

# Financial Stability Report

June 2011 | Issue No. 29



BANK OF ENGLAND







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In June 2010, the Chancellor of the Exchequer set out a plan for fundamental changes to the system of UK financial regulation. In July 2010 and February 2011, the Government published consultation documents on the proposed changes, and in June 2011 published a White Paper<sup>(1)</sup> outlining further steps towards the legislative enactment of the Government's proposed regulatory framework. The proposed reforms include the establishment of a Financial Policy Committee (FPC) charged with identifying, monitoring and taking action to remove or reduce systemic risks with a view to protecting and enhancing the resilience of the UK financial system.

The Government intends the FPC to be a Committee of the Bank of England's Court of Directors, and in February 2011 the Court created an interim FPC to undertake, as far as possible, the future statutory FPC's macroprudential role. Although lacking the proposed statutory powers of Direction and Recommendation of the statutory FPC, the interim FPC contributes to maintaining financial stability by identifying, monitoring and publicising risks to the stability of the financial system and advising action to reduce and mitigate them. It will also carry out preparatory work and analysis in advance of the creation of the permanent FPC.

The proposed legislation will require the FPC to publish a *Financial Stability Report* twice a year. This *Financial Stability Report* was produced under the guidance of the interim FPC. It covers the Committee's assessment of the outlook for the stability and resilience of the financial sector at the time of preparation of the *Report*, and the policy actions it advises to reduce and mitigate risks to stability.

## The interim Financial Policy Committee:

Mervyn King, Governor

Paul Tucker, Deputy Governor responsible for financial stability

Charles Bean, Deputy Governor responsible for monetary stability

Hector Sants, Deputy Governor Designate responsible for prudential regulation and  
CEO Designate of the Prudential Regulation Authority

Adair Turner, Chairman of the Financial Services Authority

Alastair Clark

Michael Cohrs

Paul Fisher

Andrew Haldane

Donald Kohn

Jonathan Taylor attended the FPC meeting on 16 June as the Treasury member.

This document was delivered to the printers on 23 June 2011 and, unless otherwise stated, uses data available as at 15 June 2011.

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

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(1) *A new approach to financial regulation: the blueprint for reform*, available at [www.hm-treasury.gov.uk/d/consult\\_finreg\\_new\\_approach\\_blueprint.pdf](http://www.hm-treasury.gov.uk/d/consult_finreg_new_approach_blueprint.pdf).



## Contents

Foreword	1
Executive summary	5
<hr/>	
<b>1 Risks from the international financial system</b>	<b>6</b>
<hr/>	
Box 1 Financial instrument complexity, interconnectedness and opacity	14
<b>2 Credit risks to the banking system</b>	<b>17</b>
<hr/>	
Box 2 Forbearance	24
<b>3 Resilience of the financial system</b>	<b>29</b>
<hr/>	
Box 3 Bank leverage and returns on equity	35
Box 4 Bank funding resilience: a whole balance sheet approach	36
<b>4 Prospects for financial stability</b>	<b>42</b>
<hr/>	
Box 5 The provision of financial services	44
<hr/>	
Index of charts and tables	49
Glossary and other information	51



# Executive summary

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At its meeting on 16 June, the interim Financial Policy Committee (FPC) agreed the following policy recommendations:

- The Committee advises the Financial Services Authority (FSA) to ensure that improved disclosure of sovereign and banking sector exposures by major UK banks becomes a permanent part of their reporting framework, and to work with the FPC to consider further extensions of disclosure in the future.
- The Committee advises the FSA to compile data on the current sovereign and banking sector exposures of other UK banks not subject to the EBA stress tests. If these exposures are significant, then the FSA should publish an aggregate estimate.
- The Committee advises the FSA to extend its review of forbearance and associated provisioning practices across UK banks' household and corporate sector exposures on a global basis.
- The Committee advises the FSA that its bank supervisors should monitor closely the risks associated with opaque funding structures, such as collateral swaps or similar transactions employed by exchange-traded funds.
- The Committee advises UK banks that, during the transition to the new Basel III capital requirements, they should take the opportunity of periods of strong earnings to build capital so that credit availability is not constrained in periods of stress.
- The Committee advises the FSA, as part of its regular supervisory dialogue with banks, to ensure that the proportion of earnings retained is consistent with the advice in the preceding recommendation.

The Committee judged that this advice was appropriate given the key risks faced by the financial system. Sovereign and banking strains are the most material and immediate threat. Market concerns remain over fiscal positions in a number of euro-area countries and the potential for contagion to banking systems. Any associated disruption to bank funding markets could spill over to UK banks.

More medium-term risks are posed by loan forbearance. While forbearance by lenders has helped to reduce unnecessary foreclosures, inadequate or opaque provisioning of loans subject to forbearance may mask underlying credit risks and heighten uncertainty among bank creditors about profit and capital positions.

Interconnectedness in the financial system and complex or opaque instrument structures can amplify and propagate any stress that emerges. There are emerging signs that complexity and opacity are creeping back into some markets as participants look to generate higher returns in the low interest rate environment. For example, exchange-traded funds have expanded rapidly and in some forms could become a source of risk to the system as the market evolves.

In this challenging environment, the improved resilience of the UK banking system is welcome. Banks have lowered leverage levels and made progress in raising longer-term funding, reducing the extent of the immediate refinancing challenge. But lending growth has remained weak. Given the significant risks to the financial system, UK banks should strengthen their resilience when conditions are favourable without jeopardising lending.

# 1 Risks from the international financial system

Sustained low interest rates have helped to stimulate economic recovery and underpin global financial markets, despite a number of adverse shocks. While there are a few signs of overheating in localised markets, there is no evidence of risk being systematically underpriced in financial markets.

But downside risks to stability remain. Sovereign and banking concerns are elevated in parts of Europe. Bond yields internationally are susceptible to a reversal from current low levels, which might lead to volatility in financial markets. And there are risks from changing conditions in funding markets, given banks' continuing use of potentially unstable sources of liquidity.

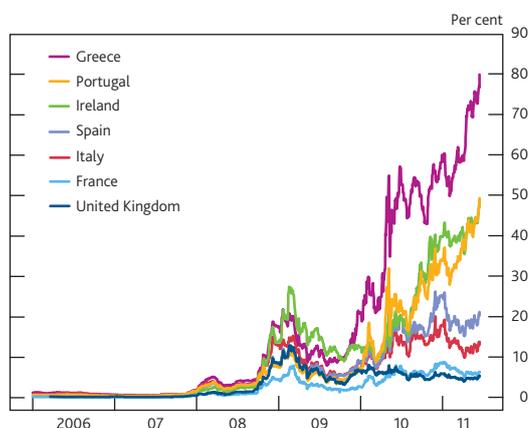
**Table 1.A Systemic Risk Survey: key risks to the UK financial system<sup>(a)(b)</sup>**

	Nov. 2009	May 2010	Oct. 2010	May 2011
Economic downturn	68	67	83	69
Sovereign risk/public debt	24	69	39	65
Funding and liquidity problems	35	31	44	46
Regulation/taxes	49	41	45	32
Property price falls	27	28	41	31
Financial market disruption/dislocation	30	28	27	28
Household/corporate defaults	49	17	19	26

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

(a) Per cent of respondents citing each risk. Market participants were asked to list (in free format) the five risks they believed would have the greatest impact on the UK financial system if they were to materialise. Risks cited in previous surveys have been regrouped into categories used to describe the latest data. Only risks that have been in the top five in at least one of the above surveys have been included in the table.  
(b) The May 2011 survey was carried out between 19 April and 20 May 2011.

**Chart 1.1 Mechanical market-implied default probabilities over the next five years for selected European sovereigns<sup>(a)</sup>**



Sources: Markit Group Limited and Bank calculations.

(a) Probability of default, derived from CDS premia, from the perspective of a so-called 'risk-neutral' investor that is indifferent between a pay-off with certainty and an uncertain pay-off with the same expected value.

This section focuses on risks to UK banks from the international financial system. The rest of the *Report* examines: the credit risks faced by UK and key international banks from their exposures to sovereigns, banks and the real economy (Section 2); the resilience of the UK financial system to market and credit risks (Section 3); and, against this backdrop, the outlook for financial stability and the policy actions that the FPC advises to reduce risks to the financial system (Section 4).

Risks from the international financial system remain high. In the Bank of England's May 2011 *Systemic Risk Survey*, the proportion of respondents citing sovereign risk as a key threat to the UK financial system increased to 65%, from 39% in October last year (Table 1.A). Among other financial system risks, the proportions citing funding and liquidity problems and financial market disruption/dislocation were largely unchanged, but remain significant.

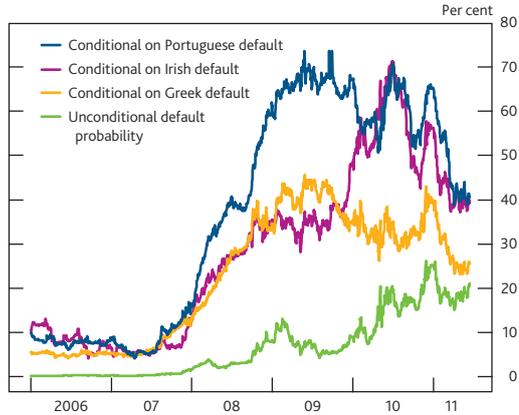
## 1.1 Developments in the international financial system

*Markets have faced adverse shocks, including sovereign and banking strains in parts of Europe...*

Global capital markets have been subject to a number of adverse shocks since the December 2010 *Report*, including continued sovereign stresses in the euro area. In May, Portugal became the third euro-area country to seek financial support from European authorities and the IMF. Sovereign credit default swap (CDS) premia for Portugal, Greece and Ireland have risen to new highs, suggesting significant ongoing market concern about the sustainability of countries' fiscal plans (Chart 1.1).

Markets also remain concerned about a broadening of problems to other euro-area countries. In the event that

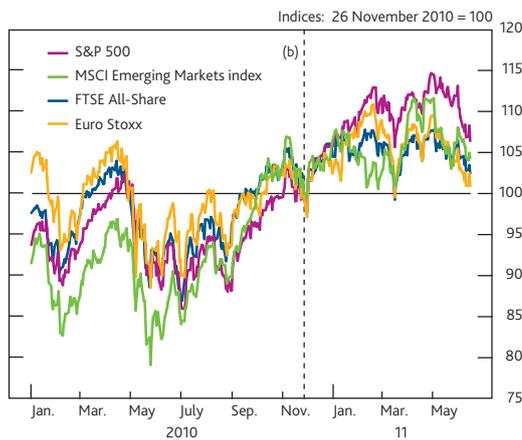
**Chart 1.2 Mechanical market-implied default probabilities over the next five years for Spanish sovereign debt<sup>(a)</sup>**



Sources: Markit Group Limited and Bank calculations.

(a) Probability of default, derived from CDS premia, from the perspective of a so-called 'risk-neutral' investor that is indifferent between a pay-off with certainty and an uncertain pay-off with the same expected value.

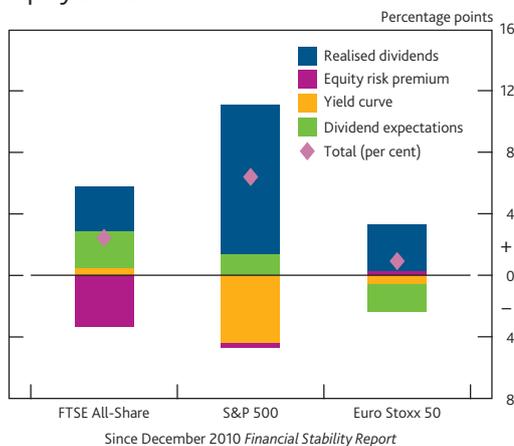
**Chart 1.3 International equity indices<sup>(a)</sup>**



Sources: Bloomberg, Thomson Reuters Datastream and Bank calculations.

(a) Denominated in units of local currency except for MSCI Emerging Markets index which is denominated in US dollars.  
(b) December 2010 Report.

**Chart 1.4 Contributions to changes in international equity indices<sup>(a)</sup>**



Sources: Bloomberg, Thomson Reuters Datastream and Bank calculations.

(a) As implied by a multi-stage dividend discount model. See Panigirtzoglou, N and Scammell, R (2002), 'Analysts' earnings forecasts and equity valuations', *Bank of England Quarterly Bulletin*, Spring, pages 59–66.

countries requiring financial support default, the market is attaching a somewhat higher weight to other euro-area countries coming under stress (Chart 1.2). Contagion risk could be amplified by uncertainty over where sovereign exposures ultimately lie or doubts over whether any voluntary debt restructuring would trigger a 'credit event' for CDS. Credit risks for UK banks from developments in the euro area are discussed in Section 2.

*...and shocks in the Middle East, Japan and the United States...*

Outside of Europe, there have been other shocks. Over the past six months, the Middle East and North Africa have experienced major political unrest, contributing to a sharp rise in the oil price. In March 2011, Japan was hit by a severe earthquake and tsunami. Japan's sovereign rating was put on negative watch by various credit rating agencies as a result, with Standard & Poor's having already downgraded Japan's sovereign rating from AA to AA- in January. And in April, Standard & Poor's revised its outlook on the US AAA rating from stable to negative watch, implying it sees a one-in-three chance of a downgrade over the next few years. The agency cited a lack of clarity over US fiscal policy towards tackling the size of the US budget deficit and rising government indebtedness. Since mid-May, the US Government has had to implement special measures to stay below its debt ceiling.

*...but conditions in financial markets held firm for much of the period since the December Report...*

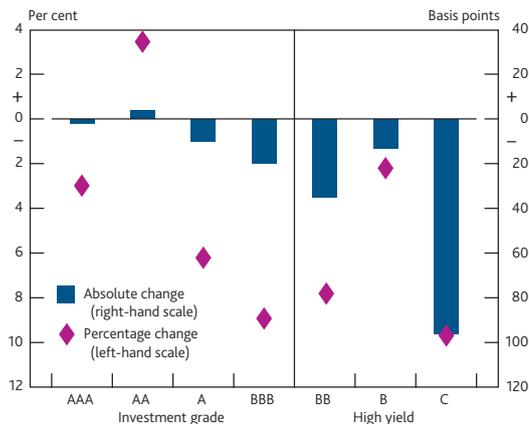
Against this backdrop of adverse shocks, asset prices have generally edged higher since the December 2010 Report, despite some falls in May and June. Equity prices rose marginally in the United Kingdom and euro area but more strongly in the United States (Chart 1.3). This appeared to reflect a larger rise in realised dividends in the United States (Chart 1.4). In debt markets, corporate bond spreads generally narrowed, particularly for higher-yielding debt (Chart 1.5). Changes in CDS premia for indices of US and European non-financial companies also suggested improved sentiment for higher-yielding debt relative to investment-grade debt.

Indicators of market risk appetite do not point to a particular strengthening of sentiment overall (Chart 1.6). Measures of market volatility fell during much of the period, however, and reached levels close to those last seen in 2007 (Chart 1.7). This was despite significant price movements in commodity markets during the spring. Commodity exposures have accounted for a growing proportion of large complex financial institutions' (LCFIs) total Value-at-Risk in recent years.

*...helped by improvements in global economic conditions...*

Improvements in near-term global growth prospects earlier in the year helped to underpin financial markets, though downside risks have increased more recently. Growth

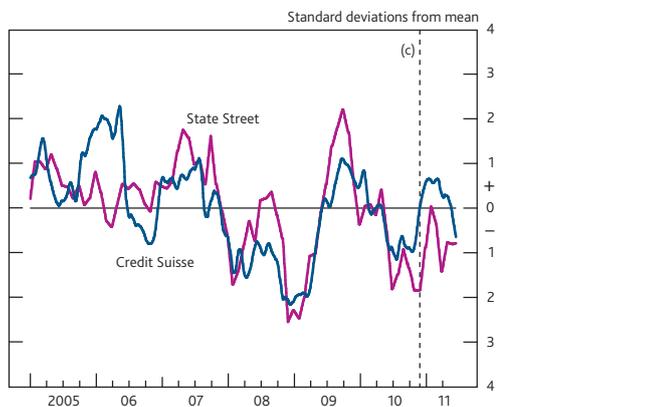
**Chart 1.5** Change in US corporate bond spreads by rating<sup>(a)</sup>



Sources: Bank of America Merrill Lynch Global Research and Bank calculations.

(a) Change in option-adjusted spreads since December 2010 Report.

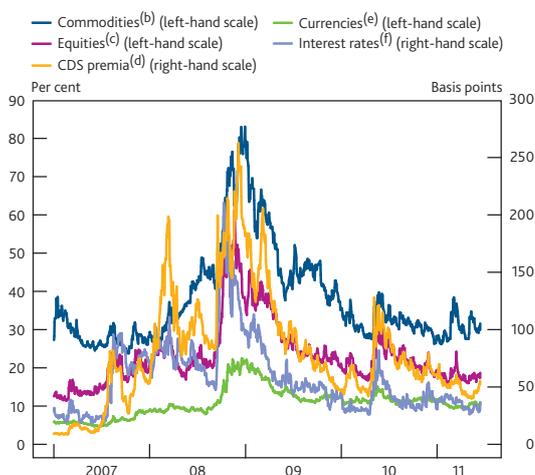
**Chart 1.6** Indicators of risk appetite<sup>(a)(b)</sup>



Sources: Bloomberg, Credit Suisse and Bank calculations.

(a) Indices are converted to a 20-day moving average, adjusted so that positive numbers indicate increased risk-taking and negative numbers indicate reduced risk-taking.  
 (b) Mean and standard deviation calculated from 28 July 2004.  
 (c) December 2010 Report.

**Chart 1.7** Implied volatilities<sup>(a)</sup>



Sources: Bloomberg, British Bankers' Association, Chicago Mercantile Exchange, JPMorgan Chase & Co., NYSE Euronext (European) Cash products and Bank calculations.

(a) Three-month option-implied volatilities.  
 (b) West Texas Intermediate crude oil.  
 (c) Average of FTSE 100, S&P 500 and Euro Stoxx 50.  
 (d) Average of five-year on-the-run iTraxx Europe main and CDX North America investment-grade.  
 (e) Average of USD/EUR, EUR/GBP and USD/GBP.  
 (f) Average of three-month short sterling, eurodollar and Euribor.

prospects in major advanced countries have changed unevenly (Chart 1.8). In emerging economies, growth prospects have remained robust. But there are market concerns about possible overheating in some areas following a period of strong credit growth and high and rising inflation.

