have regard for the actions of the other. Some overlap in membership, joint discussions and common briefing by Bank staff also helps to ensure joined-up decision-making.

Macroprudential tools can act in two ways. Some interventions reduce the likelihood of future instability, for instance, by preventing a build-up of debt in the first place. Others, such as increasing banks' capital buffers, make the system more resilient in the face of adverse shocks. Whether it is necessary for the MPC to alter the monetary stance following an FPC intervention will depend on how that intervention affects the outlook for growth and inflation over the MPC's forecasting horizon.(4) It therefore depends both on the specific nature of the policy measure and on its calibration, since that determines the states of the world in which it has a material effect.

Measures designed to improve resilience but which have negligible impact on the outlook for aggregate demand and inflation should not require a change in monetary stance. Likewise, measures that are directed primarily at pre-emptively moderating tail risks but which have little or no impact on aggregate demand in most states of the world are also unlikely to warrant a material change in the stance of monetary policy, which needs to focus on the whole range of outcomes and to give greater weight to those outcomes that are more likely to be realised. But an intervention intended, say, to reduce borrowing in most states of the world is likely to warrant some countervailing action by the MPC.

As explained in the main text, the FPC's actions in respect of the mortgage market should have little macroeconomic impact if house price inflation moderates in the way assumed in the central case of the MPC's May 2014 *Inflation Report*. But the FPC's actions should prevent a build-up of excessive household indebtedness in the event that house price inflation does not moderate. The MPC will assess the impact of the FPC's actions on the appropriate monetary stance at its next meeting on 9–10 July.

(1) For more discussion of the assignment question, as well as on the interaction between monetary and macroprudential policies, see the speech delivered by Charles Bean, 'The future of monetary policy', available at www.bankofengland.co.uk/publications/Documents/speeches/2014/speech729.pdf.
(2) For more details on the ways in which monetary policy can affect financial stability see the box on pages 52–55 of the June 2013 *Financial Stability Report*, available at www.bankofengland.co.uk/publications/Documents/fsr/2013/fsrfull1306.pdf.
(3) For more details on the ways in which macroprudential policy can affect credit conditions and the MPC's projections see the box on pages 16–17 of the May 2013 *Inflation Report*, available at www.bankofengland.co.uk/publications/Documents/inflationreport/2013/ir13may.pdf.
(4) Measures that increase the resilience of the financial system will of course affect the outlook for the economy over longer horizons by reducing the likelihood of future financial instability.

If the recent strength of increases in house prices and activity over the past year were to moderate, consistent with the MPC's central view, then the flow of mortgage lending is likely to lead to only a modest increase in household indebtedness. But should it persist, and the proportion of lending at higher LTIs picked up further, then the risk to household resilience and financial stability would become commensurately greater.

Given uncertainty around the outlook for the housing market, and the risk of an excessive build-up in household debt, at its June meeting the FPC decided that it would take pre-emptive action to insure against the risk of a further significant increase in the proportion of lending extended at very high LTI multiples.

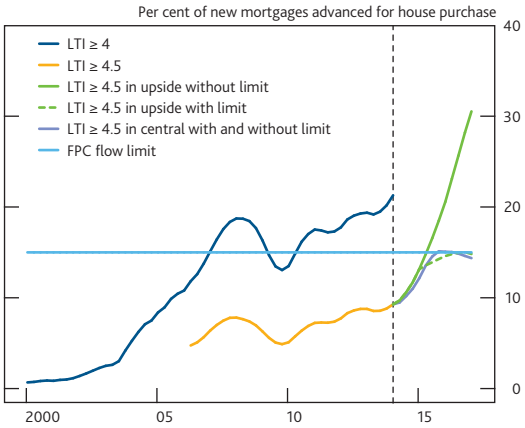
In arriving at this decision, the FPC was mindful that high LTI mortgages can be appropriate for some individuals. The FPC's primary interest though was in ensuring that the proportion of very high LTI lending does not become excessive in aggregate. This is a macroprudential aim: to limit the risks to financial and economic stability arising from a significant increase in the proportion of highly indebted households.

Moreover, by acting at this stage, the FPC can reinforce existing protections against an erosion in lending standards in a strengthening housing market and so also help to protect directly the resilience of banks' balance sheets.

In light of these views, the FPC decided at its June meeting to recommend to the PRA and the FCA that they take steps to ensure that lenders constrain the proportion of new lending at LTI ratios at or above 4.5 to no more than 15% of the volume of new mortgage loans (**Chart 5.14**).

Chart 5.14 The FPC's LTI flow limit under different scenarios

Illustration of FPC recommendation[(a)(b)]



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

(a) Data from the FCA's Product Sales Database (PSD) are only available since 2005 Q2. Data from 1979 to 2005 Q1 are from the discontinued Survey of Mortgage Lenders (SML), which was operated by the CML. The two data sources are not directly comparable. The PSD has a greater sample size as it covers all regulated mortgage lending, but the SML only covered around 50% of the mortgage market.
(b) Data from both sources include loans to first-time buyers, council/registered social tenants exercising their right to buy and homemovers.

Most lenders currently lend within this limit, and are likely to continue to do so, based on developments in the housing market implied by the MPC's central view. As such, this action is designed specifically as insurance against the risk that there is greater momentum in the housing market than currently anticipated and that, as a result, lenders face growing demand for loans at very high LTIs (**Chart 5.14**). The implementation of the FPC's recommendation is unlikely to change the prospect that house prices will continue to rise more quickly than earnings over the coming year — indeed it is not the role of the FPC to seek to control house prices, or to tackle the underlying mismatches between housing supply and demand in the United Kingdom. Rather, the role of the FPC is to guard against risks to financial stability emanating from the housing market. Box 5 summarises the FPC's assessment of the impact of implementing this measure. Box 6 describes experience in using mortgage product instruments in other countries.

Recommendation 2

The PRA and the FCA should ensure that mortgage lenders do not extend more than 15% of their total number of new

residential mortgages at loan to income ratios at or greater than 4.5. This recommendation applies to all lenders which extend residential mortgage lending in excess of £100 million per annum. The recommendation should be implemented as soon as is practicable.

The FPC shared this recommendation with the PRA and the FCA. The PRA Board intends, subject to consultation, to adopt new rules to implement the measure as soon as practicable. In the interim the PRA will expect firms not to act in a way that might undermine the objective of the FPC recommendation.(1) The FCA has indicated that it will implement the measure for affected FCA-regulated firms via general guidance. In addition, as indicated in the Chancellor's Mansion House speech, HM Treasury intends to apply this LTI threshold to all lending under the Help to Buy mortgage guarantee scheme.

The FPC is acting early in a graduated and proportionate way to avoid the need for severe action at some point in the future. The policy will be kept under review and will be adjusted as appropriate as circumstances change.

As set out in Box 7, this package of macroprudential measures is intended to act as a complement to monetary policy by insuring against risks arising in specific sectors.

5.3 Countercyclical capital buffer

In May 2014, the FPC was made responsible by the Government for setting the countercyclical capital buffer (CCB) in the United Kingdom. As set out in Box 8, the CCB is a macroprudential instrument which enables the FPC to put banks in a better position to withstand stress through the financial cycle by requiring them to build capital as threats to financial stability increase and then allows them to run it down if financial stability risks crystallise or ease. The FPC is required by law to set the CCB quarterly.

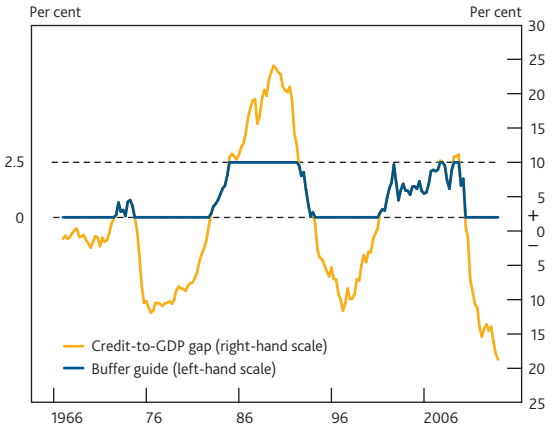
In line with its new responsibilities, the Committee discussed the setting of a UK countercyclical capital buffer for the first time at its June meeting.

As part of its discussions, the Committee considered the so-called 'buffer guide' — a simple metric identified in Basel III and EU legislation, which provides a guide for the CCB rate based on the gap between the ratio of credit to GDP and its long-term trend. Legislation requires the Committee to calculate and consider this guide although there is no simple mechanical link between the guide and the setting of the CCB. As the Committee has stated in its Policy Statement on the CCB, it will use its judgement in setting the CCB, looking beyond the guide at a wider set of core indicators, other

(1) See *PRA Consultation Paper CP11/14*, 'Implementing the Financial Policy Committee's recommendation on loan to income ratios in mortgage lending', June 2014.

Chart 5.15 The buffer guide suggests a zero countercyclical capital buffer

Credit-to-GDP gap and the countercyclical capital buffer guide[(a)(b)(c)]



Sources: BBA, ONS, Revell, J and Roe, A (1971), 'National balance sheets and national accounting — a progress report', *Economic Trends*, Vol. 310.5, No. 211, May, pages xvi–xvii and Bank calculations.

(a) Credit is defined here 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.
(b) 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.
(c) The buffer guide suggests that a credit gap of 2% or less equates to a CCB rate of 0% and a credit gap of 10% or higher equates to a CCB rate of 2.5%.

relevant metrics, supervisory and market intelligence and information from stress tests.

At over 160% of GDP, the level of aggregate credit in the UK economy remains very high, and at a sectoral level, household and corporate debt levels remain high relative to income. But weak credit growth since the peak of the crisis means that the credit gap has been strongly negative recently (**Chart 5.15**), and so the buffer guide has been at 0%.

The Committee's core indicators, detailed in the annex, look at aspects of balance sheet stretch in banks and other sectors and terms and conditions in markets. With regards to bank balance sheet stretch, most of the core indicators on bank resilience — such as capital, leverage ratios, and dependence on short-term wholesale funding — have improved recently. Though further improvements are still required, levels of resilience are markedly higher than before the crisis (Section 1.2).

In terms of non-bank balance sheet risks, most aggregate indicators of UK imbalances outside the banking sector — such as the UK net foreign asset position — have fallen over the past year. An exception, however, is the current account deficit, which at 5.4% of GDP in 2013 Q4 is close to historical highs.

The core indicators point to an easing of terms and conditions in markets, with some signs of increased risk-taking. Indicators of volatility are close to pre-crisis lows, for example, and corporate bond spreads have narrowed. Insights from market intelligence and non-price data not covered by the indicators also provide further evidence of search for yield activity in some financial markets.

As discussed above, some aspects of the financial system might be vulnerable to shocks. But the Committee also noted that actions by banks, including in response to increased regulatory requirements, were leading to increased capital ratios. The Committee did not currently have detailed information on how banks' capital positions might evolve through a period of stress. But the 2014 stress test, which includes shocks to interest rates and the housing market, should help to identify any weaknesses in UK banks' capital resilience.

In light of these considerations, at its June meeting the Committee agreed to set the CCB rate for UK exposures at 0%.

5.4 Structural developments

Since the November 2013 *FSR*, there has been progress both domestically and internationally on the three medium-term priorities identified by the Committee in September 2013: establishing the medium-term capital framework; ending

Table 5.B Focus of the FPC's medium-term priorities

Establishing the medium-term capital framework	• Leverage ratio review • Usability and interaction of capital buffers • Overall calibration of UK bank capital requirements, following progress on relevant international agendas and taking into account FPC discussions on ending 'too big to fail'
Ending 'too big to fail'	• Process for identifying domestic systemically important banks in the United Kingdom • Macroprudential objectives to consider when setting the height of the ring-fence • Protocols around stays in derivative contracts • Policies on resolution and on recovery and resolvability • The UK framework for gone-concern loss-absorbing capacity
Ensuring diverse and resilient sources of market-based finance	• Assessing and mitigating systemic risks beyond the existing regulatory perimeter • Risks to stability arising from procyclicality in the availability of finance, including via collateral markets • Resilience of market liquidity

Source: Bank of England.

'too big to fail'; and ensuring diverse and resilient sources of market-based finance. Section 3 of this *Report* takes stock of those developments and identifies remaining risks within those areas (**Table 5.B**). In June, the Committee focused on the leverage ratio and risks beyond the core banking system.

(i) Leverage ratio

In November 2013, the Chancellor wrote to the Governor requesting that the FPC undertake a review of the leverage ratio within the capital framework. The FPC published terms of reference for that review in March 2014.

The FPC will consult on the review in July and expects to publish its conclusions towards the end of the year, in time for HM Treasury to draft any required legislation.

(ii) Risks beyond the core banking system (the 'regulatory perimeter')

The FPC has a statutory power to make recommendations to HM Treasury in relation to the boundaries between and within regulated and non-regulated sectors of the UK financial system (the 'regulatory perimeter'). The FPC has committed to hold a discussion on this issue at least annually.

In June, the FPC considered channels through which stress in key parts of the non-bank financial system (including institutions and markets) could impact UK financial stability, as described in Box 9. Consideration was also given to continuing international initiatives to reform and enhance understanding of the non-bank financial system. As described in the November 2013 *Report*, gaps in the data on entities and activities outside the banking system are a key impediment to a full assessment. The Bank has work in train to address such data gaps.

Based on its current assessment and initiatives under way to improve understanding and manage some risks within these sectors, **the FPC did not at present see a case for recommending changes to the regulatory framework** but would return to the issue on an annual basis, or sooner, if risks were identified.

Box 8
The countercyclical capital buffer

An important part of the post-crisis reform package has been to give macroprudential authorities the ability to vary the stance of regulation over time to help dampen the economic impact of the financial cycle. A key instrument agreed internationally is the countercyclical capital buffer (CCB). This was introduced EU-wide as part of the Capital Requirements Directive IV (CRD IV) and has now been transposed into UK law: as of 1 May 2014, the FPC has a legal responsibility to set the UK CCB rate every quarter. This quarter, the FPC has set the rate for the first time (see pages 68–69 for the decision). This box outlines the CCB and the FPC's approach to using it, as set out in more detail in the FPC's Policy Statement.(1)

What is the CCB?

All banks, building societies and large investment firms incorporated in the United Kingdom (described collectively as 'banks' in the remainder of this box) are required to have a buffer of capital over and above the microprudential minimum, which can be run down in the event of stress. Part of this buffer can be varied with the financial cycle: the CCB.