*...which have led to a redistribution of capital within the global financial system.*

These developments have contributed to a modest shift in the global pattern of financial flows towards advanced economies. Following very strong inflows in 2009 and 2010, there were outflows from dedicated emerging-economy equity funds during 2011 Q1 (Chart 1.9). Meanwhile, flows to advanced-economy and global equity funds picked up strongly following outflows during much of 2010. Geopolitical concerns may have contributed to the outflows from emerging-economy funds. But market participants suggest a reassessment of economic prospects relative to advanced countries was the most important factor. Inflows to emerging-economy funds resumed in 2011 Q2. Given better long-term growth prospects in emerging economies and their small share of major institutional investors' overall portfolios, strong portfolio flows to emerging economies may persist for the foreseeable future.

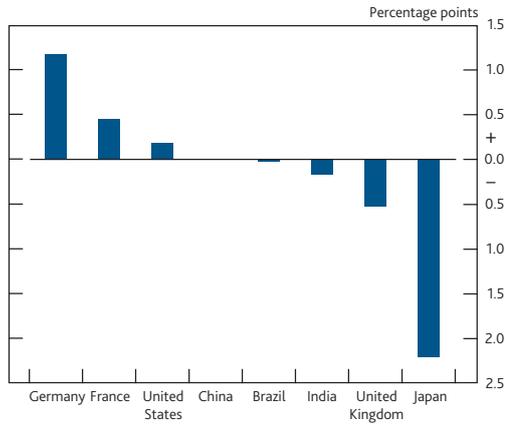
Cross-border bank lending, another major component of international capital flows, has proved highly cyclical. Since the onset of the financial crisis, total cross-border lending has been subdued. Lending to advanced countries has been particularly weak. It fell in 2010 Q4 as euro-area banks reduced claims on other European countries, possibly reflecting concerns about sovereign risks (Chart 1.10). In contrast, cross-border lending to emerging economies recovered quickly in 2009 and 2010, most notably to Latin America and Asia. More recent data available for UK-resident banks show lending to emerging economies strengthened further in 2011, and lending to advanced countries rebounded.<sup>(1)</sup>

*Demand for US government debt from emerging economies remains strong...*

Strong capital flows to emerging economies are desirable, as these economies offer the highest prospective returns on investment and such flows would help the process of global rebalancing. For many emerging economies, however, portfolio inflows from the United States have been exceeded by outflows into advanced-economy debt, particularly official purchases of US Treasuries, as current account surpluses are used to build reserves (Chart 1.11). Strong demand for US government debt, reflecting in part the US dollar's reserve currency status, has resulted in non-residents playing an increasingly important role in funding the US fiscal deficit. The

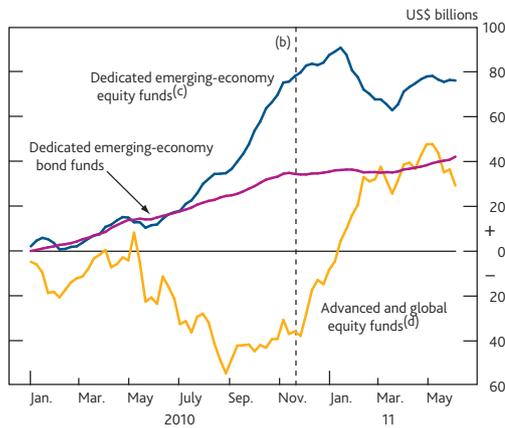
(1) UK-resident data include external claims of branches and subsidiaries of non-UK owned monetary and financial institutions located in the United Kingdom.

**Chart 1.8** Revisions to 2011 economic growth forecasts for selected countries<sup>(a)</sup>



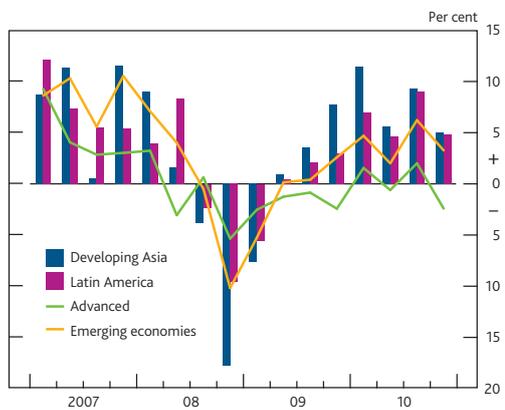
Sources: IMF *World Economic Outlook* (October 2010 and June 2011) and Bank calculations.  
 (a) Between October 2010 and June 2011.

**Chart 1.9** Pattern of investment flows into equity and bond funds<sup>(a)</sup>



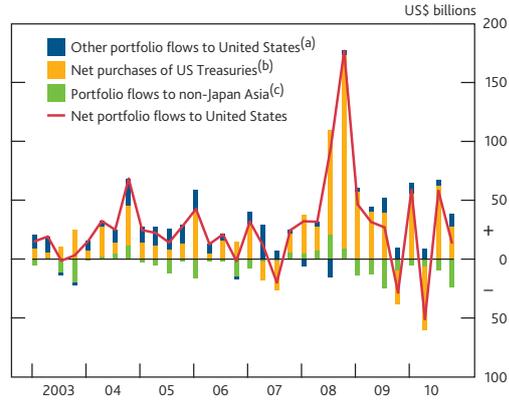
Sources: Emerging Portfolio Fund Research and Bank calculations.  
 (a) Cumulative investment flows into selected equity and bond funds by investors globally since January 2010. The data capture within-country flows (eg investments by US-domiciled mutual funds in US equities) as well as cross-border flows.  
 (b) December 2010 Report.  
 (c) Includes newly industrialised economies.  
 (d) 'Advanced and global' includes the following equity funds: Global, Japan, Pacific, United States and Western Europe.

**Chart 1.10** Change in gross cross-border banking claims<sup>(a)</sup>



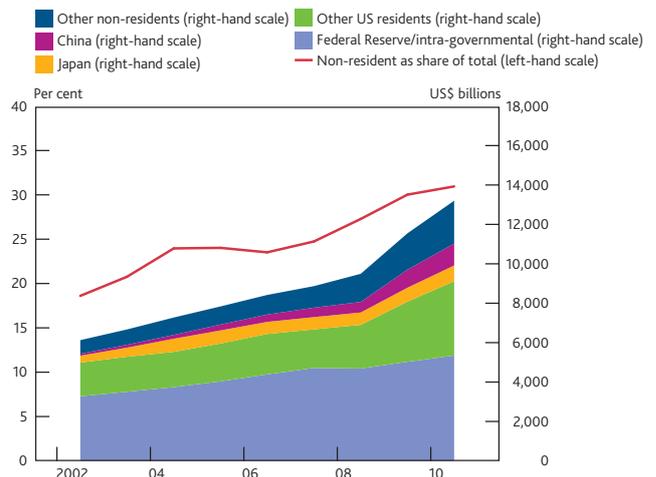
Sources: Bank for International Settlements (BIS) and Bank calculations.  
 (a) Change in BIS-resident banks' aggregate cross-border claims by region. Calculated as the exchange rate adjusted flow during a quarter as a percentage of the stock of outstanding loans at the end of the previous quarter.

**Chart 1.11** Portfolio flows between the United States and non-Japan Asia



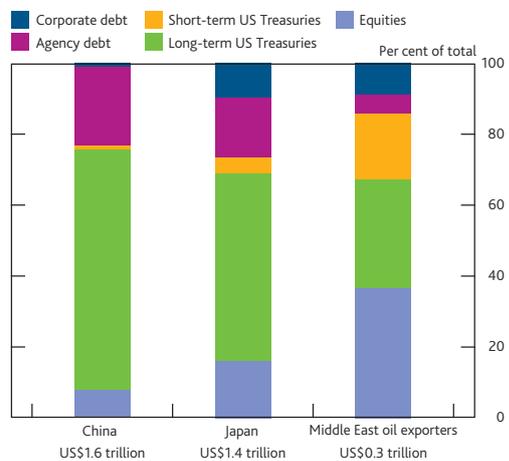
Sources: Bureau of Economic Analysis, United States Department of the Treasury and Bank calculations.  
 (a) Net purchases of US portfolio assets excluding US Treasuries by non-Japan Asia residents.  
 (b) Net purchases of US Treasuries by non-Japan Asia residents.  
 (c) Net purchases of non-Japan Asia portfolio assets by US residents (shown as negative flow to United States).

**Chart 1.12** Holdings of US Treasuries<sup>(a)</sup>



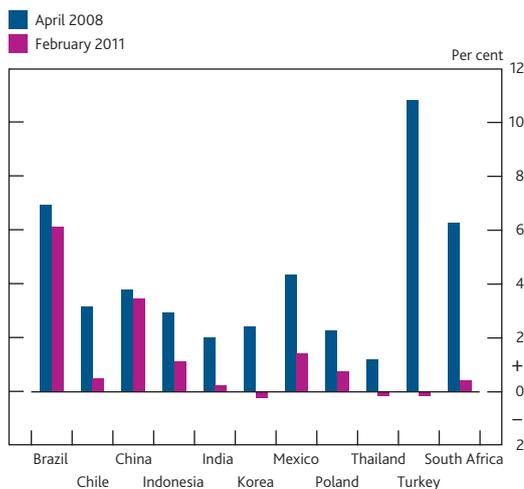
Sources: United States Department of the Treasury and Bank calculations.  
 (a) Data for China exclude Hong Kong and Macau, which are reported separately.

**Chart 1.13** Holdings of US securities by China, Japan and Middle East oil-exporting countries<sup>(a)(b)</sup>



Sources: United States Department of the Treasury and Bank calculations.  
 (a) As at 30 June 2010.  
 (b) Data for China exclude Hong Kong and Macau, which are reported separately. The Middle East exporters are Bahrain, Iran, Iraq, Oman, Qatar, Saudi Arabia and the United Arab Emirates.

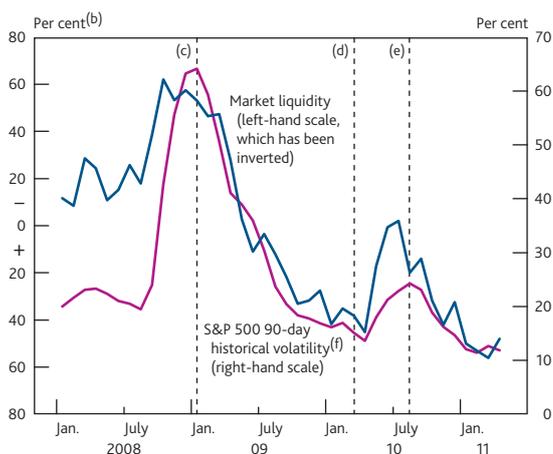
**Chart 1.14** Real policy rates in selected emerging economies<sup>(a)</sup>



Source: IMF World Economic Outlook (April 2011).

(a) Nominal policy rates deflated by two year ahead inflation projections.

**Chart 1.15** Market liquidity and volatility<sup>(a)</sup>



Sources: Bank of America Merrill Lynch (BoAML), Bloomberg and Bank calculations.

(a) Data to close of business on 31 May 2011.

(b) Balance of respondents to BoAML survey regarding market conditions as liquid. Scale inverted.

(c) 28 January 2009, FOMC statement interpreted by some market participants as signalling Federal Reserve intention to launch quantitative easing (QE).

(d) 31 March 2010, first phase of QE completed.

(e) 28 August 2010, Federal Reserve Chairman Ben Bernanke speech at Jackson Hole.

Interpreted by some market participants as signalling Federal Reserve intention to launch second phase of QE.

(f) Average of daily historical volatility in each month.

share of US Treasuries held by non-residents has risen to just under a third in the past decade, with mainland China and Japan alone accounting for half of non-resident holdings (Chart 1.12).

*...though the balance of capital flows may shift over the medium term.*

Looking ahead, changes in current accounts could affect demand for US and other advanced-economy government debt. For example, a sustained oil price rise would shift current account surpluses from goods-exporting countries in Asia to oil exporters. Middle East oil-exporting countries have not been as strong buyers of long-term US Treasuries over the past few years as China, choosing to hold a broader range of US assets (Chart 1.13).

The response of emerging economies to signs of overheating could also affect global capital flows. A number of emerging-economy central banks have tightened monetary policy recently or taken macroprudential measures. But real interest rates remain low or negative in many larger economies (Chart 1.14) and credit growth is high (Section 2). Some authorities are seemingly reluctant to raise interest rates because of the additional capital inflows this could attract. Allowing currencies to appreciate gradually, by not investing surplus funds into advanced-economy assets, would be one way for countries to reduce inflationary pressures.

## 1.2 Sources of risk from the international financial system

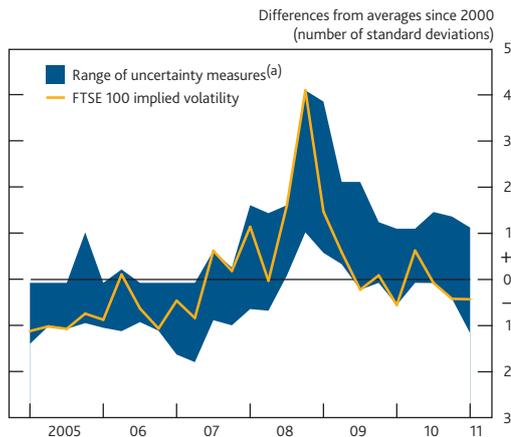
Developments in global financial markets have important implications for UK banks. Trading and investment banking activities can be substantial sources of profit or loss. And wholesale markets provide short and long-term funding and enable firms to manage their risks. At present, UK and international banks are especially exposed to the following broad classes of financial market risks:

- an abrupt reversal of low bond yields or increase in market volatility;
- a sudden change in asset valuations resulting from a repricing of risk; and
- continuing reliance on unstable sources of wholesale funding, including from non-bank financial institutions.

*Low market volatility may not last...*

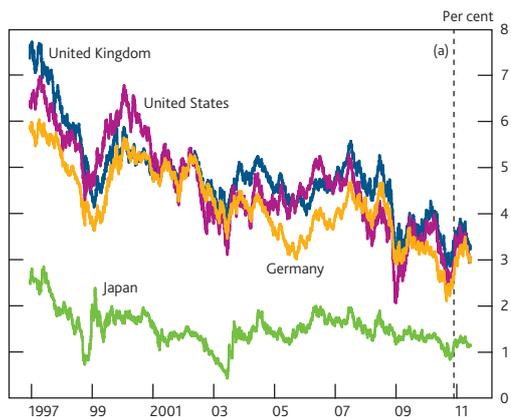
Improvements in market liquidity<sup>(1)</sup> have been an important factor underpinning global financial markets recently. As shown in Chart 1.15, large falls in market volatility since early 2009 have been closely associated with perceptions of greater market liquidity. US monetary policy may have driven

(1) Market liquidity is defined as the ease with which market participants can offset or eliminate financial positions without significantly affecting their market price.

**Chart 1.16** Measures of UK economic uncertainty

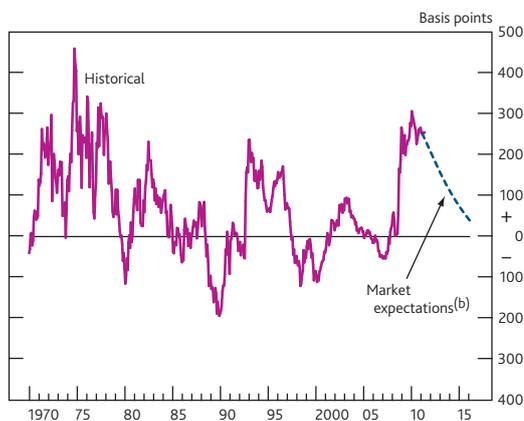
Sources: CBI, Consensus Economics, Dow Jones Factiva, GfK NOP on behalf of the European Commission, ONS, Thomson Reuters Datastream and Bank calculations.

(a) A higher number indicates greater uncertainty. Includes: CBI measures of demand uncertainty as a factor likely to limit capital expenditure for manufacturing and business/consumer services weighted together using nominal shares in value added. Quarterly average standard deviation of monthly Consensus Economics forecasts for GDP one and two years ahead seasonally adjusted by Bank staff. The standard deviation of daily price movements in the FTSE index and sterling ERI within a quarter. The IBES weighted average standard deviation of twelve-month forward earnings per share forecasts. And the quarterly average of media reports citing 'economic uncertainty' in five national broadsheet newspapers.

**Chart 1.17** International ten-year spot government bond yields

Source: Thomson Reuters Datastream.

(a) December 2010 Report.

**Chart 1.18** Slope of the sterling yield curve<sup>(a)</sup>

Sources: Bloomberg and Bank calculations.

(a) Chart shows only end-of-month data. Spread between ten-year and two-year UK government bond yields.

(b) Derived from the UK government bond forward yield curve.

some of this improvement, notably the two phases of US quantitative easing announced in early 2009 and 2010. And buoyant market liquidity may be helping to sustain asset valuations. Some measures of financial market uncertainty have been low relative to broader measures of economic uncertainty (Chart 1.16). This suggests that financial markets may be underestimating future macroeconomic risk.

*...and low bond yields remain susceptible to reversal...*

Government bond yields remain at low levels by historical standards (Chart 1.17). Yields at shorter maturities are furthest below long-term averages, reflecting accommodative monetary conditions. As highlighted in previous Reports, low yields have been an intended consequence of authorities' monetary policies over the past few years. Yields could, however, be susceptible to a reversion towards more typical levels.

*...affecting banks directly...*

A sudden 'snap back' in yields may carry risks to the global financial system, particularly when yields have been low for so long. Low interest rates, combined with an unusually steep yield curve (Chart 1.18), have allowed banks to generate interest income — or carry — from lending at long maturities and borrowing short. Any significant flattening or reversal of yield curves could cause banks to incur large mark-to-market losses on unhedged carry trades in their trading book. Cross-currency carry trades, where assets in high-yielding currencies are funded by borrowing in low-yielding currencies, present additional risks as unfavourable exchange rate movements can cause or exacerbate losses. Yield differentials suggest that the attractiveness of carry trades between US dollar and certain emerging-economy currencies has risen since late 2010 (Chart 1.19).