Macroprudential authorities will set CCB rates which apply to exposures to counterparties in their countries. Each bank must then calculate an 'institution-specific' CCB rate — the CCB rate which applies to the individual bank. For a UK bank with only domestic exposures, this will be equal to the UK CCB rate set by the FPC. A bank's CCB is the product of its institution-specific CCB rate and its risk-weighted exposures.

For banks with exposures in more than one country, the calculation is more complicated. A system of reciprocity has been put in place to help provide a level playing field for domestic and foreign banks. In this system, the rate applied by a bank to foreign exposures will generally be the rate set by the macroprudential authority in the country where the exposure is located.(2) The CCB rate for a bank which has exposures to more than one country will then be a weighted average of the buffer rates applied to its exposures to these countries.

The objectives of the CCB

The primary aim of the CCB is to enhance the ability of the banking system to withstand risks which vary over time, so that it is able to maintain its core economic functions in a system-wide stress without its solvency being questioned. To achieve this, the UK CCB rate would tend to be raised in periods in which the FPC judges that risks are building and lowered when risks recede or crystallise (so long as the FPC judges that banks will remain adequately capitalised). Doing so might also reduce lending in the upswing of the cycle and cushion it in the trough by altering the marginal cost of bank funding. As such, it can help to achieve both of the FPC's objectives — to protect and enhance the resilience of the UK financial system and to support the Government's economic policy, including its objectives for growth and employment.

The FPC's responsibilities

UK law confers three sets of responsibilities on the FPC relating to: (i) calculating a 'buffer guide'; (ii) setting the UK CCB rate; and (iii) making decisions about CCB rates on UK banks' foreign exposures, where the law affords the FPC flexibility.(3) This section explains the first two of these obligations and how the FPC intends to fulfil them. The FPC plans to develop its approach to reciprocity in 2014 Q3.

Calculating a 'buffer guide'

The FPC must calculate a 'buffer guide' every quarter. The buffer guide is a mechanical indicator whose purpose is to help in setting the CCB rate. It is based on the credit to GDP gap — the deviation of the credit to GDP ratio from its long-term trend. The credit to GDP gap has been chosen because it is a measure of the credit cycle and has been a leading indicator of previous systemic banking crises.(4) The credit to GDP gap and the buffer guide are illustrated in **Chart 5.15** on page 69.

Setting the UK CCB rate

The FPC must set the UK CCB rate on a quarterly basis. In doing so, the FPC must take account of the buffer guide, guidance from the European Systemic Risk Board (an EU body with responsibility for macroprudential oversight of the EU financial system) on setting the CCB rate and any other variables the FPC considers relevant. So while the buffer guide is intended to be a starting point to setting the CCB rate, the FPC is not bound to set the CCB rate in line with it — indeed it is obliged to take into account other information.

As the FPC has set out in the Policy Statement, it will use its judgement when setting the CCB rate, drawing on a set of core indicators (see pages 77–79), other relevant indicators, supervisory and market intelligence and information from stress tests. The FPC will also consider whether the CCB is the most appropriate instrument to use given the risks identified, as it has other powers, such as the ability to change sectoral capital requirements (SCRs) and use broad recommendation powers. But the greater the degree of deviation of the core indicators from historical benchmarks, and the more consistent the messages both across the indicators and with other information, the more likely it is that the FPC will adjust the CCB.

In the event of any increase in the CCB rate, the FPC must decide the date at which UK banks must apply the rate. Banks

will normally be given twelve months to apply a higher rate, while a reduction in the UK CCB rate will apply straightaway.

The FPC will continue to develop its strategy for setting the UK CCB rate as it learns from experience and from ongoing research.

Communicating CCB decisions

In line with the requirement on the FPC to set the CCB each quarter, the Committee will announce UK CCB rate decisions in the *Financial Stability Report* (*FSR*) or the post-meeting statement in quarters when an *FSR* is not published. These announcements will include a description of the key information which influenced the decisions, based on the strategy set out in the Policy Statement. As part of this, the credit to GDP gap and the buffer guide will be published in the *FSR* and on the Bank of England's website.(5)

The Record will contain a summary of the FPC's deliberations about setting the UK CCB rate.

(1) www.bankofengland.co.uk/financialstability/Documents/fpc/policystatement 140113.pdf.
(2) *PRA Policy Statement PS3/14* sets this out in more detail, available at www.bankofengland.co.uk/pra/Documents/publications/ps/2014/ps314.pdf.
(3) www.legislation.gov.uk/uksi/2014/894/made.
(4) See Drehmann, M, Borio, C and Tsatsaronis, K (2011), 'Anchoring countercyclical capital buffers: the role of credit aggregates', *International Journal of Central Banking*, Vol. 7, No. 4, pages 189–240, for an evaluation of the merits and drawbacks of using the credit to GDP gap as a guide to macroprudential policy and Giese, J, Andersen, H, Bush, O, Castro, C, Farag, M and Kapadia, S (2014), 'The credit-to-GDP gap and complementary indicators for macroprudential policy: evidence from the UK', *International Journal of Finance and Economics*, Vol. 19, pages 25–47, for a UK-specific analysis.
(5) www.bankofengland.co.uk/publications/Documents/fsr/2014/bufferjun14.xlsx.

Box 9
Financial stability risk and regulation beyond the core banking sector

The Bank of England Act 1998 as amended by the Financial Services Act 2012 (the 'Act') gives the FPC responsibility to identify, assess, monitor and take action in relation to financial stability risk across the whole financial system, including risks arising in the non-bank financial system (including institutions and markets). In support of this, the Act gives the FPC the power to make recommendations to HM Treasury (HMT) on regulated activities, as well as more general powers in respect of information gathering.

This box presents a summary of analysis on the channels through which stress in the non-bank financial system, and for five key segments in particular, could affect UK financial stability.

FPC powers

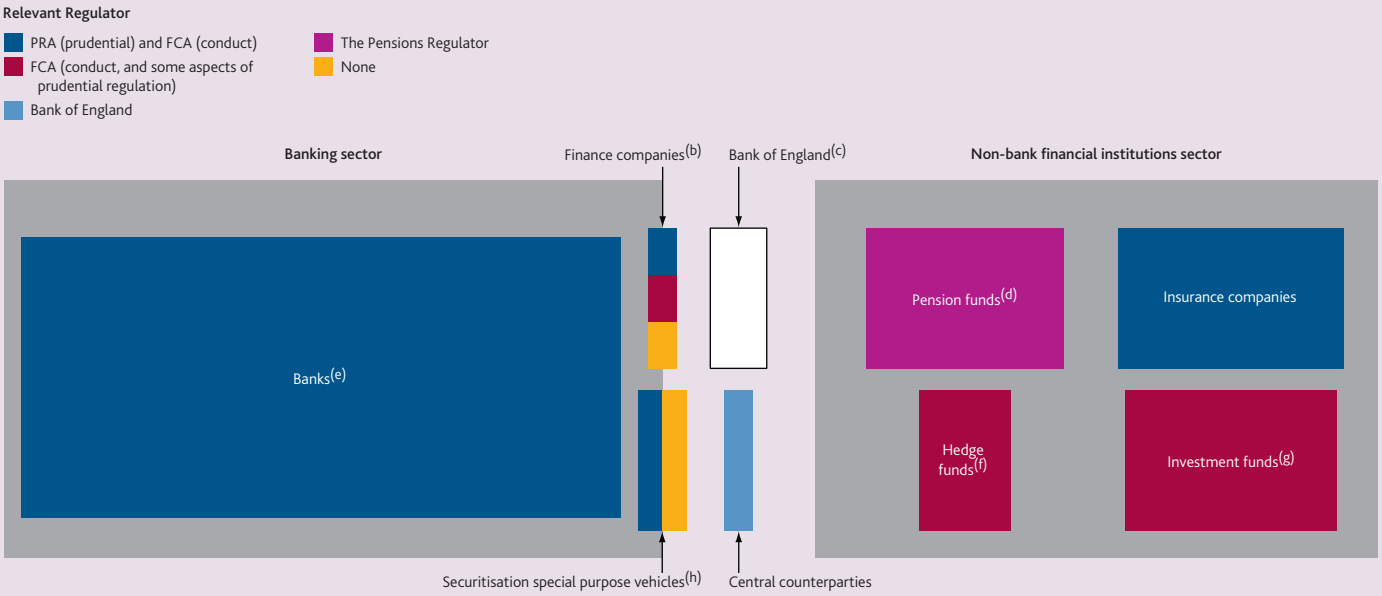
There are two dimensions to regulation in the non-bank financial system. First, and most obviously, whether or not an activity or institution is regulated. The second dimension concerns the type of regulation applied, where variants include prudential regulation, conduct of business regulation and markets regulation.

The regulation of UK financial institutions (which is determined based on the activities that they perform) is illustrated in **Figure A** with a stylised map of the UK financial system, in which the area of each box is proportional to the total assets of that sector. As **Figure A** shows, most UK financial institutions are regulated in some form, although that does not mean that all activities by these institutions are subject to regulation. In some cases, regulation may be motivated by objectives other than reducing financial stability risks. For example, regulation of non-bank provision of consumer credit and asset management is focused primarily on conduct of business regulation. This creates the possibility that, despite the existence of a given form of regulation, risks to financial stability might not be appropriately mitigated.

To address potential financial stability risks in the non-bank financial system, the FPC is able to provide advice or recommendations to HMT on:

(i) what should be a regulated activity;

Figure A Stylised map of the UK financial system (based on financial activities conducted in the United Kingdom)[a]



Sources: Regulatory, statistical and industry data sources and Bank calculations.

(a) The area of each box is proportional to the total assets of that sector (on an unconsolidated basis and excluding derivatives), based on the latest available data. The map does not include components of the UK financial system that do not have material total assets on their own balance sheet, so for example, asset managers (regulated by the FCA), and payment and settlement systems (regulated by the Bank of England) are not shown here. The colour coding denotes the relevant regulator but does not mean that all activities carried out by that institution are subject to regulation.
(b) Finance companies are subject to different regulation depending on whether they are owned by banks (PRA and FCA regulated), are non-banks but provide residential mortgages or consumer credit (FCA regulated), or undertake business lending (for amounts exceeding £25,000) or provide certain types of buy-to-let mortgages (unregulated). The different types of regulation are depicted in an illustrative way and do not reflect the actual proportion of companies in each of these categories.
(c) The Bank of England is an exempt person for all regulated activities (other than insurance business) under the Financial Services and Markets Act 2000 (Exemption) Order 2001.
(d) Work based pension schemes only; personal pension schemes appear elsewhere.
(e) Includes banks, building societies and investment firms. PRA and FCA powers over the branches of overseas banks are more limited than for UK-based banks.
(f) The hedge funds box shows an estimate of funds managed in the United Kingdom. Hedge fund managers in the United Kingdom are subject to prudential and conduct regulation by the FCA. Hedge funds are often based outside the United Kingdom and may only be subject to conduct or marketing regulation by the FCA.
(g) The investment funds box shows an estimate of funds managed in the United Kingdom.
(h) Securitisation special purpose vehicles (SPVs) may be regulated, depending on whether they are part of a banking group. The different types of regulation are depicted in an illustrative way and do not reflect the actual proportion of companies in each of these categories.

(ii) which activities should be designated for prudential regulation by the PRA; and

(iii) which categories of firms outside the scope of its regulation the PRA may collect information from specifically for the purpose of financial stability.

Some activities that are important to UK financial stability may take place in institutions and financial markets outside the United Kingdom, beyond the locus of HMT's powers. For example, activities undertaken by US money market funds, which may present a funding risk to UK banks, are beyond the reach of UK authorities. In addition, where particular activities or institutions are regulated under EU law, HMT may be constrained from making changes that would alter the scope of regulation. In some cases, it may be appropriate to amend UK regulation to mitigate risks to UK financial stability indirectly, for example, by ensuring UK banks are resilient to the failure or distress of foreign counterparties. Also, to the extent that such firms market their products within the United Kingdom, some regulation may be possible via the FCA.

The FPC considers the costs and benefits of the actions it proposes. While some interventions might mitigate financial stability risks arising in the non-bank financial system, it is possible that they could, for example, unduly impede the development of resilient and diverse sources of market-based finance, which the FPC identified in 2013 as a medium-term priority.

A risk assessment framework

It can be helpful to assess financial stability risks in different segments of the non-bank financial system using a common analytical framework to facilitate comparisons and aggregation. One approach — consistent with frameworks developed by the Financial Stability Board (FSB) as part of its work to address risks in the shadow banking system and to identify non-bank, non-insurer global systemically important financial institutions — is to consider key risk transmission channels and sources of fragility.

There are three key channels through which financial stability risk might emanate from the non-bank financial system:

(i) **The provision of critical services.** These critical services include: intermediating savers and borrowers (including direct lending to the real economy and providing funding or other critical services to those supplying such lending); insuring against and dispersing risk; and payment services. Risks arise when the provision of one or more of these critical services from a sector is susceptible to a rapid withdrawal. By way of illustration, pre-crisis, securitisation was often supported by short-term funding. The abrupt withdrawal of this funding and consequent inability of some institutions to securitise assets led indirectly to a fall in the provision of credit to the real economy.

(ii) **Risk to systemically important counterparties.** Problems in the non-bank financial system can impact providers of critical financial services, such as banks and insurers. For example, banks conduct repurchase agreements (repos) and derivative transactions with hedge funds. These transactions are usually collateralised and so may be associated with low counterparty credit risk. But in some circumstances, including where asset values fall suddenly, banks' exposures to hedge funds could become insufficiently collateralised, meaning that disruption in the hedge fund sector could lead to losses for banks.

(iii) **Disruption to systemically important financial markets.** Problems in the non-bank financial system can transmit distress to markets which can be systemically important, such as repo and securities lending markets. As demonstrated during the financial crisis, rapid asset disposals and 'runs' in secured funding markets are key mechanisms through which wider financial market liquidity can be impaired.

Each of these risk channels are likely to be made more acute when they are combined with sources of fragility, such as leverage and/or liquidity or maturity mismatch between assets and liabilities.

Sectoral analysis

Aggregate data published by the ONS on the non-bank financial system are insufficiently granular for assessing risks to UK financial stability.[1] As a consequence, and as described in the summary assessments below,[2] Bank staff conduct sector-level analysis combining information from a number of official and market sources on activities in the non-bank financial system.

(i) Finance companies

Finance companies are important providers of credit to UK households and businesses (Section 1.2).