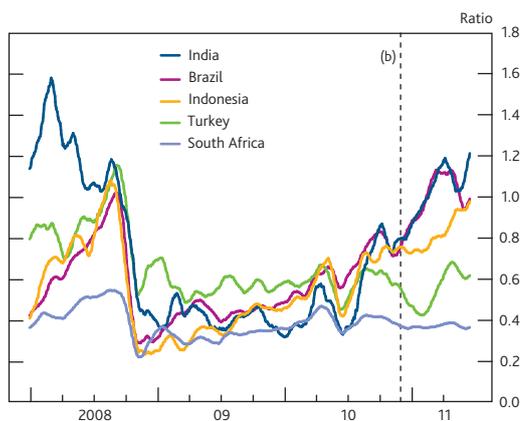
A rise in yields could result in banks also experiencing mark-to-market losses on unhedged holdings of government debt. This could have a greater impact than in the past as banks have been building liquid assets to meet regulatory requirements. Since 2008, major UK banks have increased their holdings of global government debt securities from 5.9% to 9.6% of total assets.

*...with potential for a wider impact on financial markets.*

The shift of the US dollar yield curve in 1994 had a widespread effect across international asset markets leading to bank losses on trading book exposures.<sup>(1)</sup> Other periods of yield curve reversal, such as Japan in 2003 and the United States in 2006, had a more muted impact on capital markets. Amplification channels may be important for understanding the different impact from yield curve adjustments. For example, mortgage duration hedging, where holders of mortgage-backed securities (MBS) attempt to protect themselves against

(1) See Box 1 on pages 22–23 of the December 2010 Report.

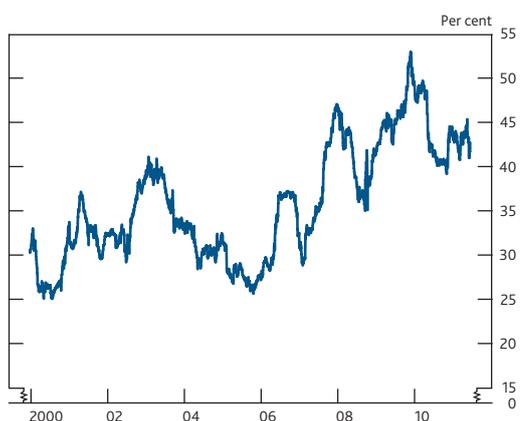
**Chart 1.19** Attractiveness of selected emerging-economy currency carry trades against the US dollar<sup>(a)</sup>



Sources: Bloomberg and Bank calculations.

- (a) Defined as the one-month rolling average of the spread between three-month deposit rates for selected economies and the United States, divided by the implied volatility of the bilateral exchange rate.
- (b) December 2010 Report.

**Chart 1.20** Comovement of asset returns<sup>(a)(b)</sup>



Sources: Bank of America Merrill Lynch, Thomson Reuters Datastream and Bank calculations.

- (a) Percentage of variability across daily asset returns explained by the first principal component over a six-month rolling window.
- (b) Commodities are grain, industrial and precious metals; equity indices are FTSE All-Share, S&P 500 and Euro Stoxx 50; bond indices are US corporate BBB and euro corporate BBB.

**Chart 1.21** Equity price valuation measure<sup>(a)(b)</sup>



Sources: Thomson Reuters Datastream and Bank calculations.

- (a) Shading is based on a score that reflects the number of standard deviations away from the mean for each series. Green represents observations below the median score. Orange represents observations between the median and the 85th percentile. Red represents observations between the 85th and 100th percentiles.
- (b) 2011 Q2 data up to close of business on 15 June 2011.

increased duration risk as rates rise, was an important amplifier in 1994. Current levels of duration hedging may be low as a significant proportion of MBS is held by the Federal Reserve, which does not duration hedge.

*Meanwhile, low interest rates may be leading to increased risk-taking in some markets...*

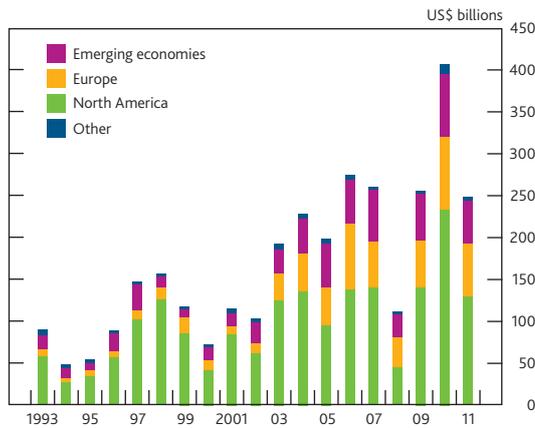
Low yields on safe assets could encourage investors to take on greater risk in a so-called 'search for yield'. An increase in risk appetite was an intended consequence of policy actions to stimulate growth, following the sharp retrenchment during the crisis. But there could be risks if investors herd to certain markets in search of higher returns. That would expose them to potential losses in the event of a reassessment of risk. And price comovements across some asset classes are historically high (Chart 1.20), suggesting shocks could be transmitted rapidly across markets.

*...such as emerging-economy equities and high-yield bonds...*

At the moment, search for yield seems to be localised in a few markets, as was also the case in 2003/04. Market contacts suggest that, given a shortage of high-quality assets, demand is being displaced to lower-quality assets. But there are very few signs of acute overheating or generalised risk-taking across global capital markets. For example, equity prices generally do not appear out of line with historical valuation measures. There have been some signs of overheating in equity markets in a few countries and regions, however, with Latin America and emerging Asia most affected (Chart 1.21). And demand for lower-grade corporate debt has also been high. Issuance of emerging-economy, European and US high-yield corporate debt reached record levels in 2010 and has remained strong in 2011 (Chart 1.22). The compression of spreads between different corporate bond risk grades suggests investors may be differentiating less between credit types than in the past. Model-based estimates suggest that both US high-yield and investment-grade corporate debt pricing embody a relatively low liquidity risk premium by historical standards (Chart 1.23). But liquidity premia for UK and euro-area investment-grade corporate debt appear close to long-term averages.

There has been little evidence of investors seeking complex products on a significant scale, which would be one way to increase risk exposure. But market contacts have noted a recent weakening in lending standards. For example, issuance of 'covenant-lite' leveraged loans, where investors accept fewer safeguards if a debtor company's finances deteriorate in return for a higher yield, seems to be re-emerging (Chart 1.24). In private equity markets, contacts report greater use of payment-in-kind deals, where no interest is paid on bonds until maturity. Contacts have also suggested that due diligence by some investors on emerging-economy corporate debt issuance may have been poor recently.

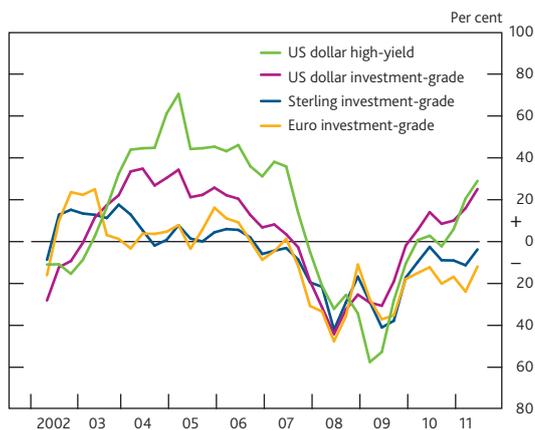
**Chart 1.22** Issuance of sub-investment grade corporate bonds by region<sup>(a)(b)</sup>



Sources: Dealogic and Bank calculations.

- (a) Emerging economies includes Africa, Caribbean, Indian subcontinent, Latin America, Middle East, North Asia and South East Asia. 'Other' includes Australasia and Japan. Includes issuance in all currencies.  
 (b) 2011 data are to 31 May 2011.

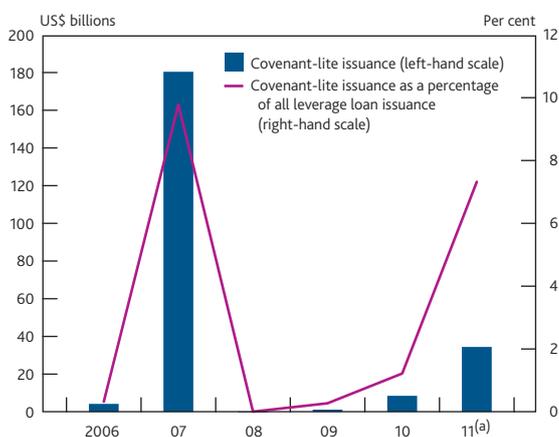
**Chart 1.23** Corporate bond valuation measure<sup>(a)(b)</sup>



Sources: Bank of America Merrill Lynch, Bloomberg, Thomson Reuters Datastream and Bank calculations.

- (a) Shows the difference between actual and estimated equilibrium spreads as a percentage. Positive numbers suggest overvaluation, negative numbers undervaluation.  
 (b) Equilibrium corporate bond spreads are defined as the total estimated credit component plus a five-year rolling average of the illiquidity premia. Full details of the approach used for the decomposition of corporate bond spreads can be found in Churm, R and Panigirtzoglou, N (2005), 'Decomposing credit spreads', *Bank of England Working Paper no. 253*.

**Chart 1.24** Issuance of 'covenant-lite' leverage loan deals



Sources: Dealogic and Bank calculations.

- (a) Data to close of business on 31 May 2011.

*...as investors target absolute returns.*

One reason for a search for yield may be investors seeking to maintain nominal returns at previously high levels. Global flows into hedge funds have risen strongly since 2009, though total funds under management remain below 2007 peaks. A Barclays Capital survey found that a growing proportion of commodity investors have been looking for absolute returns rather than buying for more traditional reasons, such as portfolio diversification. In the United Kingdom, flows to absolute return funds (ARFs), where investors seek to maintain a given return regardless of market conditions, have risen sharply over the past three years. Market intelligence suggests that demand for ARFs has come from both retail and institutional investors. But funds invested in ARFs remain very small compared with, for example, total hedge fund assets.

*Any shocks could be amplified by leverage...*

Leverage can amplify the impact of price shocks. But current demand for leveraged products seems limited. Global volumes of new leveraged loan deals rose in 2010 but were still two thirds below pre-crisis peaks. And there have been relatively few new issues of collateralised loan obligations (CLOs), though market contacts suggest there has been demand for leveraged products from CLOs set up before the crisis.<sup>(1)</sup> At an institutional level, LCFI leverage has fallen over the past couple of years (Section 3). Although hedge fund leverage has risen marginally (Chart 1.25), with market contacts reporting easier financing terms, there is no evidence of excessive levels for any hedge fund strategy. Levels of hedge fund leverage remain very conservative compared with banks.

*...structure and complexity...*

Financial instrument structures can also amplify and propagate stress across markets, as discussed in Box 1. A current example is the rapid growth in exchange-traded funds (ETFs), which have been characterised by increasing complexity, opacity and interconnectedness. ETFs can give rise to risks that may not be transparent to end-investors, making it harder for them to understand and manage their exposures. Where the main investors in complex products have short investment horizons and are leveraged, such as banks, there is greater potential for destabilising fire sales. According to market contacts, banks are not currently involved in the ETF market as outright investors. Global banks remain exposed to the ETF market, however, through their roles as swap counterparties, securities lenders and market makers. 'Synthetic' ETFs, where investors' cash is entered in a structured derivative transaction with a counterparty — typically an affiliated bank — create further links between the banking system and the ETF market. While market intelligence suggests the synthetic ETF market is concentrated around a

(1) CLOs are a form of securitisation where payments from a number of business loans — sometimes leveraged loans from private equity deals — are pooled together, repackaged and sold to investors.

## Box 1 Financial instrument complexity, interconnectedness and opacity

The financial industry is characterised by its tendency to innovate, continuously designing and offering new products to customers. Innovation that leads to efficiency gains — for example, by allowing more effective matching of savers' and borrowers' risk preferences — should reduce the cost of financial intermediation. But the emergence of new and complex financial instruments, especially if not supported by suitable developments in market infrastructure, can also entail risks. For example, the recent crisis was preceded by a gross underestimation of the risks posed by complex structured credit products and the resulting network of intra-financial system exposures. This contributed to the scale and breadth of the crisis.

This box identifies features of financial instruments that can result in a mispricing of risk and contribute to the build-up of systemic risk. It then applies this framework to assess the financial stability implications of the growing complexity and innovation in some segments of the market for exchange-traded funds (ETFs).

### Financial instrument characteristics

#### Complexity

Advances in financial engineering have allowed the financial system to offer increasingly complex financial products. There are several facets to complexity. One relates to the sheer scale of information required to understand the risk characteristics of financial instruments. Another relates to the advanced mathematical modelling necessary to value these products. As a consequence, investors may not be able to assess the risk of these instruments adequately or quantify the uncertainty around their valuation. This can contribute to 'risk illusion'. If such complexity leads investors to outsource risk assessment to a small number of agents (such as rating agencies), the lack of diversity in views can further amplify systemic risk.

These aspects of complexity have been evident in parts of the financial system for some time, most notably in certain segments of the market for structured credit. For example, understanding the risk characteristics of collateralised debt obligations referencing asset-backed securities (CDOs of ABS) required large amounts of information on underlying loans.<sup>(1)</sup> A typical CDO could reference more than 100 residential mortgage-backed securities, each of which could in turn reference about 5,000 underlying mortgages. And investors relied on complex models, for example to estimate default correlations, which proved to have been miscalibrated.

#### Interconnectedness

Financial transactions that result in chains of counterparty exposures increase interconnectedness within the financial system. Counterparty risk is inherent in synthetic products — financial instruments that are created artificially by mimicking or repackaging the cash flows of other securities using derivatives. But it also arises in simple cash transactions, such as repo and securities lending. Individual market participants will typically seek to protect themselves against the risk of counterparty default through a range of mitigating actions. Yet some of these actions, for example using credit default swaps to hedge counterparty risk, further increase interconnectedness. With long chains of credit claims, individual participants are unlikely to be able to understand and price the risks to which they are exposed. Recent regulatory initiatives to expand central clearing of over-the-counter derivatives seek to mitigate some of these risks by introducing 'firebreaks' and simplifying the network of intra-financial exposures.

The rapid growth of the credit derivatives market ahead of the crisis illustrates these frictions. The resulting web of counterparty exposures meant that investors were uncertain about the distribution of risk, which often resided in opaque parts of the system such as monoline insurers. And as the risk of counterparty default was underestimated, the financial system held too little capital against large, gross intra-financial system exposures.

#### Opacity

Both complexity and interconnectedness obscure investors' understanding of the level and distribution of risk across the system, even if there is a reasonable degree of disclosure — which is often not the case. The resulting opacity of financial instruments can be a source of systemic risk in itself. Information frictions were at the heart of the breakdown of trading and the associated evaporation of liquidity in many markets during the crisis. In periods of stress, investors with imperfect information over the quality of assets reduce their buying prices, while holders of 'good' assets are unwilling to sell at prevailing market prices. The collapse of securitisation markets in the recent crisis was one manifestation of this problem. The greater the opacity of instruments, the greater the risk to market functioning.

#### Monitoring the evolution of markets: ETFs

The crisis experience has shown that innovations originally designed to improve the ability of the financial industry to manage risk can sometimes themselves evolve into sources of systemic risk. This highlights the importance of continued monitoring of markets that exhibit these characteristics.

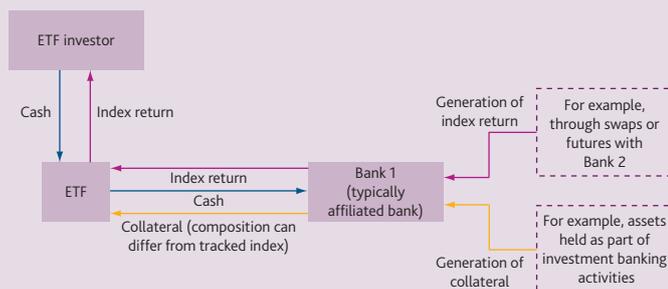
Although the crisis stalled the rapid growth in complex structured credit products, financial institutions are still managing their legacy exposures to these instruments. And new products are constantly being developed. For example, a range of new funding instruments have emerged since the crisis, partly in response to the introduction of tougher regulatory standards.<sup>(2)</sup> And some banks are considering new ways of transferring risk, for example by securitising their derivative counterparty exposures.

One market that has attracted significant attention recently for its strong growth and rapid financial innovation is ETFs.<sup>(3)</sup> As discussed in the June 2010 *Report*, ETFs are investment vehicles that provide exposure to a diversified portfolio of assets, often to an index. Relative to traditional mutual funds, they offer the additional benefit to investors of continuous trading on exchanges.

ETFs started off by using investors' cash to purchase the basket of securities comprising the index from the market — so-called 'physical' replication. Physical ETFs are relatively simple products. Nonetheless, they typically engage in securities lending to boost returns. This exposes them to counterparty risk. And if securities are lent in exchange for cash which is reinvested in illiquid assets, the liquidity position of the ETF itself might be at risk. Limited disclosure over securities lending practices can also increase opacity.

A relatively recent innovation has been the growth of 'synthetic' ETF structures. Unlike physical ETFs, synthetic funds do not purchase the index securities outright but gain exposure to the underlying assets by entering into derivatives contracts with a counterparty, typically an affiliated bank. As part of a series of related transactions (**Figure 1**), the bank receives cash and promises to deliver the returns of the index, posting securities as collateral to the ETF. Because the collateral does not need to match the assets of the index being tracked, the bank might have incentives to use the synthetic ETF structure as a source of collateralised borrowing to fund illiquid portfolios.

**Figure 1** Stylised example of a synthetic ETF

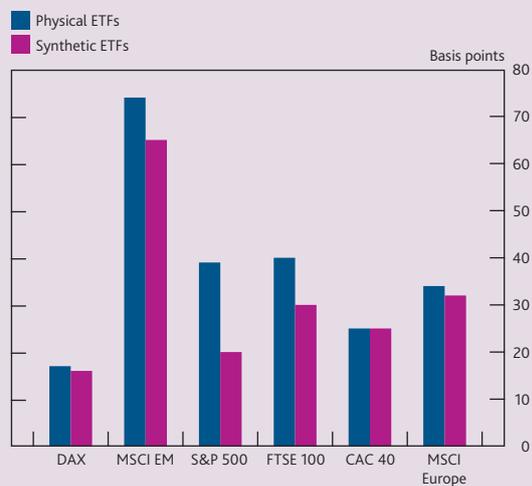


Source: Bank of England.