Finance companies often rely on wholesale funding sources, including borrowings from banks and securitisation, to fund themselves. Disruption in the wholesale funding markets could reduce finance companies' ability to lend to the real economy. The failure of a large finance company could also lead to significant losses to providers of this wholesale funding, including banks and money market funds.

Most finance companies' activities in the United Kingdom are captured by some form of regulation, although the type of regulation varies depending on a finance company's legal structure and the type of finance it provides. The data

available suggest that at least 70% of finance companies (by outstanding loans) operating in the United Kingdom are bank-owned and are captured by consolidated banking regulation. The FCA regulates non-bank finance companies that provide residential mortgages or consumer credit (the latter since 1 April 2014). Consumer credit covers a wide variety of activities, including credit cards, peer-to-peer lending and second-charge mortgages, as well as business lending to some small and medium-sized enterprises (for amounts not exceeding £25,000). Other types of business lending and most buy-to-let mortgage lending is not regulated by the FCA, so some non-bank finance companies involved in these activities will be wholly unregulated, although they are currently estimated to be small.

The FPC recommendations relating to the UK mortgage market described in Section 5 may affect the incentives for different types of activities. The FPC will be vigilant to any signs of regulatory arbitrage in the finance company sector, in lending associated with the housing market, and more broadly.

Bank staff will also monitor links between finance companies and financial stability, including their provision of lending to the real economy and their reliance on wholesale funding sources. Work being undertaken by the FSB to develop a methodology for identifying global systemically important finance companies is also important for assessing and addressing risks in this sector.

(ii) Investment funds

Investment funds are important participants in financial markets. They account for around US$27 trillion of assets under management globally, with around US$2.2 trillion of these funds managed in the United Kingdom. They invest in a variety of financial instruments, including those linked to the real economy such as corporate bonds and equities, thereby supporting secondary market liquidity and price discovery. They also provide some direct lending to companies. Funds are also important participants in other key financial markets, such as securities lending markets.

Investment funds have different risk profiles compared to other financial entities. Unlike banks, for example, investment funds are typically subject to restrictions on leverage, with investment risks passed through to investors. Asset managers act as agents for the funds, making investment decisions on behalf of investors according to their investment objectives.

Some investment funds' practices and structures may create liquidity risk — for example by offering daily redemptions to investors, while investing in longer-dated assets that are only liquid if secondary markets are functioning. Increased investment in less liquid assets, such as emerging-economy debt, and a growth in funds, such as exchange-traded funds, where investors expect to be able to access their investments quickly, are likely to have increased such liquidity risks. As described in Section 2, liquidity risk could be exacerbated by the retrenchment in market-making by banks and broker-dealers, potentially making the financial system more exposed to risk of this kind. In addition, the search for yield may be temporarily masking underlying fragilities in secondary market liquidity (Box 1). Rapid asset sales to meet investor redemptions might lead to impaired market liquidity which may impact other participants in the financial system.

Bank staff are assessing issues around market liquidity, including the changing role of investment funds. Bank and FCA staff are also involved in work by the International Organization of Securities Commissions (IOSCO) and the FSB to develop a methodology for identifying global systemically important investment funds.

(iii) Money market funds

US and European money market funds (MMFs) are key providers of short-term funding to financial institutions (particularly banks), corporates and governments. They provide around US$190 billion of funding to UK institutions, mainly to UK banks. Funding from MMFs represents a significant proportion of UK banks' short-term US dollar funding. MMFs are also important lenders of cash in repo markets, the available data suggest that they provide at least 15% of the cash invested in the global tri-party repo market.

Funding from constant and variable net asset value (CNAV and VNAV respectively) MMFs can be fragile as their investors expect return of principal, and the funds often offer same or next-day liquidity to investors. This can create an incentive for investors to run if they perceive losses to be likely. CNAV MMFs are particularly fragile. If the amortised value of a CNAV portfolio varies by more than 50 basis points from its market value, the fund is required to price its assets at market value — known as 'breaking the buck'. Early redeemers from the fund are more likely to receive their full principal, which incentivises investors to redeem quickly when this risk is seen to be high. Such run risk crystallised during the financial crisis. The failure of Lehman Brothers in 2008 led to the Reserve Primary MMF 'breaking the buck'. A run on other US MMFs followed, leading to US dollar funding problems for banks. As a result, the US Treasury effectively guaranteed MMF holdings and non-US central banks set up special funding facilities and US dollar swap lines with the Federal Reserve to help alleviate US dollar funding pressures for banks.

Reforms to address run risks from MMFs are ongoing internationally. The US Securities and Exchange Commission (SEC) has proposed two potential treatments for CNAV MMFs. The first would require some MMFs to convert to a VNAV, the second would provide them with tools, specifically liquidity

fees and redemption gates, to enable them to manage redemptions during periods of market or fund illiquidity.[3] The European Commission (EC) has also issued proposals, including that all European CNAV MMFs should be subject to a 3% cash buffer to absorb losses.[4] A peer review of international MMF reforms has been initiated by IOSCO this year. In addition to contributing to international discussions on MMF reforms, Bank staff continue to monitor links between MMFs and UK financial stability, with a particular focus on their provision of funding to UK banks.

(iv) Hedge funds

Hedge funds are interconnected with the financial system, and have direct links to banks through their borrowings, including repo transactions and margin loans, and through derivative agreements. Banks' exposures to hedge funds are usually collateralised. But in the event that market volatility means that banks' exposures to hedge funds become inadequately collateralised, the failure of a large hedge fund could lead to significant losses for banks.

Hedge funds are significant investors in some asset classes, and their behaviour therefore has a material impact on liquidity in those markets. There is a risk that, if a fund becomes distressed, it could withdraw from markets or sell assets rapidly, resulting in a destabilising impact on liquidity and pricing. This could be exacerbated if the fund attempts to exit a crowded and illiquid position, with other funds potentially wishing to exit at the same time. The potential for forced liquidations and market distortions will be amplified by the use of leverage by funds, particularly in the event of a run on their financing such as through investor redemptions or increased margin calls.

Bank and FCA staff are seeking to develop better risk measures, including of banks' stressed exposures to hedge funds and of the impact of hedge funds' activities in certain markets. Large hedge funds that account for significant positions in certain markets and/or represent large exposures to their counterparties, mainly banks, may be a particular cause for concern. FSB and IOSCO work to develop a methodology for identifying global systemically important hedge funds will be significant in addressing potential risks from the hedge fund sector.

(v) Securities financing transactions

Taken together, repos and securities lending are often referred to as securities financing transactions (SFTs). By allowing the exchange of cash and a broad range of securities, SFTs play a vital role in supporting the wider functioning of financial markets. Securities lending facilitates market-making by banks and allows investors to take on or cover short positions, thereby increasing overall market liquidity and aiding price discovery in markets. Repo markets also contribute to effective market-making by enabling broker-dealers to finance their inventories.

But SFTs increase interconnectedness between counterparties and also increase system leverage. SFTs can contribute to procyclicality in market-based financing conditions as asset values rise and/or haircuts become compressed in a boom, and *vice versa* in a downturn. In addition, participants may choose to withdraw from such markets when economic conditions deteriorate and aversion to counterparty credit risk increases. Such runs can materialise quickly because of the typically short maturities of repo transactions (often below one month) and the ability of a securities lender to recall securities on loan on demand. The failure of Lehman Brothers in 2008 demonstrated that this can expose net borrowers in repo markets to funding liquidity risk if providers of funds withdraw funding.