Synthetic ETFs exhibit more of the characteristics that might contribute to the build-up of systemic risk. They are more complex than physical ETFs, although the degree of complexity remains far below that of some structured credit products developed in the run-up to the crisis. The derivative transactions between ETFs and affiliated banks (or those that the bank itself might undertake to gain exposure to the index) result in the build-up of counterparty credit exposures between market participants. And synthetic structures might pose funding liquidity risk to banks acting as swap counterparties if there is a sudden withdrawal of investors from the ETF market. Lack of consistent disclosures, for example over the nature of derivatives transactions and the quality of collateral received from counterparties, further increases opacity.

Although both types of ETF effectively offer the same service to investors, synthetic ETFs appear to do so at a generally lower cost (**Chart A**). This cost differential might reflect synergies between the asset management service provided by the ETF and banks' investment banking operations. But it is also possible that the additional risks associated with synthetic replication might not be fully understood by investors who are attracted by the lower costs.

**Chart A** Total expense ratios (TERs) of physical and synthetic ETFs listed in Europe<sup>(a)(b)</sup>

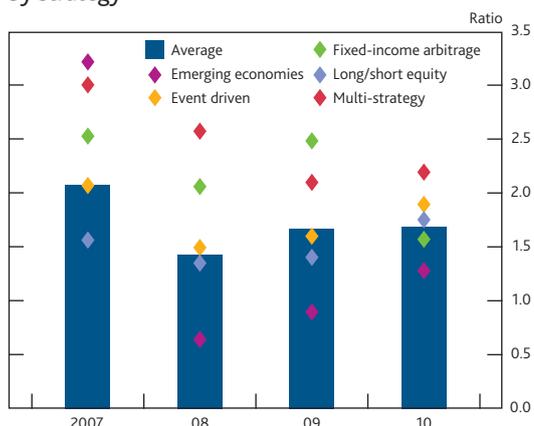


Source: BlackRock Global ETF Research and Implementation Strategy.

- (a) Asset-weighted average TERs. TER calculated as the fund's total operating costs to its average net assets.
- (b) The sample covers physical and synthetic ETFs listed in Europe and tracking major global equity indices.

- (1) CDOs of ABS are structured fixed-income securities whose performance is linked to the performance of underlying pools of ABS collateral. In this respect, they fall under the broad category of 'resecuritisations'.
- (2) See December 2010 *Report*, Box 3, 'Recent developments in bank funding markets', pages 38–39.
- (3) See, for example, Financial Stability Board (2011), 'Potential financial stability issues arising from recent trends in Exchange-Traded Funds'.

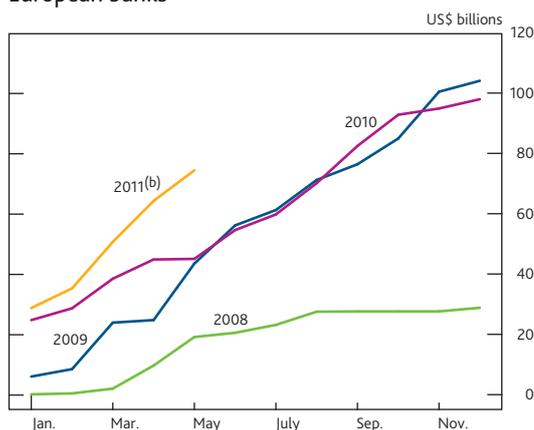
**Chart 1.25 Average hedge fund leverage and leverage by strategy<sup>(a)(b)(c)</sup>**



Sources: BarclayHedge and FSA Hedge Fund as Counterparty Survey.

- (a) Data are based on a sample of hedge funds only.  
 (b) Leverage is measured on a long leverage basis. Long leverage is equal to the sum of the value of all long market positions divided by the equity of a fund.  
 (c) Only the top five largest hedge fund strategies are shown based on assets under management data from BarclayHedge. Managed futures strategies are not included.

**Chart 1.26 US dollar-denominated debt issuance by European banks<sup>(a)</sup>**



Sources: Dealogic and Bank calculations.

- (a) Secured and unsecured issuance.  
 (b) Monthly data to end-May.

**Chart 1.27 Sterling-dollar and euro-dollar basis swap rates**



Source: Bloomberg.

- (a) Additional rate over three-month sterling Libor to swap US dollars, which pay three-month dollar Libor, for sterling for one year.  
 (b) Additional rate over three-month Euribor to swap US dollars, which pay three-month dollar Libor, for euros for one year.

few large banks, UK banks are not significant players in this market at present.

*...or regulatory developments.*

Regulation can sometimes also affect market dynamics. For example, new EU regulations for the insurance sector ('Solvency II') introduce a common risk framework for insurance firms, including greater use of modelling. But there are concerns it could also amplify shocks in capital markets. Under Solvency II, European insurers will have to follow a more comprehensive mark-to-market valuation approach for assets. Although UK insurers already use a mark-to-market approach, many European insurers will be adopting such an approach for the first time. In conjunction with a binding minimum capital requirement, this introduces a greater risk that falling asset prices and mark-to-market losses could force insurers to sell assets into a stressed market, exacerbating volatility. Such a dynamic prompted the FSA to accelerate changes to the regulatory regime for UK insurers in 2003. Use of similar models by firms could also lead to common behaviour.

*Banks remain vulnerable to funding liquidity risks...*

As highlighted in previous Reports, banks are exposed to sudden changes in market conditions through their funding activities. This is a particular concern given the scale of European banks' financing needs over the next two years. For example, when euro-area sovereign concerns escalated in April 2010, UK and other European banks' funding costs increased and the maturity of their wholesale financing shortened, especially in the dollar funding market.

European banks have continued to rely on short-term dollar funding markets. Recently, US investor appetite for European bank debt has been high. This is reflected in strong issuance of US dollar debt by European banks (Chart 1.26). The euro-dollar basis swap spread has also narrowed, suggesting a reduced premium for UK and other European banks acquiring US dollars (Chart 1.27). But these markets have proved susceptible to stresses in the past. Section 3 describes the role of US money market mutual funds in providing short-term dollar funding to European banks.

*...while use of innovative funding arrangements may result in new vulnerabilities.*

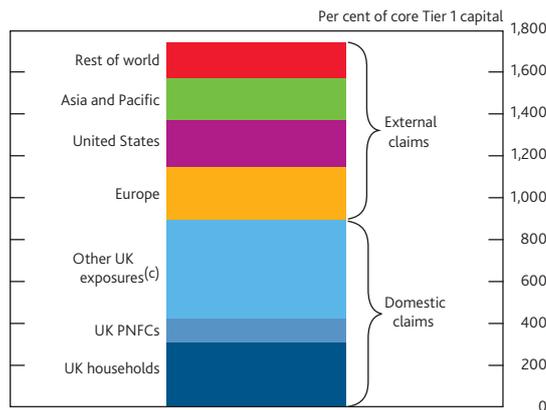
Competition for funds, and the need to build larger buffers to meet tighter liquidity regulations, has encouraged banks to explore more innovative funding arrangements. These instruments have the potential to create new dependencies and risks in financial markets. For example, a few LCFIs have used synthetic ETFs as a source of funding for less liquid parts of their balance sheet. This form of funding is presently not important for UK banks, but is a sizable source of funding for a small number of euro-area banks. Box 4 examines the characteristics of a robust funding structure for banks.

## 2 Credit risks to the banking system

The recovery in global activity has continued but downside risks have increased, in particular from weak fiscal positions in some euro-area economies. While UK banks' direct exposures to the most vulnerable sovereigns and their banks are limited, they are exposed to the private sectors in those economies and indirectly through their links to other banking systems.

The creditworthiness of larger companies in most advanced economies has improved, but commercial real estate remains a concern, including in Asia where signs of overheating have emerged. Loan forbearance may be masking underlying risks from continued high levels of indebtedness in parts of the corporate and household sectors in the United Kingdom and overseas.

**Chart 2.1** Stock of UK banks' lending<sup>(a)(b)</sup>



Sources: Bank of England, FSA regulatory returns and Bank calculations.

- (a) End-December 2010 adjusted for risk transfers. Excludes guarantees and derivatives. Core Tier 1 capital data are to end-December 2010.
- (b) Includes UK-owned banks and Santander UK's domestic lending. Santander UK's lending overseas is not available on a comparable basis to UK-owned bank lending overseas but is small. This is an approximation of the split between domestic and overseas lending as the two data sets are not directly comparable. In particular, domestic lending includes intragroup lending to other UK banks and financial institutions, whereas lending overseas excludes intragroup lending.
- (c) Includes lending to banks, other financial corporations and the public sector.

This section focuses on credit risks facing UK and key international banks. In aggregate, UK banks' exposures are approximately evenly split between the United Kingdom and abroad (**Chart 2.1**). So credit risks depend as much on the path of the global economic recovery as on prospects within the United Kingdom. In the Bank of England's May 2011 *Systemic Risk Survey*, the most frequently cited key risk to the UK financial system remained an economic downturn in the United Kingdom or globally (**Table 1.A**).

*The global recovery has continued but downside risks have increased.*

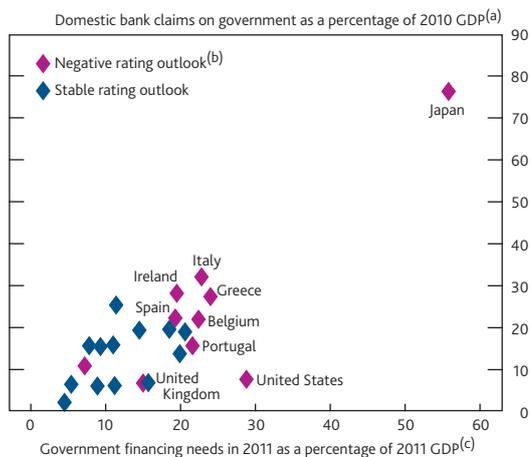
The recovery in global activity has continued since the December 2010 *Report*. In the IMF's June *World Economic Outlook* update, world output was projected to grow by more than 4% in 2011 and 2012, above the average in the decade prior to the financial crisis. But the IMF judged that downside risks to the world economy had increased, in particular from recent greater-than-anticipated weakness in US activity and renewed financial volatility from concerns about fiscal imbalances in parts of the euro area. Concerns were also expressed about medium-term fiscal sustainability in the United States and Japan. Overheating pressures in some key emerging economies were judged to have intensified and downside risks remained from higher commodity prices and increased political unrest in Middle Eastern and North African countries.

### 2.1 Sovereign and banking sector risks

*Fiscal positions are fragile...*

In the May 2011 *Systemic Risk Survey*, the proportion of respondents citing sovereign risk as a key concern rose sharply, to levels last seen a year ago when Greece turned to the EU

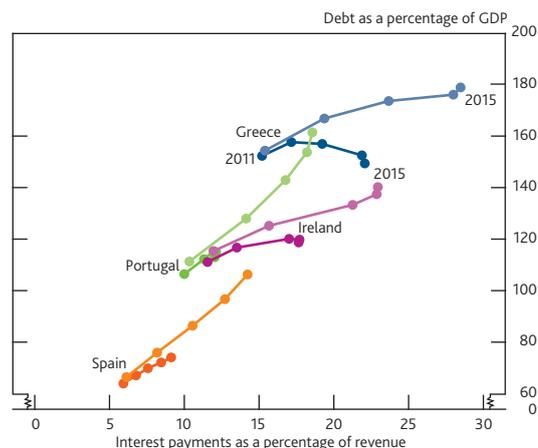
**Chart 2.2** Government financing needs and domestic bank claims on government



Source: IMF *Global Financial Stability Report* (April 2011).

- (a) Includes all claims of domestic depository institutions (excluding the central bank) on their own general government.  
 (b) Outlook is based on the most negative of the three major agencies' ratings.  
 (c) Using IMF 2011 GDP projections.

**Chart 2.3** An illustration of sovereign debt dynamics<sup>(a)(b)</sup>



Sources: Bloomberg, European Banking Authority (EBA), IMF, OECD and Bank calculations.

- (a) Dark lines represent IMF baseline. Light lines represent EBA adverse scenario.  
 (b) For Greece and Spain the baseline scenario is consistent with the IMF April 2011 *World Economic Outlook*; for Portugal and Ireland the baseline scenario is consistent with the most recent review under their three-year arrangements under the IMF's Extended Fund Facility. For all countries the adverse scenario is consistent with that being used by the EBA in their stress testing of European banks. Relative to the baseline it incorporates on average around a 5¼ percentage point decline in nominal GDP growth and a 2¼ percentage point increase in sovereign debt yields over 2011 and 2012. Fiscal deficits are assumed to respond to GDP in line with elasticities estimated by the OECD following Girouard, N and André, C (2005), 'Measuring cyclically-adjusted budget balances for OECD countries', *Economics Department Working Paper no. 434*. After 2012 the shocks to GDP growth and interest rates are assumed to unwind gradually by the end of the period.

and IMF for financial support (Table 1.A). Sovereign debt positions in advanced economies have deteriorated dramatically since 2007, as a result of the depth of the recession and financial sector support operations. Most advanced economies plan to tighten fiscal policy in 2011. But deficits in many cases remain well above levels that would stabilise debt to GDP ratios. This year the IMF expects the average debt to GDP ratio for advanced economies to breach 100% for the first time since World War II. The United States, Japan and some euro-area sovereigns have negative credit rating outlooks (Section 1), in part reflecting their large refinancing needs over the next two years (Chart 2.2).

*... especially where there are market concerns about debt sustainability...*

Against that backdrop, concerns about the ability of some euro-area sovereigns to meet their debt obligations have risen since the December 2010 *Report*. Greece, Ireland and Portugal have each negotiated financial support packages from EU authorities and the IMF. But markets remain concerned about the sustainability of their fiscal positions. In these and some other euro-area economies, a persistent loss of competitiveness over the past decade has contributed to a sequence of current account deficits and the accumulation of large net external debt positions. It is also constraining the recovery in net trade necessary to generate growth and repay debt.

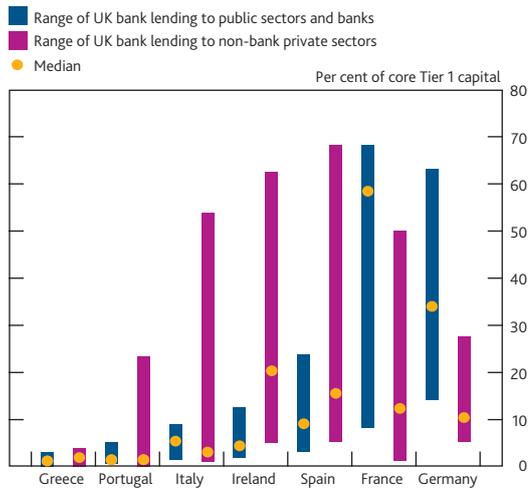
As sovereign debt ratios rise, their future path becomes more sensitive to possible shocks to GDP growth and funding costs. That sensitivity is illustrated for some euro-area sovereigns in Chart 2.3, which shows mechanical projections for debt ratios and debt-servicing costs under IMF baseline forecasts and an adverse scenario of weaker growth and higher interest rates. Under the illustrative adverse scenario, Greece and Ireland potentially face an interest bill in excess of 20% of revenue. Ratios above 20% have been observed in only about one tenth of cases for advanced economies since 1980.

In the light of these risks, market prices suggest that the likelihood of a sovereign debt restructuring in Greece is perceived to be high. Those concerns have been amplified by uncertainty about the extent to which the private sector might be required to participate in any restructuring.

*... which are closely intertwined with banking sector risk.*

Perceptions of greater sovereign risk have spilled over to the banking sector. That may have reflected some erosion in the expected ability or willingness of some sovereigns to support their respective domestic banking sectors. Banks are also directly exposed to sovereign risk through their holdings of government debt. These are high in several banking systems and have been increasing in a few cases (Chart 2.2). So higher sovereign risk premia have tended to raise the cost of credit for

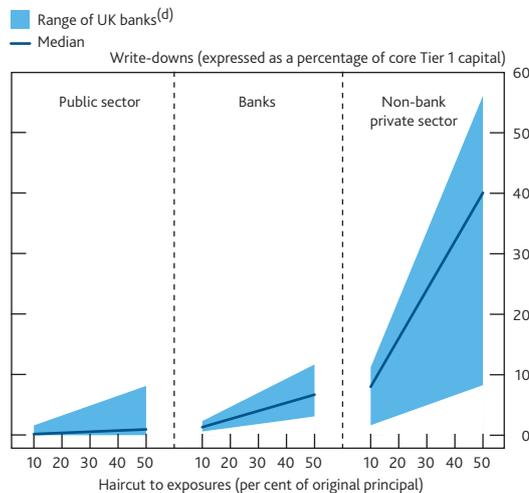
**Chart 2.4 UK banks' lending to selected euro-area countries<sup>(a)(b)(c)</sup>**



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

- (a) Shows the range of UK bank lending to sectors of selected euro-area economies. The sample of banks comprises Barclays, HSBC, Lloyds Banking Group, Nationwide and Royal Bank of Scotland.  
 (b) Claims data are to end-December 2010, adjusted for risk transfers. Excludes guarantees and derivatives.  
 (c) Core Tier 1 capital data are to end-December 2010, except for Nationwide which are to 4 April 2011.

**Chart 2.5 Hypothetical pre-provision write-downs on UK banks' direct exposures to Greece, Ireland, Portugal and Spain<sup>(a)(b)(c)</sup>**



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

- (a) Chart shows a range of hypothetical pre-provision write-downs across a sample of UK banks, calculated mechanically by applying a range of haircuts to their exposures to each sector.  
 (b) Claims data are to end-December 2010, adjusted for risk transfers. Excludes guarantees and derivatives.  
 (c) Core Tier 1 capital data are to end-December 2010 except for Nationwide Building Society which are to 4 April 2011.  
 (d) Barclays, HSBC, Lloyds Banking Group, Nationwide and Royal Bank of Scotland.

banks, companies and households. That dampens economic recovery and adversely affects debt sustainability.

*UK banks have direct and indirect exposures.*

UK banks have modest direct exposures to sovereign and bank debt in Greece, Ireland and Portugal (**Chart 2.4**). More significant are their claims on the non-bank private sectors, which in Ireland and Spain together represent around 50% of the major UK banks' core Tier 1 capital. As a mechanical illustration, **Chart 2.5** shows a range of hypothetical pre-provision write-downs that could be faced by individual UK banks on their holdings of Greek, Irish, Portuguese and Spanish debt across different sectors.

UK banks are also exposed indirectly to economies under the greatest stress through their links with other major banking systems. For example, French and German banks have large exposures to vulnerable European economies. There is a risk that a sharp deterioration in economic conditions in vulnerable economies may have adverse implications for credit conditions in larger European economies. In conditions of severe stress in the euro area, this could increase the risk of losses to UK banks. The major UK banks' combined claims on France and Germany represent around 130% of their core Tier 1 capital, with close to one half accounted for by claims on banks. A more immediate risk to banks in the United Kingdom and overseas could arise from disruptions to bank funding markets triggered by concerns about counterparties' exposures to vulnerable euro-area countries.

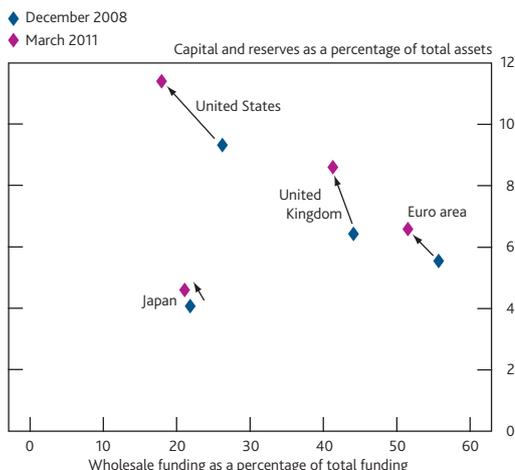
*Spillovers to major banking systems have so far been limited...*

Banks internationally have built up their resilience over the past two years by reducing their reliance on wholesale funding and raising their capital ratios (**Chart 2.6**). This has been helped by improved profitability. And although considerable uncertainty remains about the level of provisioning against banks' exposures to country risks, particularly when they are held in the banking book, UK banks with the largest potential credit losses from vulnerable euro-area countries have already reported significant loan loss provisions on these exposures (Section 3). That may help explain why the spillover of sovereign concerns onto UK banks has so far been limited (**Chart 2.7**).

*...but euro-area banks remain vulnerable.*

Overall, banks in the euro area remain heavily reliant on wholesale funding (**Chart 2.6**). In a number of euro-area countries, around 30% of bank debt is due to be rolled over by end-2012. Total euro-area bank term issuance has been buoyant in 2011 and above that required to repay maturing debt (**Chart 2.8**). Covered bonds, which are secured by bank assets, have formed an increasing part of the funding mix. Greater encumbrance of banks' assets means that in a stressed situation unsecured investors may be more uncertain about

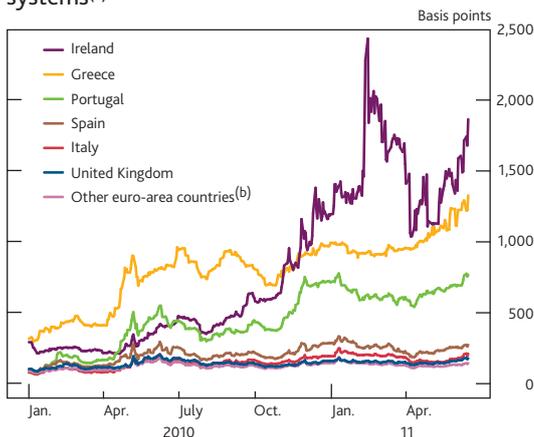
**Chart 2.6 Banking system capital and reliance on wholesale funding<sup>(a)</sup>**



Sources: Bank of Japan, ECB, FDIC and Bank calculations.

(a) The chart gives an approximate indication of the direction in which different banking systems have moved as balance sheet definitions are not directly comparable.

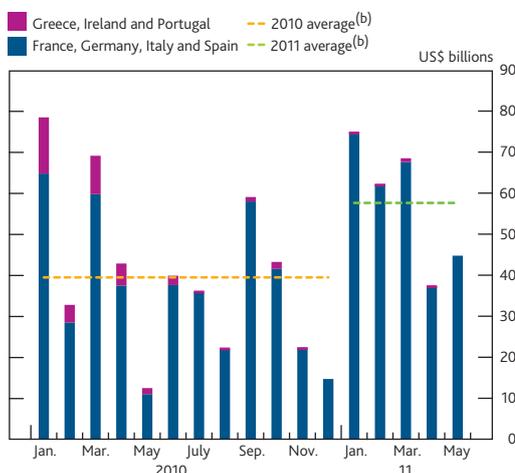
**Chart 2.7 Cost of default protection for banking systems<sup>(a)</sup>**



Sources: Capital IQ, Markit Group Limited, Thomson Reuters Datastream and Bank calculations.

(a) Asset-weighted five-year CDS premia for a selection of banks in each country.  
 (b) Consists of Austria, Belgium, France, Germany and the Netherlands.

**Chart 2.8 Senior term debt issuance by selected euro-area banking systems<sup>(a)</sup>**



Sources: Dealogic and Bank calculations.

(a) Only covered bonds, medium-term notes, subordinated debt, senior debt, commercial mortgages, public RMBS and government-guaranteed debt are included.  
 (b) Average of all countries.

being repaid, potentially leading them to withdraw their funds pre-emptively. Several euro-area banks are reliant on US money market funds for their short-term US dollar funding (Section 3).

In general, the tiering between banking systems in the euro area has intensified. According to Standard & Poor's, ratings for Europe's largest 100 banks show the widest range in creditworthiness in 30 years. Among these, Greek, Irish and Portuguese banks remain heavily reliant on ECB funding.

The impact of any sovereign debt restructuring on these banks would be significant given their large holdings of domestic public sector debt. If held in the banking book on a hold-to-maturity basis, sovereign exposures are not marked to market. And under the European implementation of Basel II, banks using the standardised approach are not required to hold capital against the risk of default of local-currency EU sovereign exposures. So there is a risk that banks have not set aside sufficient capital to absorb any losses. The European Banking Authority is planning to publish the results of stress tests in July.

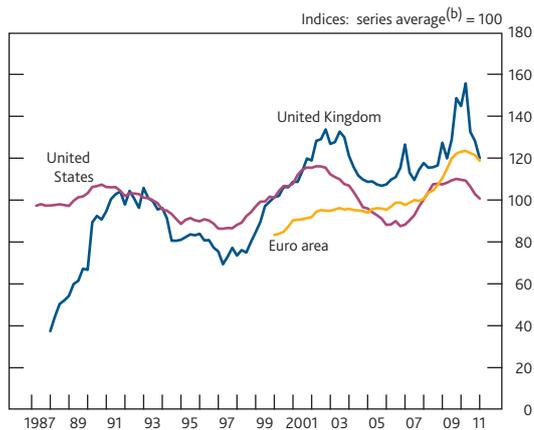
## 2.2 Corporate sector risks

### *Companies' financial positions have improved...*

The creditworthiness of larger companies in most advanced economies has improved as profitability has increased. Credit conditions surveys in the United Kingdom and the United States suggest a further easing in bank lending standards in 2011 Q1, as perceptions of corporate sector credit risk have declined. In aggregate, measures of corporate sector leverage have fallen (Chart 2.9), driven by a simultaneous reduction in debt, higher profits and an increase in the market value of assets. Sentiment among UK chief financial officers (CFOs) in the 2011 Q1 *Deloitte CFO Survey* — which canvasses large companies — shifted towards raising leverage for the first time since 2008. And risk appetite has risen to the highest level since the survey started in 2007 Q3 (Chart 2.10). Globally there has been an increase in debt-financed mergers and acquisitions activity.

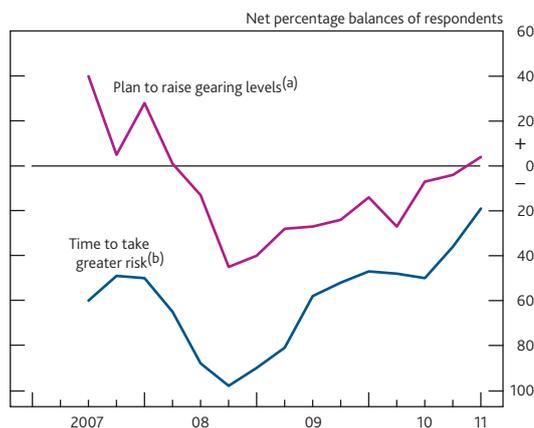
### *...but default rates have continued to rise for smaller companies.*

Distress is more apparent among smaller companies in the United Kingdom. Data from companies' accounts indicate that small companies are more likely to have insufficient trading profits to cover their interest payments (Chart 2.11). The 2011 Q1 *Credit Conditions Survey* suggested that, in contrast to large and medium-sized companies, the default rate and loss given default to lenders have continued to rise among small companies (Chart 2.12). That pattern was expected to continue in 2011 Q2.

**Chart 2.9** Corporate debt relative to profits<sup>(a)</sup>

Sources: ECB, ONS, Thomson Reuters Datastream and Bank calculations.

- (a) Defined as debt net of an estimate of liquid assets, relative to a four-quarter moving sum of gross operating surplus.  
 (b) Series averages are calculated over the period shown in the chart.

**Chart 2.10** Attitudes of UK CFOs to risk and gearing

Source: *The Deloitte CFO Survey* (April 2011).

- (a) CFOs were asked if their aim for the next twelve months was to raise gearing, keep it unchanged, or reduce it.  
 (b) CFOs were asked whether it was a good time to be taking greater risk onto their balance sheets.

### *Commercial real estate remains a concern internationally...*

For the major UK banks, lending to the commercial real estate (CRE) sector accounts for around a third of lending to non-financial companies worldwide, with large overseas exposures to Hong Kong, Ireland, Spain and the United States. Market estimates suggest that global investment in CRE has picked up by around 40% over the past year, albeit from a very low base. Prime property values across the major markets have shown significant increases. In the United States, that has been aided by an easing in financing conditions — banks have relaxed lending conditions and the commercial mortgage-backed securities (CMBS) market has re-emerged. But European banks are still working through the legacy of excessive pre-crisis CRE lending, particularly in Ireland and Spain where property values continue to decline.

In the United Kingdom, the *Credit Conditions Survey* indicated that banks reduced the availability of credit to the CRE sector in 2011 Q1 and expected to reduce it in Q2. The *De Montfort Survey* recorded only around £20 billion of new lending in 2010, but pointed to significant refinancing needs with more than half (around £115 billion) of CRE debt maturing over the next three years. That gives an indication of the potential funding gap. Non-bank sources of funding, for example from CMBS, have been slow to return.<sup>(1)</sup>

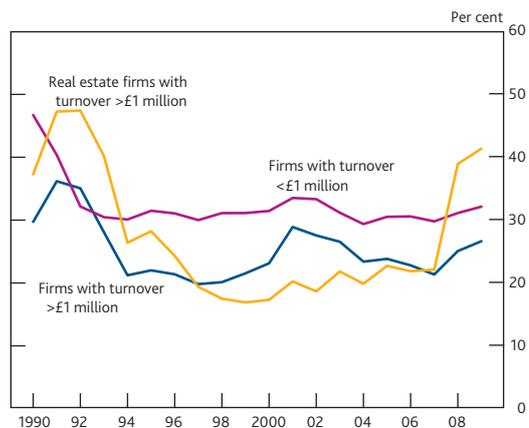
The refinancing challenge is particularly acute for non-prime CRE lending, where capital values remain depressed. The *De Montfort Survey* indicates that around 60% of outstanding UK CRE debt is secured by non-prime property. In part reflecting their relative exposures to prime and non-prime properties, CRE arrears rates across banks have been highly divergent (**Chart 2.13**).

### *...with underlying risks potentially masked by forbearance...*

These differences may also in part reflect the effects of forbearance — the renegotiation or relaxation of the terms of a loan in response to an actual or prospective breach of its original terms. As discussed in Box 2, market contacts suggest that the extent of forbearance in the CRE sector could be significant, though it has been used in varying degrees by different banks. Forbearance may help explain why the overall rate of corporate insolvencies has been so low in the United Kingdom. In 2011 Q1, the corporate liquidations rate was around 0.7%, compared with a peak of 2.6% in the early 1990s, and write-offs have also been relatively low (**Chart 2.14**). Market contacts remain concerned that a deterioration in income streams, or increases in interest rates, could reduce borrowers' ability to service their debts, reducing banks' willingness and ability to continue to show forbearance.

(1) See pages 96–97 of the 'Markets and operations' section of the *Bank of England Quarterly Bulletin*, 2011 Q2, available at [www.bankofengland.co.uk/publications/quarterlybulletin/qb1102.pdf](http://www.bankofengland.co.uk/publications/quarterlybulletin/qb1102.pdf).

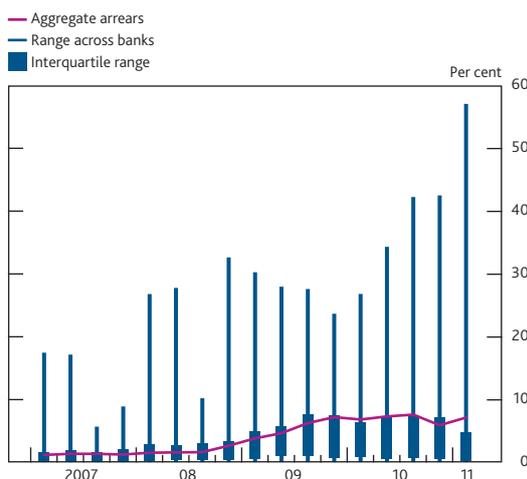
**Chart 2.11** Percentage of firms with interest payments greater than profits<sup>(a)(b)</sup>



Sources: Bureau van Dijk Fame database and Bank calculations.

- (a) Percentage of companies in each category with interest payments greater than their profits before interest.
- (b) Data include firms reporting turnover, profit and interest paid. These firms may not be representative of the population. Total sample size varies over time, ranging from around 14,000 in 1990 to over 90,000 in 2000. Changes in the composition of the data set may reduce comparability over time. Subsidiaries, as identified from company structures, are excluded. Company accounts are assigned to calendar years according to the statement date. The real estate sector is identified using SIC (2003) and SIC (1992) codes (the sample ranges from around 450 to 1,600 firms).

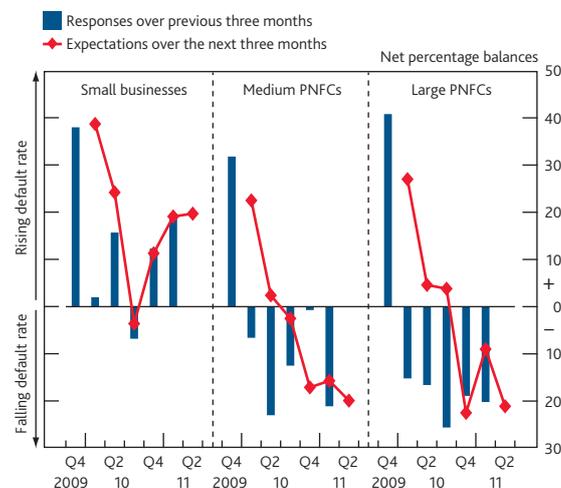
**Chart 2.13** Arrears on UK commercial real estate loans<sup>(a)</sup>



Source: FSA.

- (a) Arrears as a percentage of outstanding loans. Proxied by data on 'other secured' lending, which covers all non-residential lending secured on land and buildings in the United Kingdom. Data are for the 40 largest lenders.

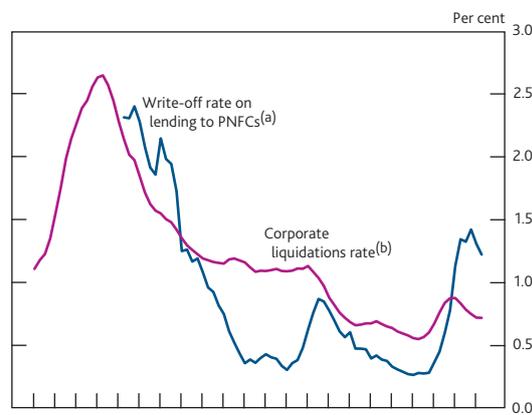
**Chart 2.12** Default rate on loans by firm size<sup>(a)</sup>



Source: Bank of England Credit Conditions Survey.

- (a) Net percentage balances are calculated by weighting together the responses of those lenders who answered the question. Expectations balances have been moved forward one quarter so that they can be compared with the actual outcomes in the following quarter.

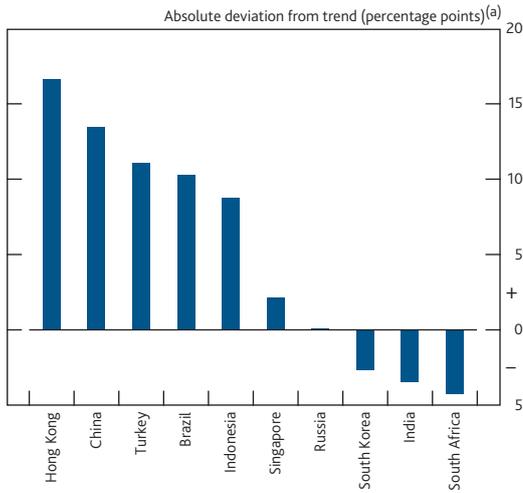
**Chart 2.14** Corporate write-off and liquidation rates



Sources: Bank of England, The Insolvency Service and Bank calculations.

- (a) Write-off rate on lending by UK monetary financial institutions to private non-financial corporations (PNFCs). The series has been calculated as annualised quarterly write-offs divided by the corresponding loans outstanding at the end of the previous quarter, and is expressed as a four-quarter moving average. Lending is in both sterling and foreign currency, expressed in sterling terms. Non seasonally adjusted.
- (b) Calculated as the total number of corporate liquidations in the previous four quarters divided by the average number of active registered companies over that period. Since the Enterprise Act in 2002, a number of administrations have subsequently converted to creditors' voluntary liquidations. These are not included in the data. Data relate to England and Wales.