The Bank is engaged in work by the FSB to reform SFT markets, including around collateral haircuts and measures to enhance transparency. Final policy recommendations are due to be published this year.[5] The EC has also published proposals to enhance transparency in SFT markets.

(1) See letter from the Governor to Andrew Tyrie, available at www.parliament.uk/documents/commons-committees/treasury/131220%20-%20Mark%20Carney%20-%20ONS.pdf.
(2) The focus of the sectors analysed here is consistent with the priorities identified by the FSB through its work on shadow banking and its work to develop a methodology for identifying non-bank, non-insurer global systemically important financial institutions.
(3) SEC's MMF proposal: www.sec.gov/rules/proposed/2013/33-9408.pdf.
(4) EC's MMF proposal: http://ec.europa.eu/internal_market/investment/docs/money-market-funds/130904_mmfs-regulation_en.pdf.
(5) www.financialstabilityboard.org/publications/r_130829b.htm.

Annex: Core indicators

Table A.1 Core indicator set for the countercyclical capital buffer[a]

Indicator	Average, 1987–2006[b]	Average 2006[c]	Minimum since 1987[b]	Maximum since 1987[b]	Previous value (oya)	Latest value (as of 16 June 2014)
Bank balance sheet stretch[d]						
1 Capital ratio						
Basel II core Tier 1[e]	6.6%	6.3%	6.1%	12.3%	10.9%	12.3% (2013)
Basel III common equity Tier 1[f]	n.a.	n.a.	n.a.	n.a.	8.4%	10.0% (2013)
2 Leverage ratio[g]						
Simple	4.7%	4.1%	2.9%	5.6%	5.1%	5.6% (2013)
Basel III initial proposal	n.a.	n.a.	n.a.	n.a.	4.1%	4.2% (2013)
3 Average risk weights[h]	53.6%	46.4%	35.8%	65.4%	36.4%	36.3% (2013)
4 Return on assets before tax[i]	1.0%	1.1%	-0.2%	1.5%	0.2%	0.3% (2013)
5 Loan to deposit ratio[j]	114.0%	132.4%	96.0%	133.3%	103.1%	99.1% (2013)
6 Short-term wholesale funding ratio[k]	n.a.	24.5%	14.8%	26.8%	17.1%	14.8% (2013)
of which excluding repo funding[k]	*n.a.*	*15.6%*	*5.8%*	*16.1%*	*6.9%*	*5.8% (2013)*
7 Overseas exposures indicator: countries to which UK banks have 'large' and 'rapidly growing' total exposures[l][m]	In 2006 Q4: AU, BR, CA, CH, CN, DE, ES, FR, IE, IN, JP, KR, KY, LU, NL, US, ZA				In 2013 Q1: CA, CH, DE, MY, SG	In 2014 Q1: CN, HK, IE, MY, SG, TW
8 CDS premia[n]	12 bps	8 bps	6 bps	298 bps	182 bps	63 bps (16 June 2014)
9 Bank equity measures						
Price to book ratio[o]	2.14	1.97	0.52	2.83	0.82	0.95 (16 June 2014)
Market-based leverage ratio[p]	9.7%	7.8%	1.9%	14.9%	5.0%	5.6% (16 June 2014)
Non-bank balance sheet stretch[q]						
10 Credit to GDP[r]						
Ratio	128.9%	163.9%	97.7%	185.8%	167.6%	162.9% (2013 Q4)
Gap	5.5%	7.5%	-18.7%	24.1%	-14.5%	-18.7% (2013 Q4)
11 Private non-financial sector credit growth[s]	10.2%	10.0%	-2.2%	23.0%	1.4%	1.8% (2013 Q4)
12 Net foreign asset position to GDP[t]	-3.5%	-15.1%	-20.1%	21.6%	-15.3%	-1.3% (2013 Q4)
13 Gross external debt to GDP[u]	202.5%	336.0%	130.8%	421.6%	390.5%	354.1% (2013 Q4)
of which bank debt to GDP	*133.9%*	*210.0%*	*90.2%*	*285.1%*	*224.8%*	*194.5% (2013 Q4)*
14 Current account balance to GDP[v]	-1.9%	-2.8%	-5.6%	0.5%	-3.6%	-5.4% (2013 Q4)
Conditions and terms in markets						
15 Long-term real interest rate[w]	3.10%	1.27%	-0.48%	5.29%	0.04%	0.34% (16 June 2014)
16 VIX[x]	19.1	12.8	10.6	65.5	15.4	11.8 (16 June 2014)
17 Global corporate bond spreads[y]	115 bps	87 bps	52 bps	486 bps	131 bps	109 bps (16 June 2014)
18 Spreads on new UK lending						
Household[z]	478 bps	350 bps	283 bps	837 bps	770 bps	685 bps (May 2014)
Corporate[aa]	107 bps	102 bps	93 bps	418 bps	304 bps	247 bps (2013 Q4)

Table A.2 Core indicator set for sectoral capital requirements[a]

Indicator	Average, 1987–2006[b]	Average 2006[c]	Minimum since 1987[b]	Maximum since 1987[b]	Previous value (oya)	Latest value (as of 16 June 2014)
Bank balance sheet stretch[d]						
1 Capital ratio						
Basel II core Tier 1[e]	6.6%	6.3%	6.1%	12.3%	10.9%	12.3% (2013)
Basel III common equity Tier 1[f]	n.a.	n.a.	n.a.	n.a.	8.4%	10.0%(2013)
2 Leverage ratio[g]						
Simple	4.7%	4.1%	2.9%	5.6%	5.1%	5.6% (2013)
Basel III initial proposal	n.a.	n.a.	n.a.	n.a.	4.1%	4.2% (2013)
3 Average mortgage risk weights[ab]	n.a.	n.a.	18.5%	22.5%	20.2%	18.5% (2013 H2)
4 Balance sheet interconnectedness[ac]						
Intra-financial lending growth[ad]	12.0%	13.0%	-15.3%	45.5%	1.6%	-2.4% (2013)
Intra-financial borrowing growth[ae]	14.1%	14.0%	-19.8%	28.9%	-11.6%	-19.8% (2013)
Derivatives growth (notional)[af]	37.7%	34.2%	-18.0%	52.0%	-7.5%	6.7% (2013)
5 Overseas exposures indicator: countries to which UK banks have 'large' and 'rapidly growing' non-bank private sector exposures[ag][m]		In 2006 Q4: AU, CA, DE, ES, FR, IE, IT, JP, KR, KY, NL, US, ZA			In 2013 Q1: DE, FR, SG	In 2014 Q1: CN, FR, HK, IE, JP, SG
Non-bank balance sheet stretch[q]						
6 Credit growth						
Household[ah]	10.4%	11.4%	0.8%	19.9%	2.0%	1.9% (2013 Q4)
Commercial real estate[ai]	15.3%	18.4%	-9.7%	59.8%	-5.2%	-7.2% (2013 Q4)
7 Household debt to income ratio[aj]	114.5%	156.2%	91.9%	167.2%	140.7%	138.9% (2013 Q4)
8 PNFC debt to profit ratio[ak]	273.9%	331.8%	193.5%	453.9%	392.2%	384.6% (2013 Q4)
9 NBFI debt to GDP ratio (excluding insurance companies and pension funds)[al]	62.3%	133.7%	15.8%	189.0%	172.8%	166.4% (2013 Q4)
Conditions and terms in markets						
10 Real estate valuations						
Residential price to rent ratio[am]	100.0	151.1	66.9	160.6	121.0	128.8 (2014 Q1)
Commercial prime market yields[an]	5.4%	4.0%	3.8%	7.3%	4.8%	4.4% (2014 Q1)
Commercial secondary market yields[an]	8.9%	5.8%	5.4%	10.9%	9.2%	8.8% (2014 Q1)
11 Real estate lending terms						
Residential mortgage loan to value ratio (mean above the medium)[ao]	90.6%	90.6%	81.6%	90.8%	84.9%	86.3% (2014 Q1)
Residential mortgage loan to income ratio (mean above the medium)[ao]	3.8	3.8	3.6	4.1	3.9	4.1 (2014 Q1)
Commercial real estate mortgage loan to value (average maximum)[ap]	77.6%	78.3%	60.4%	79.6%	60.4%	62.2% (2013 Q4)
12 Spreads on new UK lending						
Residential mortgage[aq]	81 bps	50 bps	35 bps	361 bps	273 bps	204 bps (May 2014)
Commercial real estate[ar]	138 bps	136 bps	119 bps	423 bps	361 bps	286 bps (2013 Q4)