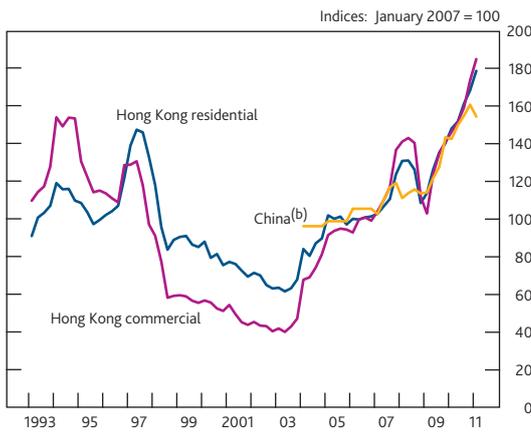
**Chart 2.15** Domestic credit to GDP ratios in selected emerging economies



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

(a) The deviation of the credit to GDP ratio from its long-term trend at 2010 Q4 using a Hodrick-Prescott filter. Based on the methodology in 'Countercyclical capital buffer proposal', July 2010, by the Basel Committee on Banking Supervision.

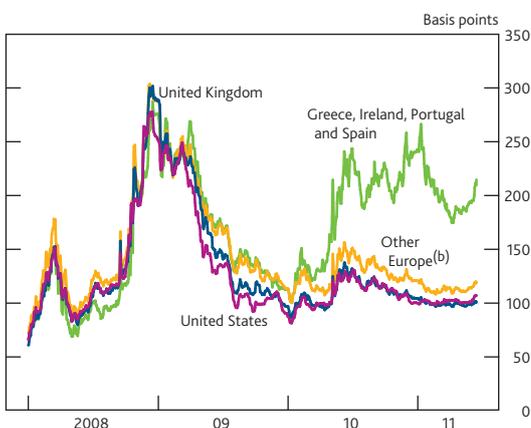
**Chart 2.16** Hong Kong and Chinese real property prices<sup>(a)</sup>



Sources: CEIC, IMF *World Economic Outlook* (April 2011) and Bank calculations.

(a) Nominal property prices are deflated by the GDP deflator.  
(b) The series for China is a composite of residential and commercial property prices.

**Chart 2.17** Cost of default protection for corporates<sup>(a)</sup>



Sources: Thomson Reuters Datastream and Bank calculations.

(a) Calculated using the geometric mean of five-year CDS premia of non-financial corporates.  
(b) Consists of Austria, Belgium, Finland, France, Germany, Italy and the Netherlands.

Companies' accounts point to a sharp increase in the proportion of real estate companies making insufficient trading profits to cover their interest payments, even at very low levels of interest rates (Chart 2.11). Defaults in the CRE sector would crystallise losses where the value of collateral has fallen below the amount of debt outstanding. Attempts to sell portfolios of distressed CRE assets could further weaken property values, raising losses given default. The Irish National Asset Management Agency and some UK banks, in particular Lloyds Banking Group and Royal Bank of Scotland, have begun to sell portions of their CRE portfolios.

*...and rapid credit growth in Asia poses risks to property exposures.*

In its April 2011 *Global Financial Stability Report*, the IMF warned about the build-up of financial imbalances and overheating asset markets in a number of emerging economies. Corporate leverage has increased above historical averages in the largest emerging economies, as companies have taken advantage of the resurgence of capital flows. Historical episodes of high capital flows have been associated with rapid domestic credit growth and increases in asset prices, which have often then corrected suddenly.

Some UK banks have large exposures to Asia and, in particular, to Hong Kong and China, which have increased rapidly over the past year. Buoyant credit growth in Hong Kong and China (Chart 2.15) has manifested itself in rapid increases in property prices (Chart 2.16). In Hong Kong, real property prices are almost double those prevailing in 2007, ahead of the financial crisis. In June 2011, the Hong Kong Monetary Authority introduced countercyclical supervisory measures to dampen the property market, the fourth time such measures have been introduced since October 2009. Credit growth and property prices have also been buoyant in Brazil, where Banco Santander (parent of Santander UK) has significant exposures.

*Sovereign and banking sector risks have spilled over to the corporate sector in some euro-area economies.*

There are some indications that sovereign and banking sector risks in the euro area are affecting the non-financial corporate sector. According to the April 2011 euro-area *Bank Lending Survey*, perceptions about the risks to banks from lending, and constraints on their ability to supply credit, contributed to a tightening in bank lending standards for non-financial companies in 2011 Q1. Banks expected to tighten credit standards further in 2011 Q2. Consistent with this, the cost of default protection has increased for companies in some countries where sovereign and banking risks have risen since early 2010 and where growth prospects are weak (Chart 2.17).

## Box 2 Forbearance

In periods of stress, forbearance can help banks reduce losses and their customers avoid default. But it may also increase uncertainty about the resilience of the banking sector and constrain the supply of credit to the real economy. This box discusses forbearance and the risks that it poses to UK banks.

### What is forbearance and why do banks forbear?

Forbearance refers to the renegotiation or relaxation of the terms of a loan in response to an actual or prospective breach of its original terms; it is an alternative to foreclosure or insolvency procedures (Figure 1). Forbearance can take many forms. These include loan restructuring and debt write-downs, banks not taking action against borrowers in breach of loan to value (LTV) covenants and allowing distressed borrowers to take a payment holiday or switch to an interest-only product.

Banks may decide to forbear for a number of reasons. One motivation is to reduce expected losses by providing greater flexibility to borrowers in the face of (what are perceived to be) temporary difficulties. By relaxing loan terms, lenders can reduce the probability of borrower default. And, by avoiding selling collateral when asset prices are depressed, banks can reduce any losses in the event that borrowers do default. In theory, banks may also forbear to delay making write-downs or provisions against non-performing loans until they have built up a stronger capital position.

Recent low interest rates are likely to have increased banks' incentives to forbear. Some forbearance methods, such as switching a borrower to an interest-only loan, are more effective at reducing the short-term burden of repayment

when interest rates are low. And cheaper funding reduces the cost to a bank of holding an asset on which they are receiving little or no income. Contacts have also noted that the large peak-to-trough falls in property values experienced during the crisis (20% for UK residential property and around 45% for UK commercial property) have created an incentive to forbear, particularly in cases where LTV covenants have been breached but lenders expect prices to recover at some stage.

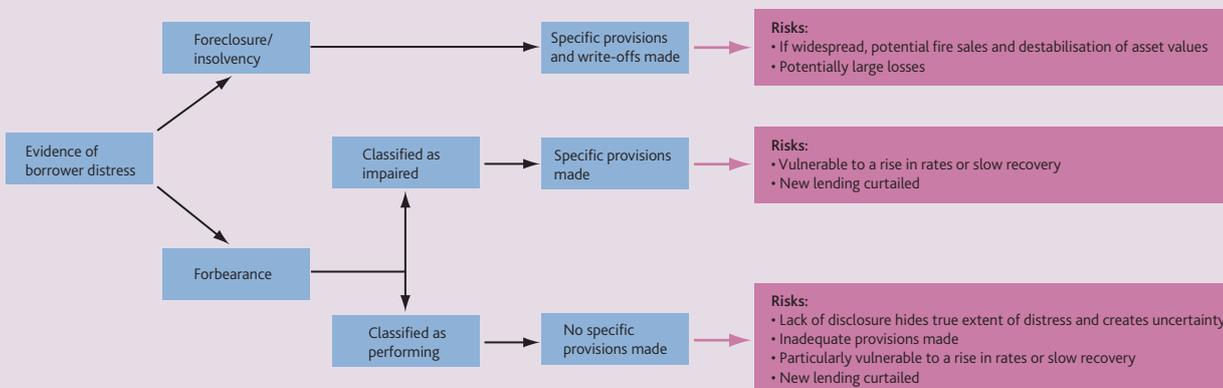
### What are the risks from forbearance?

Forbearance can enhance financial stability. By reducing write-offs in temporary periods of borrower distress, it can protect the resilience of banks and thereby enhance their ability to make new loans. It can also ease cash-flow problems for their customers and prevent fire sales of assets that may depress prices further. During the recent recession, levels of reported distress have remained low relative to the early 1990s, despite high levels of private sector debt. For example, the share of mortgages in arrears equivalent to six or more months' payments rose to 1.4% in the recent recession, compared with 3.5% in the early 1990s. And the annual corporate liquidations rate reached 0.9%, compared with 2.6% in the early 1990s. Contacts suggest that forbearance played an important part in this, alongside low interest rates. This was discussed in Box 4 of the June 2010 Report.

As illustrated in Figure 1, however, forbearance may lead to a number of distortions. The extent of these will vary between different types of forbearance and will depend on reporting and provisioning practices. They include:

- **Uncertainty and mispricing risk.** Forbearance can disguise credit risk on banks' balance sheets. If widespread it would mean that data on loan arrears and write-offs give a misleading picture of levels of borrower distress. And as lenders do not comprehensively or consistently record or

Figure 1 Risks from forbearance<sup>(a)</sup>



Source: Bank of England.

(a) In reality the process is not as straightforward as set out in the diagram. For example: foreclosure and insolvency are typically last resorts and in practice specific provisions are made before these take place; and although no specific provisions may be made, banks could make collective provisions.

report forbearance it is difficult to know the extent of this distortion. As a result, the pricing of risk could potentially be distorted and uncertainty about lenders' future capital and profit figures could be greater than it would otherwise be.

- **Overestimating resilience.** A change in macroeconomic conditions, such as a sharper-than-expected rise in interest rates or slower-than-expected recovery, could make a strategy of forbearance unviable. In the event of a change in conditions, some types of forbearance pose a greater risk than others. For example, a loan that has been switched to interest-only payment is likely to be more vulnerable to a rise in interest rates than one which is in breach of an LTV covenant but performing in all other respects. If banks have not provisioned sufficiently against forborne loans, losses on these loans would result in a reduction in banks' capital.
- **Constraining other lending.** If banks keep loans on their balance sheets that are generating no return, or which the borrower may struggle to repay, this could limit their income. Forbearance could also tie up existing funding and, by generating uncertainty over their capital positions, limit banks' ability to attract new funding. Particularly where banks' capital buffers are already limited, this could result in a reduction in new lending, weighing on economic growth. An example of this effect was witnessed in the 1990s in the Japanese 'lost decade'. Then, bad loans remained on banks' balance sheets and dragged down growth.<sup>(1)</sup>

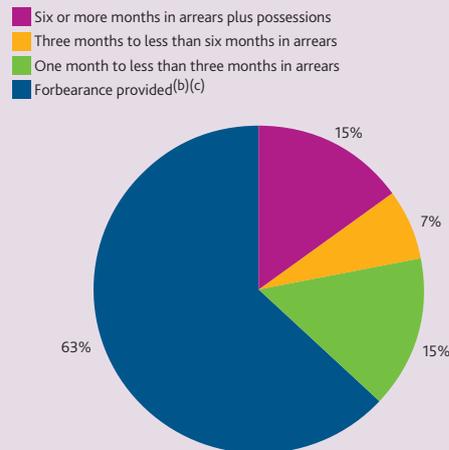
### How widespread is forbearance?

In order to assess these possible effects, information on the scale of forbearance is required. But lenders do not comprehensively record or report forbearance. And practices potentially vary significantly between institutions. This lack of disclosure means that the precise scale of forbearance is unclear. There is some evidence, however, to suggest it could be material.

The FSA has recently collected evidence on the flow of residential mortgages into some kind of forbearance. In the year to March 2010, this was around four times the stock of mortgages in possession or in arrears of six or more months' payments (**Chart A**). It is impossible to know how these mortgages would have performed without forbearance. It is also difficult to know how recent forbearance compares with previous recessions.<sup>(2)</sup> But it is likely that the reported figures for mortgage arrears would have been higher in the absence of forbearance.

To illustrate the potential extent of forbearance, consider a rough estimate of the proportion of UK banks' residential mortgage exposures subject to forbearance. This requires a

**Chart A** Breakdown of UK residential mortgages entering forbearance or in arrears<sup>(a)</sup>



Source: FSA Prudential Risk Outlook, March 2011.

(a) The arrears figures are as at December 2009.

(b) Represents the number of changes made to mortgage contracts in the twelve months to March 2010 for forbearance purposes.

(c) Forbearance processes included are: capitalisation of existing arrears into the balance; a temporary or permanent transfer onto interest-only terms; term extensions; and reduced payments or payment holidays which do not accrue arrears.

number of crude assumptions. Assume, as a worst-case scenario, that the flow into forbearance shown in **Chart A** has persisted for two years and that none of these loans recovered or were foreclosed on. This would imply that, as an upper bound, 12% of UK residential mortgages could be receiving some kind of forbearance at present.

Market contacts suggest that forbearance has also been widespread in the commercial property sector. Where borrowers continue to service their loans, some lenders have reportedly waived breaches of LTV covenants and been willing to extend the duration of maturing lending or restructure loans on non-commercial terms.

A survey by De Montfort University suggests that, at end-2010, 12% of commercial property loans were in breach of financial covenant but had not been declared in default. This may, however, understate the number of loans in breach of their original terms. A report by the Property Industry Alliance suggests that around 80% of loans issued since the end of 2004 could be in breach of their LTV covenant. This is indicative of the uncertainty surrounding the extent of forbearance in this sector. Research by De Montfort University also suggests that up to 70% and 30% of the commercial property debt that should have matured in 2009 and 2010 respectively were extended for between one and three years.

Again, as an illustration, assume that the proportion of maturing loans estimated to have been extended for short periods in 2009 and 2010, and which are still outstanding, is indicative of the extent of forbearance across the whole book.

This rudimentary approach would suggest that around a third of UK commercial property lending could be receiving some kind of forbearance.

Contacts have suggested that, at the start of the financial crisis, banks were also forbearing on loans to large, highly leveraged firms in breach of covenants due to a fall in earnings. This, however, seemed to ease in late 2009 and 2010, as these borrowers benefited from improved investor appetite for high-yield bond issuance and refinancing.

Forbearance may also have been significant in the UK small and medium enterprise sector. Contacts suggest that forbearance is one reason why corporate default rates in the United Kingdom have remained low relative to past recessions. The extent to which UK banks have exercised forbearance on their overseas and unsecured household exposures is also unclear.

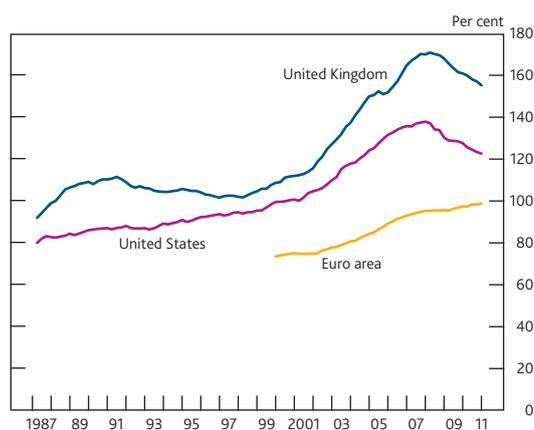
Forbearance would be less of a financial stability concern if provisions have been made against potential losses on forborne loans. But it is very difficult to gauge the extent to which banks have provisioned against these loans. The current 'incurred loss' accounting approach means that objective evidence of impairment and a measurable loss is required to make provisions. As loans subject to some types of forbearance are unlikely to be classified as non-performing, they may not have attracted specific provisions.<sup>(3)</sup> Much of the improvement in banks' profits since 2009 has been the

result of a fall in provisions made against bad loans. If the scale of forbearance is significant, as the data suggest, banks' total provisions may not be sufficient to cover losses on these loans. This may heighten uncertainty among bank creditors about profit and capital positions.

Overall, it is difficult to quantify the scale of the risks outlined above. More information is required about the extent of forbearance, the methods employed, and associated provisioning practices to assess its impact on UK banks' robustness.

- (1) There is a body of evidence which suggests Japanese banks continued lending to borrowers at or near insolvency and that this had a negative impact on the investment and employment levels of 'healthy' industries. See Caballero, R J, Hoshi, T and Kashyap, A K (2008), 'Zombie lending and depressed restructuring in Japan', *American Economic Review*, Vol. 98, No. 5, pages 1,943–77. Although market contacts suggest this phenomenon has not been widespread in the United Kingdom, widespread forbearance could reduce banks' willingness and ability to supply new credit.
- (2) There are no data on the scale of forbearance in the 1990s recession and how it might have affected indicators of borrower distress. But there are reasons to believe it is likely to have been less prevalent, and that the type of forbearance offered would have had less of an impact on reported arrears figures. Lower interest rates, steeper falls in property prices and lower unemployment mean lenders are likely to have had stronger incentives to exercise forbearance in this recession than in the early 1990s. And contacts suggest that mortgage forbearance in the early 1990s tended to involve not taking action against borrowers in arrears, whereas more recently it has often involved taking mortgagors out of arrears, or helping them to avoid arrears altogether.
- (3) In its 2011 *Prudential Risk Outlook* the FSA noted that forbearance techniques should not be used to prevent loans being categorised as non-performing to avoid prudent provisioning. Lenders and their auditors should ensure that any loan impairments are fully recorded and that provisioning practices reflect fully estimates of future cash flow. The FSA has also published more detailed guidance on forbearance and impairment provisions for consultation. See [www.fsa.gov.uk/pages/Library/Policy/guidance\\_consultations/2011/11\\_10.shtml](http://www.fsa.gov.uk/pages/Library/Policy/guidance_consultations/2011/11_10.shtml).

Chart 2.18 Household debt relative to income<sup>(a)</sup>



Sources: ECB, Thomson Reuters Datastream and Bank calculations.

(a) Households' gross debt as a percentage of a four-quarter moving sum of their disposable income.

## 2.3 Household sector risks

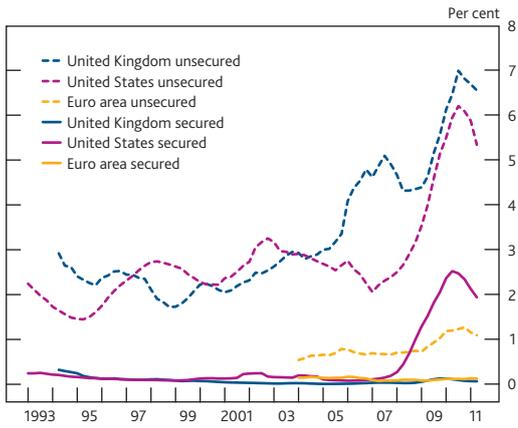
### *Leverage remains high and collateral values are still at risk...*

Household debt levels in some advanced economies increased sharply in the run-up to the financial crisis (Chart 2.18). Exceptionally low interest rates have helped to smooth the deleveraging process. Households in the United Kingdom and the United States have made some progress in reducing debt levels relative to income. But that has not happened in the euro area where nominal income growth has been weaker. Although the recovery in house prices in some countries in the first half of 2010 increased the value of banks' collateral, prices have since stalled in the face of weak consumer confidence. Most forecasters expect UK house prices to fall this year. Economists also expect lower prices in Ireland, Spain and the United States, to which UK banks are also exposed.

### *...particularly in the United States where a large inventory of houses potentially for sale has accumulated.*

In the United States, write-offs on secured debt have been unusually high relative to past experience (Chart 2.19). The inventory of houses potentially for sale also remains very high by historical standards, posing downside risks to house prices

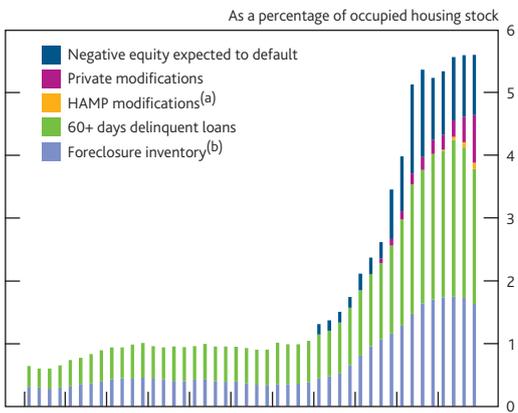
**Chart 2.19 Household sector write-off rates<sup>(a)</sup>**



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

(a) Annualised quarterly write-offs divided by the corresponding loans outstanding at the end of the previous quarter, expressed as a four-quarter moving average.

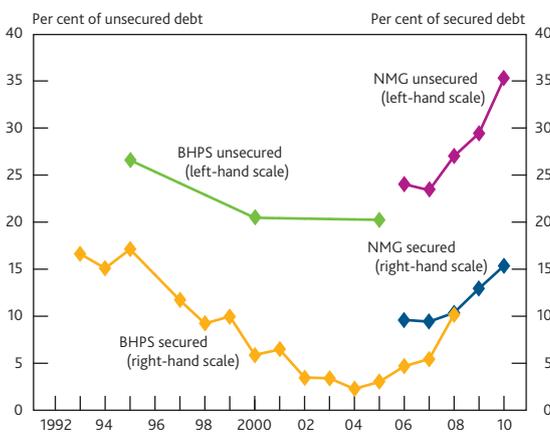
**Chart 2.20 Inventory of houses potentially for sale in the United States**



Sources: IMF Global Financial Stability Report (April 2011), Thomson Reuters Datastream and Bank calculations.

(a) Home Affordable Modification Program. Loan modifications are where the lender has changed the terms of the loan to ease the repayment burden.  
 (b) Excludes banks' investments in real estate not held as loans or securities.

**Chart 2.21 Illustrative estimates of debt held by vulnerable households<sup>(a)(b)</sup>**



Sources: British Household Panel Survey (BHPs), NMG Consulting survey and Bank calculations.

(a) Vulnerable mortgagors are those with housing equity below 5%, or housing equity below 25% and at least one characteristic suggesting debt-repayment difficulties. Vulnerable unsecured debtors are those with less than 25% housing equity (including renters) and at least one characteristic suggesting debt-repayment difficulties.  
 (b) Based on historical BHPs data and more timely information from the annual NMG survey. Differences in survey questions and sample size mean the estimates from the two surveys are not directly comparable.

and hence credit risks (Chart 2.20). That inventory includes borrowers who are still current on their payments but are in negative equity. In some states, borrowers in negative equity have an incentive to default as they are not liable for debt in excess of the value of the property. The IMF estimates that, even if house prices were to remain flat, more than 5% of the performing mortgages as of mid-2010 would be likely to default. In that scenario, some UK banks would face further credit losses on their exposures to the US housing sector.

*So far losses have been contained with the help of forbearance...*

To date, losses on secured credit have been exceptionally low in the United Kingdom, accounting for less than 4% of UK banks' total losses in 2010. Arrears and repossessions have reached much lower levels than in the United States and have been falling in recent quarters. The greater incidence of floating-rate mortgages in the United Kingdom, and the exceptionally low level of short-term interest rates, has made forbearance methods — such as switching a customer onto an interest-only loan — particularly effective in reducing the burden of repayment (Box 2).

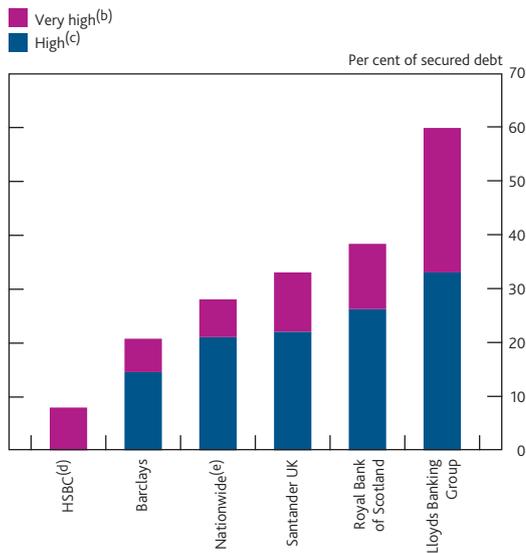
*...which may have been disguising underlying risks.*

But forbearance also means that the arrears data could significantly underestimate the underlying level of distress in the household sector, and hence the credit losses that banks could face were household payment difficulties to prove more persistent. In the Bank's *Credit Conditions Survey*, lenders reported an increase in the default rate and loss given default on secured loans in 2011 Q1 and expected both to increase further in Q2. They expressed concerns about the potential impact of increases in interest rates and falling house prices on credit losses.

*The proportion of debt held by vulnerable UK households has been increasing...*

An indication of underlying household vulnerabilities can be inferred from survey data. The NMG and BHPs surveys help identify households at an elevated risk of falling into arrears and potentially defaulting. Such 'vulnerable' households can be defined as those having limited housing equity and characteristics that suggest difficulties in making debt repayments, for example reporting that repayments are burdensome. Chart 2.21 shows that the proportion of secured debt held by these vulnerable households has been increasing. The proportion of unsecured debt held by vulnerable households is relatively high and also rising. Significant variation in the proportion of high LTV borrowers across banks suggests that exposures to vulnerable households are likely to be concentrated in a few banks (Chart 2.22).

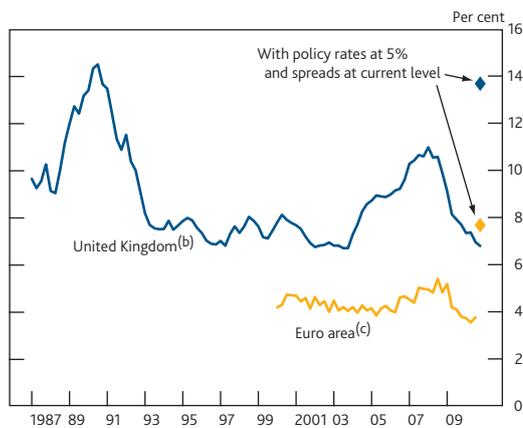
**Chart 2.22** Major UK banks' domestic exposure to high and very high LTV secured debt<sup>(a)</sup>



Source: Published accounts.

- (a) Year-end 2010 data except for Barclays (30 June 2010) and Nationwide (4 April 2011).  
 (b) A very high LTV ratio is defined as one over 90%.  
 (c) A high LTV ratio is defined as one between 70%–90% except for Barclays and Santander UK (75%–90%).  
 (d) Data only available for LTV ratios of more than 90%.  
 (e) Nationwide data include foreign exposures but these are very small.

**Chart 2.23** Household income gearing<sup>(a)</sup>



Sources: ECB, ONS and Bank calculations.

- (a) Income gearing is measured as household interest payments as a percentage of disposable income.  
 (b) Includes an adjustment for Financial Intermediation Services Indirectly Measured (FISIM).  
 (c) Includes a Bank estimate for FISIM based on individual euro-area data.

*...and risks from these households could be crystallised by fiscal tightening...*

These vulnerable households' incomes could be affected by fiscal consolidation. Responses to the 2010 NMG survey imply that around two thirds of secured and unsecured debt identified as 'vulnerable' is held by households who are concerned about job or income loss as a result of the fiscal tightening. But such concerns may partly reflect uncertainty about which public sector jobs will be lost. A survey by the Chartered Institute of Personnel and Development reports that almost one in three public sector workers are worried about losing their jobs. The Office for Budget Responsibility estimates that around one in fourteen public sector jobs will actually be lost.

*...or an unexpected increase in interest rates.*

In the United Kingdom, in common with some other European countries such as Italy, Portugal and Spain, a relatively high proportion of mortgages taken out since 2009 have floating interest rates. This means that they are exposed to increases in short-term interest rates. **Chart 2.23** illustrates that if policy rates were to rise to 5% — assuming for simplicity that debt, spreads and income remained unchanged — then income gearing in the United Kingdom could reach levels seen in the early 1990s, when nominal interest rates were much higher. That reflects much higher debt levels relative to income than prevailed in the early 1990s. In practice, the impact of higher interest rates would depend on the wider economic environment, with higher interest rates against a backdrop of robust growth likely to have a more benign impact than if growth were weak.

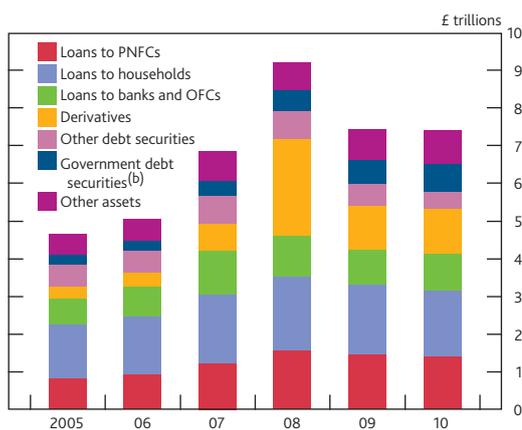
# 3 Resilience of the financial system

The UK banking system continues to recover from the financial crisis. Leverage ratios have edged down further and the aggregate capital position of the major UK banks has improved a little. Banks have been able to issue substantial amounts of term debt and have shrunk their balance sheets, although a substantial funding challenge remains. This has improved their resilience to shocks, including further funding strains.

But some major UK and global banks continue to report losses or weak profits. There are also a number of potential medium-term headwinds to profitability which have led equity investors to doubt banks' ability to achieve return targets. If conditions in financial markets worsened, for instance in response to sovereign distress in Europe, long-standing fragilities in the funding models of some banks could also be re-exposed.

This section discusses the resilience of the UK financial system to the market and credit risks discussed earlier. It focuses in particular on the banks which are the principal providers of credit and deposit services to the UK economy.<sup>(1)</sup> Other institutions which affect these banks' ability to provide these services are also discussed, in particular the large, complex financial institutions (LCFIs).<sup>(2)</sup> The critical market infrastructure underpinning the financial system is also considered.

**Chart 3.1** Major UK banks' total assets<sup>(a)</sup>



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

(a) Chart uses September balance sheet data for National Australia Bank.

(b) Includes loans to governments. Where government debt securities are not disclosed all debt securities are allocated to 'other debt securities'.

## 3.1 Developments in UK banks and other financial institutions

*Major UK banks continue to delever by reducing assets...* Since the December 2010 *Report*, the major UK banks have reported annual results for 2010 and made more limited disclosures on their 2011 Q1 performance.<sup>(3)</sup> In the year to December 2010 the total assets of the major UK banks fell slightly, dropping by 0.5% to £7.4 trillion (around 500% of UK GDP).

This fall in assets was driven by reductions in the stock of loans to households (down 5%) and non-financial companies (down 4%), and lower holdings of non-government debt securities (down 20%) (**Chart 3.1**). The fall mainly reflected the ongoing

(1) Unless otherwise noted, 'major UK banks' refers to: Banco Santander, Bank of Ireland, Barclays, Co-operative Financial Services, HSBC, Lloyds Banking Group (LBG), National Australia Bank, Nationwide, Northern Rock and Royal Bank of Scotland (RBS).

(2) Unless otherwise noted, 'LCFIs' refers to: Bank of America, Barclays, BNP Paribas, Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs, HSBC, JPMorgan Chase & Co., Morgan Stanley, RBS, Société Générale and UBS.

(3) Published accounts data used in this section generally refer to end-December 2010, rather than end-March 2011.

**Table 3.A** UK banks<sup>(a)</sup> non-core assets<sup>(b)(c)</sup>

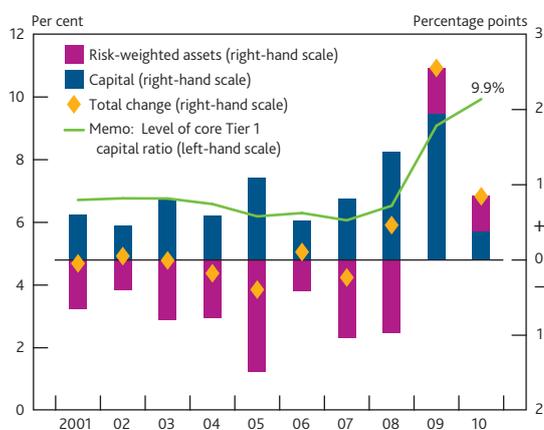
£ billions	End-2008	End-2009	End-2010	Target
<b>Total</b>	<b>558</b>	<b>427</b>	<b>333</b>	<b>140</b>
<i>of which: retail</i>	<i>57</i>	<i>49</i>	<i>40</i>	<i>–</i>
<i>of which: commercial property</i>	<i>110</i>	<i>89</i>	<i>70</i>	<i>–</i>

Sources: Investor presentations, published accounts and Bank calculations.

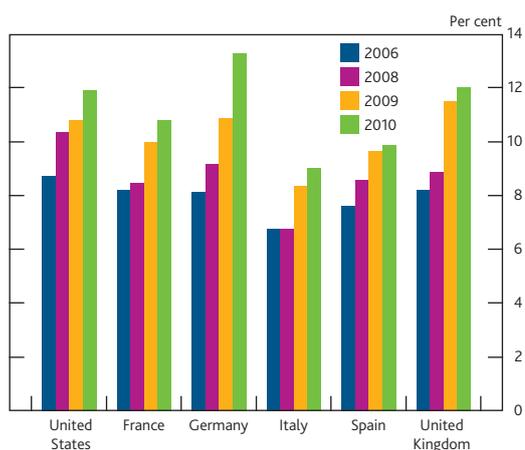
(a) LBG and RBS only.

(b) Non-core assets refer to assets that banks have identified for run-off.

(c) Sectoral splits as defined by LBG and RBS. Definitions may vary between firms.

**Chart 3.2** Contributions to the change in major UK banks' core Tier 1 capital ratios

Sources: Published accounts and Bank calculations.

**Chart 3.3** Tier 1 capital ratios for selected international banking systems<sup>(a)(b)(c)(d)(e)</sup>

Sources: Capital IQ, SNL Financial, published accounts and Bank calculations.

(a) Includes banks with total assets of more than US\$100 billion at end-2010.

(b) Aggregated from individual banks' (risk-weighted) capital ratios, weighted by total assets.

(c) UK data exclude Northern Rock.

(d) All figures are under local accounting conventions.

(e) Data as at end-2010, except for Caja Mediterráneo where 2010 Q3 data were used due to unavailability.

restructuring plans of LBG and RBS, including the exclusion of parts of ABN Amro from RBS's accounts. These two banks have identified portfolios of 'non-core' assets which they intend to reduce through disposals and by running off maturing assets (Table 3.A). They are targeting a further £200 billion reduction in these assets. The other major UK banks in aggregate maintained their stock of loans to households worldwide and modestly increased lending to corporates in 2010.

In contrast, there were increases in major UK banks' loans to other financial institutions and in their derivative assets. This reversed the pattern in 2009, and would tend to increase interconnectedness in the financial system. Their holdings of government debt also increased, in part reflecting banks' increased demand for liquid assets for regulatory purposes, as discussed later in this section.

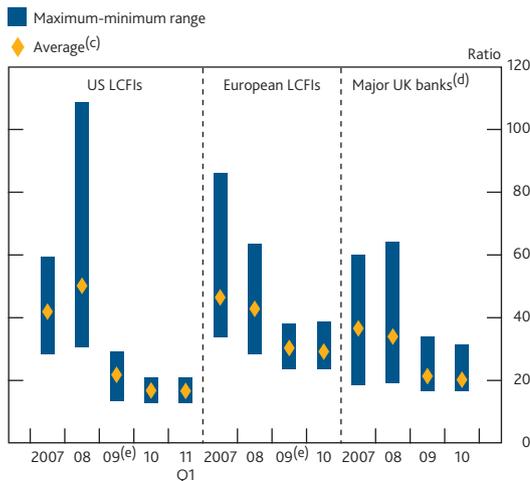
#### ...and increasing capital...

Major UK banks increased their aggregate core Tier 1 capital base marginally to £284 billion in the year to end-2010. Combined with slight falls in both total assets and the average risk weight applied to these assets, this meant that their aggregate published core Tier 1 capital ratios, on a Basel II basis, rose by 0.85 percentage points to 9.9% in 2010 (Chart 3.2). This ratio is now at its highest level since the full adoption of the Basel I regulatory regime in 1992. This aggregate picture masks, however, considerable divergence between banks. Falling risk-weighted assets (RWAs) and little or no internally generated capital increases at LBG and RBS were offset by rising RWAs and capital growth at most other banks. Published Tier 1 bank capital ratios in other countries (which are easier to compare across countries than core Tier 1 ratios) have also risen over the past few years, notably in the United States and Germany (Chart 3.3).