Footnotes to Core indicator tables

(a) A spreadsheet of the series shown in this table is available at 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 Banking Group (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). 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 core Tier 1 capital ratio series starts in 2000 and uses the major UK banks peer group as at 2014 and their constituent predecessors. Data exclude Northern Rock/Virgin Money 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. Sources: PRA regulatory returns, published accounts and Bank calculations.
(f) The 'Basel III common equity Tier 1 capital ratio' is calculated as aggregate peer group common equity Tier 1 levels over aggregate risk-weighted assets, corresponding to the Basel III estimates submitted to the PRA by banks on a best endeavours basis. The Basel III sample includes Barclays, Co-operative Banking Group, HSBC, Lloyds Banking Group, Nationwide, RBS and Santander UK. Series starts in 2011. Sources: PRA regulatory returns and Bank calculations.
(g) 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 estimates submitted to the PRA by banks on a best endeavours basis based on the original Basel III 2010 definition (BCBS (2010d)) (aggregate peer group Tier 1 capital over aggregate leverage ratio exposure). The final Basel III definition was agreed in January 2014. Tier 1 capital includes some instruments which are subject to grandfathering arrangements. Note that the simple series excludes Northern Rock/Virgin Money from 2008, and the Basel III series consists of Barclays, Co-operative Banking Group, HSBC, Lloyds Banking Group, Nationwide, RBS and Santander UK. The simple series is annual. Sources: PRA regulatory returns, published accounts and Bank calculations.
(h) Calculated by dividing aggregate peer group risk-weighted assets by aggregate peer group assets. Series starts in 1992. All data points are annual. Sources: Published accounts and Bank calculations.
(i) Calculated as major UK banks' annual net income (excluding tax) as a proportion of total assets, averaged over the current and previous year. Series is annual. Sources: Published accounts and Bank calculations.
(j) Major UK banks' loans and advances to customers as a percentage of customer deposits, where customer refers to all non-bank borrowers and depositors. Repurchase agreements are excluded from loans and deposits where disclosed. It is not possible, on a consolidated basis, to distinguish between retail deposits from households and those placed by non-bank financial corporations. Additional data collections would be required to improve the data in this area. Series starts in 2000 and is annual. Sources: Published accounts and Bank calculations.
(k) Share of total funding (including capital) accounted for by wholesale funding with residual maturity of under three months. Wholesale funding comprises deposits by banks, debt securities, subordinated liabilities and repo. Funding is proxied by total liabilities excluding derivatives and liabilities to customers under investment contracts. Where underlying data are not published estimates have been used. Repo includes repurchase agreements and securities lending. Series starts in 2005. Sources: Published accounts and Bank calculations.
(l) This indicator highlights the countries where UK-owned monetary financial institutions' (MFIs') overall exposures are greater than 10% of UK-owned MFIs' tangible equity on an ultimate risk basis and have grown by more than 1.5 times nominal GDP growth in that country. Foreign exposures as defined in BIS consolidated banking statistics. Uses latest data available, with the exception of tangible equity figures for 2006–07, which are estimated using published accounts. Sources: Bank of England, ECB, IMF *World Economic Outlook* (*WEO*), Thomson Reuters Datastream, published accounts and Bank calculations.
(m) Abbreviations used are: Australia (AU), Brazil (BR), Canada (CA), Switzerland (CH), People's Republic of China (CN), Germany (DE), Spain (ES), France (FR), Ireland (IE), Italy (IT), Hong Kong (HK), India (IN), Japan (JP), Republic of Korea (KR), Cayman Islands (KY), Luxembourg (LU), Malaysia (MY), Netherlands (NL), Singapore (SG), Taiwan (TW), United States (US) and South Africa (ZA).
(n) 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.
(o) 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 Banking Group and Nationwide. Northern Rock/Virgin Money is excluded from 2008. Series starts in 2000. Sources: Thomson Reuters Datastream, published accounts and Bank calculations.
(p) 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 Banking Group, and Nationwide. Northern Rock/Virgin Money is excluded from 2008. Series starts in 2000. Sources: Thomson Reuters Datastream, published accounts and Bank calculations.
(q) 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*.
(r) Credit is defined as debt claims on the UK private non-financial sector. This includes all liabilities of the household and not-for-profit sector and private non-financial corporations' (PNFCs) loans and debt securities excluding derivatives, direct investment loans and loans secured on dwellings. 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. For further explanation of how this series is calculated, see www.bankofengland.co.uk/publications/Documents/fsr/2014/bufferjun14.xlsx.
Sources: BBA, ONS, Revell, J and Roe, A (1971), 'National balance sheets and national accounting — a progress report', *Economic Trends*, No. 211, Vol. 310.5, May, pages xvi–xvii and Bank calculations.
(s) Twelve-month growth rate of nominal credit. Credit is defined as above. Sources: Bank of England, ONS and Bank calculations.
(t) As per cent of annual GDP (four-quarter moving sum). Sources: ONS and Bank calculations.
(u) Excluding derivatives. Non-debt liabilities in the form of either foreign direct or portfolio investment. Ratios computed using a four-quarter moving sum of GDP. MFIs cover banks and building societies resident in the United Kingdom. Sources: ONS and Bank calculations.
(v) As per cent of quarterly GDP. Sources: ONS and Bank calculations.
(w) Five-year real interest rates five years forward, derived from the Bank's index-linked government liabilities curve. Sources: Bloomberg and Bank calculations.
(x) 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 average. Sources: Bloomberg and Bank calculations.
(y) 'Global corporate debt 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. Spreads are option adjusted, (ie they show 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 average. Series starts in 1997. Sources: Bank of America Merrill Lynch and Bank calculations.
(z) The household lending spread is a weighted average of mortgage and unsecured lending spreads, with weights based on relative volumes of new lending. The mortgage spread is a weighted average of quoted mortgage rates over risk-free rates, using 90% LTV two year fixed rate mortgages and 75% 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 relative to OIS of matching maturity. Spreads are taken relative to Bank Rate for the tracker product. The unsecured component is a weighted average of spreads on credit cards, overdrafts and personal loans. Spreads are taken relative to Bank Rate. 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). Weights based on relative volumes of new lending. Series starts in 2002 Q4. Sources: Bank of England, Bank of America Merrill Lynch, BBA, Bloomberg, De Montfort University, Department for Business, Innovation and Skills and Bank calculations.
(ab) 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.
(ac) 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 adjusted for the acquisitions of Midland by HSBC in 1992, and of ABN AMRO by RBS in 2007 to avoid reporting large growth rates resulting from step changes in the size and interconnectedness of the major UK bank peer group.
(ad) Lending to other banks and other financial corporations. The series is annual. Sources: Published accounts and Bank calculations.
(ae) Wholesale borrowing, composed of deposits from banks and non-subordinated securities in issue. The series is annual. It is not possible, on a consolidated basis, to distinguish between retail deposits and those placed by non-bank financial corporations. Sources: Published accounts and Bank calculations.
(af) 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; this may be adjusted in the future should market shares change. Series starts in 2002. The series is annual. Sources: Published accounts and Bank calculations.
(ag) This indicator highlights the countries where UK-owned MFIs' non-bank private sector exposures are greater than 10% of UK-owned MFIs' tangible equity on an ultimate risk basis and have grown by more than 1.5 times nominal GDP growth in that country. Foreign exposures as defined in BIS consolidated banking statistics. Overseas sectoral exposures cannot currently be broken down further at the non-bank private sector level. The intention is to divide them into households and corporates as new data become available. Uses latest data available, with the exception of tangible equity figures for 2006–07, which are estimated using published accounts. Sources: Bank of England, ECB, IMF *World Economic Outlook* (*WEO*), Thomson Reuters Datastream, published accounts and Bank calculations.
(ah) Twelve-month nominal growth rate of total household and not-for-profit sector liabilities. Source: ONS and Bank calculations.
(ai) Four quarter growth rate of UK-resident MFIs' loans to the real estate sector. The real estate sector is defined as: buying, selling and renting of own or leased real estate; real estate and related activities on a fee or contract basis; and development of buildings. Source: Bank of England.
(aj) Gross debt as a percentage of a four-quarter moving sum of disposable income. Includes all liabilities of the household sector. The household disposable income series is adjusted for financial intermediation services indirectly measured (FISIM). Sources: ONS and Bank calculations.
(ak) 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. The corporate gross operating surplus series is adjusted for FISIM. Sources: ONS and Bank calculations.
(al) Gross debt as a percentage of four-quarter moving sum of nominal GDP. The NBFI sector includes all financial corporations apart from MFIs (ie deposit taking institutions). This indicator additionally excludes insurance companies and pension funds. Sources: ONS and Bank calculations.
(am) Ratio between an average of the seasonally adjusted Halifax and Nationwide house price indices and RPI housing rent. The series is rebased so that the average between 1987 and 2006 is 100. Sources: Halifax, Nationwide, ONS and Bank calculations.
(an) The prime (secondary) yield is the ratio between the weighted averages, across the lowest (highest) yielding quartile of commercial properties, of IPD's measures of rental income and capital values. Source: Investment Property Databank (IPD UK).
(ao) Mean LTV (respectively LTI) ratio on new advances above the median LTV (LTI) ratio, based on loans to first-time buyers, council/registered social tenants exercising their right to buy and home movers, and excluding lifetime mortgages and advances with LTV above 130% (LTI above 10x). 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. Series starts in 2005. Sources: FCA Product Sales Data and Bank calculations.
(ap) Average of the maximum offered loan to value ratios across major CRE lenders. Series starts in 2002. Source: De Montfort University and Bank calculations.
(aq) The residential mortgage lending spread is a weighted average of quoted mortgage rates over risk-free rates, using 90% LTV two-year fixed rate mortgages and 75% 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 relative to OIS of matching maturity. Spreads are taken relative to Bank Rate for the tracker product. Weights based on relative volumes of new lending. Series starts in 1997. Sources: Bank of England, CML and Bank calculations.
(ar) The CRE lending spread is the average of rates across major CRE lenders relative to Bank Rate. Series starts in 2002. Sources: Bank of England, De Montfort University and Bank calculations.

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Glossary and other information

Glossary of selected data and instruments

CDS – credit default swap.
CoCo – contingent convertible capital instrument.
CPI – consumer prices index.
Euribor – euro interbank offered rate.
GDP – gross domestic product.
Libor – London interbank offered rate.
PSD – Product Sales Data.
RMBS – residential mortgage-backed security.
SVR – standard variable rate.

Abbreviations

AT1 – additional Tier 1.
BCBS – Basel Committee on Banking Supervision.
BIS – Bank for International Settlements.
BoAML – BofA Merrill Lynch.
BRRD – Bank Recovery and Resolution Directive.
CCB – countercyclical capital buffer.
CCP – central counterparty.
CET1 – common equity Tier 1.
CLO – collateralised loan obligation.
CML – Council of Mortgage Lenders.
CRD IV – Capital Requirements Directive.
CRE – commercial real estate.
CRR – Capital Requirements Regulation.
D-SIB – domestic systemically important bank.
DSR – debt-servicing ratio.
DTI – debt to income.
EBA – European Banking Authority.
EC – European Commission.
ECB – European Central Bank.
EDTF – Enhanced Disclosure Task Force.
EEA – European Economic Area.
EMIR – European Market Infrastructure Regulation.
EU – European Union.
FCA – Financial Conduct Authority.
FISIM – financial intermediation services indirectly measured.
FMI – financial market infrastructure.
FPC – Financial Policy Committee.
FSA – Financial Services Authority.
FSB – Financial Stability Board.
FSR – Financial Stability Report.
FTSE – Financial Times Stock Exchange.
G20 – The Group of Twenty Finance Ministers and Central Bank Governors.
GLAC – gone-concern loss-absorbing capacity.
G-SIB – global systemically important bank.
G-SIFI – global systemically important financial institution.
HLA – Higher Loss Absorbency.
HMRC – Her Majesty's Revenue and Customs.
HMT – Her Majesty's Treasury.
IAIS – International Association of Insurance Supervisors.
ICB – Independent Commission on Banking.
IMF – International Monetary Fund.
IOSCO – International Organization of Securities Commissions.
KRX – Korea Exchange.
LBG – Lloyds Banking Group.
LCR – Liquidity Coverage Ratio.
LTI – loan to income.
LTV – loan to value.
MFI – monetary financial institution.
MMF – money market fund.
MMR – Mortgage Market Review.
MPC – Monetary Policy Committee.
MREL – minimum requirement for own funds and eligible liabilities.
NSFR – Net Stable Funding Ratio.
OECD – Organisation for Economic Co-operation and Development.
ONS – Office for National Statistics.
O-SII – other systemically important institution.
OTC – over the counter.
PNFC – private non-financial corporation.
PPP – purchasing power parity.
PRA – Prudential Regulation Authority.
QCCP – qualifying central counterparty.
RBS – Royal Bank of Scotland.
RICS – Royal Institution of Chartered Surveyors.
RTGS – real-time gross settlement.
RWA – risk-weighted asset.
SIFI – systemically important financial institution.
SML – Survey of Mortgage Lenders.
SPV – special purpose vehicle.
S&P – Standard & Poor's.
T2 – Tier 2.
VEAP – vulnerable euro-area periphery.
WEO – IMF *World Economic Outlook*.

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