#### ...contributing to a further marginal fall in leverage ratios.

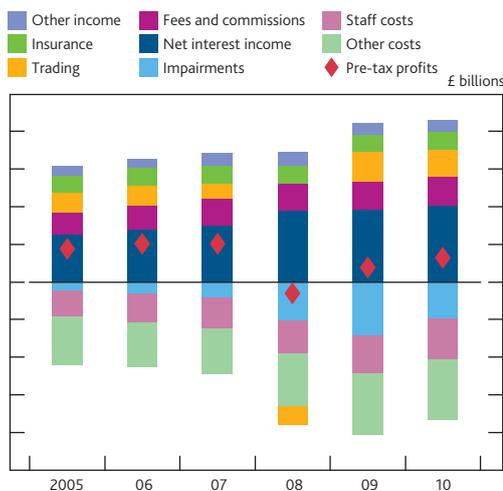
Risk-weighted capital ratios are an imperfect guide to bank solvency. The risk weighting of a given asset may differ widely between banks because of differences in their internal models. An FSA exercise conducted in 2009 found that banks' estimates of the mean probability of default of an identical portfolio of exposures could differ by a factor of three or more. This would translate into large differences in risk weighting. Even changes to risk weights on specific types of exposure may differ, due to unobservable differences between banks' portfolios or their methodologies. For example, some UK banks reduced the average risk weight they apply to mortgages in 2010, while others increased it. Weights are also unlikely to reflect fully how an asset's riskiness varies across the cycle.<sup>(1)</sup>

(1) See pages 3–6 in 'Capital discipline', remarks at the American Economic Association, Denver by Andrew Haldane, 9 January 2011, available at [www.bankofengland.co.uk/publications/speeches/2011/speech484.pdf](http://www.bankofengland.co.uk/publications/speeches/2011/speech484.pdf).

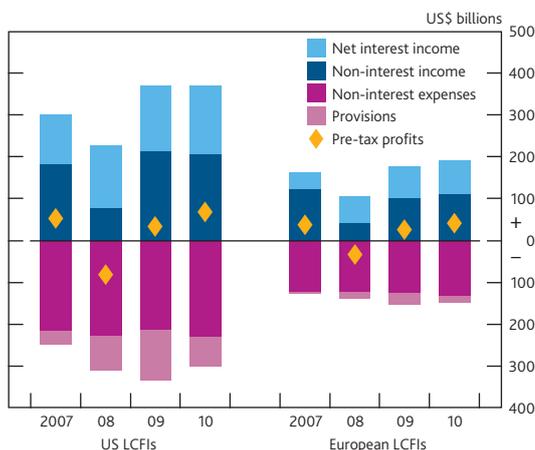
**Chart 3.4** Major UK banks' and LCFIs' leverage ratios<sup>(a)(b)</sup>

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

- (a) The leverage ratio is defined as assets divided by capital. Assets are adjusted for cash items, tax assets, goodwill and intangibles. Capital includes total shareholders' equity adjusted for minority interest, preference shares, goodwill and intangibles.
- (b) Assets are also adjusted on a best-efforts basis to achieve comparability between US GAAP and IFRS with respect to derivatives and off balance sheet vehicles.
- (c) Total peer group assets divided by total peer group capital.
- (d) Excludes Northern Rock. Data for The Co-operative Bank are used for Co-operative Financial Services. *Pro-forma* data are used for RBS from 2007 to 2009.
- (e) Revisions to US GAAP accounting rules on consolidation from 1 January 2010 are applied to end-2009 data giving a clearer measure of leverage.

**Chart 3.5** Major UK banks' revenues, costs and profits

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

**Chart 3.6** US and European LCFIs' profits

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

Leverage ratios, which compare a bank's unweighted assets to its available capital, do not suffer from these particular problems and so provide a useful cross-check on resilience. The average leverage of the major UK banks fell slightly in the year to end-2010, to around 20 times capital (**Chart 3.4**). Leverage ratios also fell at most individual major UK banks. After controlling for accounting differences, a similar picture of falling leverage is found among the US LCFIs. These falls were largely sustained into 2011 Q1. Leverage ratios among European LCFIs remained somewhat higher than at their UK and US counterparts.

*Headline profitability has improved, but some banks continue to make losses.*

The pre-tax profits of the major UK banks increased by 68% year on year in 2010, to £31.7 billion (**Chart 3.5**). This improvement was more than fully accounted for by a £22 billion fall in new impairment charges, mainly on UK and US lending — pre-tax, pre-provision profits fell by £9 billion, or 10%. Tiering was again evident, with RBS reporting a loss and LBG a small profit. Overseas revenues drove increased income at some banks. This picture of improving profitability, driven by lower credit losses, was also present among global LCFIs (**Chart 3.6**).

Staff costs declined slightly as a share of revenue after impairments. But for most banks this ratio has remained close to pre-crisis levels over the past several years, despite highly volatile bank profitability (**Chart 3.7**). Some components of total staff costs, such as those associated with running a branch network, are difficult to adjust in the short term. But some banks, particularly those with large wholesale operations, will have a higher proportion of discretionary distributions to staff in their total staff costs.

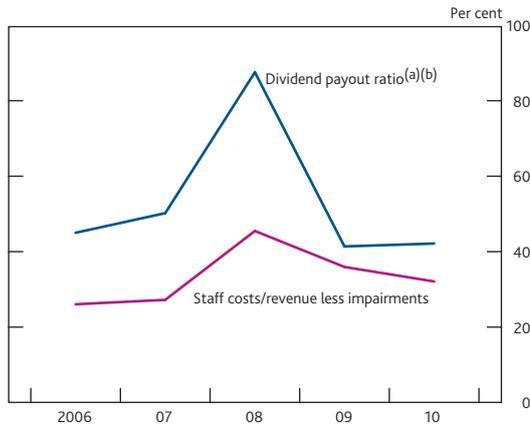
Higher tax payments and the falling out of some one-off gains in 2009 meant that aggregate post-tax profits remained stable in 2010. Dividend payments as a proportion of these profits also remained stable (**Chart 3.7**). As a result, despite the increase in pre-tax profitability, the major UK banks saw only a marginal increase in internally generated capital.

*Profitability could fall if impairments rise again...*

Falling impairments are not a permanent source of growth in profits. And falling total impairments mask rising credit losses in some portfolios. Section 2 discussed credit risks to UK banks arising from exposures to some vulnerable European countries and loans benefiting from forbearance.

Considerable uncertainty remains about the level of provisioning against banks' exposures to country risks, particularly when they are held in the banking book. But some banks have disclosed pertinent information. For example, the UK banks with the largest exposures to Spain and, especially, Ireland have already taken quite large loan loss provisions on

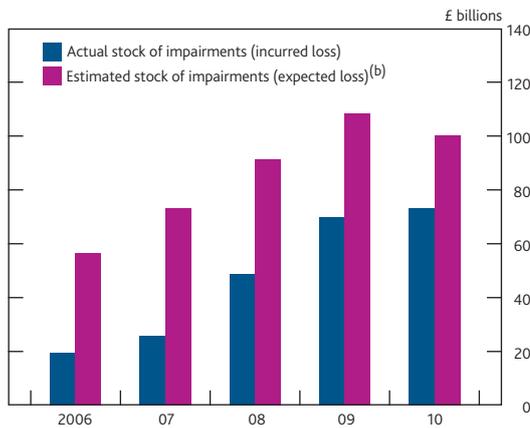
**Chart 3.7** Major UK banks' distributions to shareholders and employees



Sources: Published accounts and Bank calculations.

- (a) On a year-by-year basis. Excludes banks which reported attributable losses or did not pay ordinary dividends.  
 (b) Calculated as the ratio of ordinary dividends paid (including scrip) to attributable profit.

**Chart 3.8** UK banks' <sup>(a)</sup> impairments and estimated impairments under expected loss accounting



Sources: Bank of England, BBA Statistical Abstract, FSA regulatory returns, published accounts and Bank calculations.

- (a) Bank of Scotland, Barclays, Halifax, HBOS, HSBC, LBG, Lloyds TSB, NatWest and RBS.  
 (b) The estimated stock of impairments under expected loss accounting is assumed to be equal to expected losses over the residual maturity of banks' loan books. Expected losses are calculated based on the assumption that the annualised write-off rate observed at each year-end will trend back to historic norms (based on the 1990–2010 period) over the residual maturity of banks' loan books.

these exposures. In Ireland, two banks account for the vast majority of UK-owned banks' exposure. Their Irish loan books have deteriorated significantly, with 41% of loans impaired, but they have already provided for losses of around 50% on these impaired loans. These provisions would provide a significant buffer against future expected losses.

Estimating the extent of provisioning against possible losses from forbore loans is more difficult. Banks do not consistently report either the amount of forbearance or whether they have made any provisions against loans benefiting from forbearance (Box 2). But evidence gathered during a recent review of mortgage loan forbearance by the FSA suggested that banks were not systematically making additional provisions against loans which have benefited from forbearance. As discussed in Box 2, this could be a significant proportion of the loan book.

Changes to accounting rules may affect future loan loss provisioning. UK banks currently make impairment charges against current profits if there is objective evidence of future losses: the 'incurred loss' approach. So borrower distress has the potential to impact abruptly on profitability through higher impairment charges. This represents a change from the accounting regime that UK banks followed at the time of previous recessions, which was generally viewed as less restrictive on the level of provisions allowed. There are now proposals by accounting standards bodies to move to an approach that is more forward looking — the 'expected loss' approach.<sup>(1)</sup> This change could act to smooth out impairments.

**Chart 3.8** considers an illustrative scenario for how impairments might have evolved over recent years under an expected loss approach. In each year, banks in the sample are assumed to make provisions based on the expectation of write-off rates returning to the historical (1990–2007) average of their worldwide write-off rates within five years. This would have resulted in banks carrying a larger stock of provisions into the crisis, perhaps around £50 billion greater. It would also have led to them needing to increase provisions by less as the crisis broke. In practice, banks would take account of a much wider range of information than just historical write-off rates in determining expected losses.

*...if pressure on net interest margins limits revenues...*

One driver of weak pre-tax, pre-provision profits in 2010 was that major UK bank net interest margins (NIMs) remained largely flat. External analysts are divided on the prospects for UK bank NIMs over the next few years. Some note that increases in Bank Rate should allow banks to reprice their loan books while maintaining low deposit rates. The UK deposit and loan markets are highly concentrated with, for instance,

(1) See [www.ifrs.org/News/Press+Releases/Impairment+supplementary+document.htm](http://www.ifrs.org/News/Press+Releases/Impairment+supplementary+document.htm).

the top six banks holding 78% of household deposits. This could allow these banks to set higher margins. Any increase in their net interest income would at least partially offset any increase in impairments resulting from a rise in Bank Rate.

But other factors could limit banks' ability to achieve this. Smaller banks may face fewer barriers to expanding their deposit base than their lending, as suggested by the rapid pre-crisis growth in the UK deposit bases of a number of branches of overseas banks. Many banks are also seeking to increase their use of deposit funding. The major UK banks are anticipating, in aggregate, a sustained period of retail deposit growth in excess of loan growth, to an extent rarely achieved in the past. These factors could increase competition for retail deposits, so reducing margins on deposit-taking.

On the asset side of the balance sheet, banks' ability to raise margins on lending is limited by the ability of larger corporate borrowers to tap capital markets. On several measures, these borrowers currently enjoy a cost of debt below that of the major UK banks (**Chart 3.9**). And as banks continue to dispose of riskier assets which may bear higher interest rates, this will lead to lower interest income.

*...or if investment banking revenues prove unsustainable.*

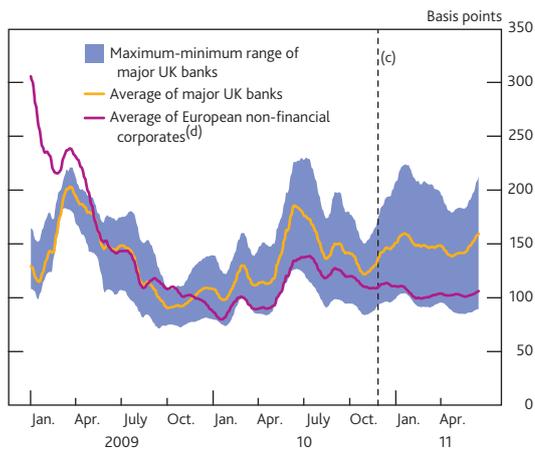
High levels of revenue from investment banking supported banks' and LCFIs' non-interest income in 2009 and early 2010. This reflected wider bid-offer spreads and volatility, and lower competition due to consolidation in the sector. But banks report that these conditions have normalised recently. Investment banking revenues were lower over the year as a whole for both global LCFIs and for major UK banks. This reflected lower revenues from fixed income, currency and commodity (FICC) trading, the largest and most volatile part of trading income. Some investment banks attributed this to increased competition in FICC, suggesting lower revenues may be persistent.

*Falling leverage will make return on equity targets more difficult to achieve.*

Some major UK banks have recently announced revised target levels of profitability. These are lower than the levels they achieved in the years running up to the financial crisis, with announcements implying targets for return on tangible equity (RoTE) of around 15%–18%. But some market contacts suggest that even these lowered targets are overoptimistic. And the ratio of UK banks' market values to their accounting book values is currently low, suggesting that equity investors are not confident of banks' future profitability (**Chart 3.10**).

There are a number of reasons for this scepticism, including uncertainty about the macroeconomic outlook and the impact of changes to regulation. Lower bank leverage is also a contributing factor. This means banks need to achieve higher returns on their assets to reach the same return on equity.

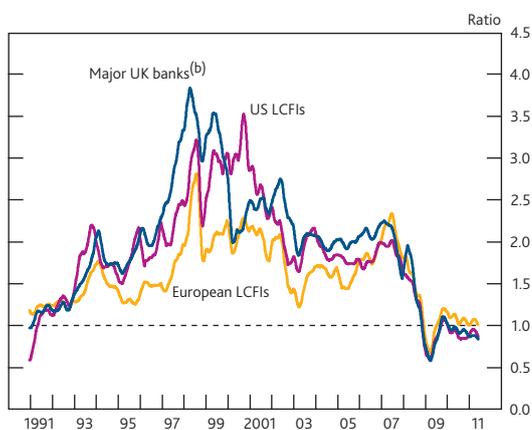
**Chart 3.9** Credit default swap premia<sup>(a)(b)</sup>



Sources: Bloomberg, Markit Group Limited and Bank calculations.

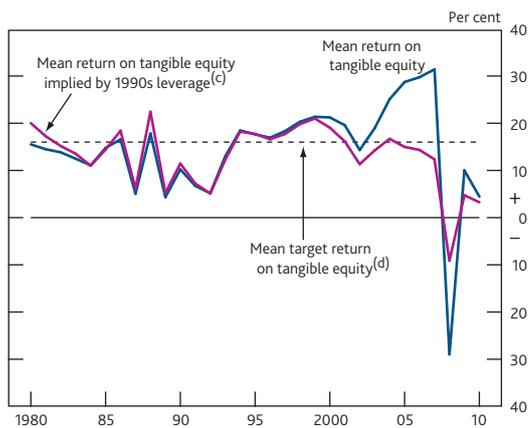
- (a) Five-year senior CDS premia. Data are presented as fifteen-day end-period moving averages.  
 (b) Chart shows data for a subset of the major UK banks peer group — Barclays, HSBC, LBG and RBS.  
 (c) December 2010 Report.  
 (d) Average of the CDS premia of companies that were part of the iTraxx European non-financial corporates index (series 10) at the beginning of the time series in this chart.

**Chart 3.10** Major UK banks' and LCFIs' price to book ratios<sup>(a)</sup>



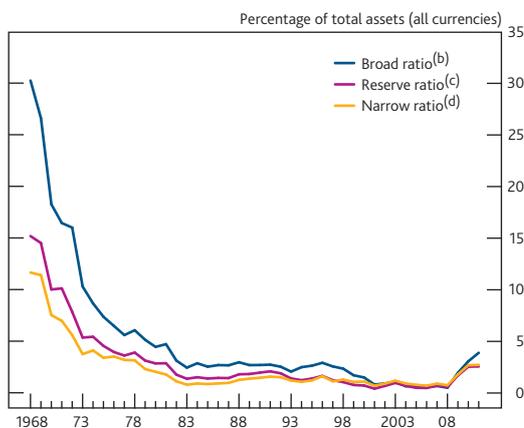
Sources: Bloomberg, Thomson Reuters Datastream and Bank calculations.

- (a) Chart shows the ratio of share price to book value per share. Simple averages of the ratios in each peer group are used. The chart plots the three-month rolling average.  
 (b) Excludes Northern Rock (from end-2007), Nationwide and Britannia.

**Chart 3.11** UK banks' return on tangible equity<sup>(a)(b)</sup>

Sources: Barclays Capital, published accounts and Bank calculations.

- (a) The data are a backwardly consistent sample of institutions providing banking services in the United Kingdom in 2010. The sample includes the following financial groups: Barclays, Bradford & Bingley, HSBC, LBG, National Australia Bank, Nationwide, Northern Rock, RBS and Santander UK. Where data are consistently available for the UK part of the group, these have been used.
- (b) Return on tangible equity. Actual and implied values use profit attributable to shareholders and shareholder equity less intangible assets.
- (c) Mean 1990s leverage was 23 times capital.
- (d) The simple average of target RoTE announced by Barclays, HSBC, LBG and RBS. Where targets do not relate to RoTE, estimated equivalents from Barclays Capital have been used.

**Chart 3.12** Sterling liquid assets relative to total asset holdings of UK banking sector<sup>(a)</sup>

Sources: Bank of England and Bank calculations.

- (a) Data for building societies are included from 2010 onwards. Prior to this, data are for UK banks only.
- (b) Cash + Bank of England balances + money at call + eligible bills + UK gilts.
- (c) Proxied by: Bank of England balances + money at call + eligible bills.
- (d) Cash + Bank of England balances + eligible bills.

Chart 3.11 illustrates this based on the historical experience of the UK banking sector. If aggregate leverage had been constant at the average 1990s level of around 25 times capital, banks would have achieved their new target levels of RoTE in fewer than half of the past 30 years and not once since 2004. Box 3 considers the relationship between leverage and returns further.

*Many measures of major UK banks' liquidity and funding resilience have improved...*

The resilience of the major UK banks to funding problems also appears to have improved. This has been evident in their resilience to recent episodes of European sovereign funding stress, when they were able to continue to access term funding markets.

Progress has been made along several of the dimensions discussed in Box 4, which sets out a range of balance sheet characteristics key to maintaining bank creditor confidence. The major UK banks almost tripled their holdings of highly liquid assets during the course of 2009 and 2010, to 14% of their total assets. During 2011, holdings have remained broadly flat at this higher level.<sup>(1)</sup> Sterling liquid assets, for which data are available over a longer period, reached an almost 30-year high as a share of total assets at the end of 2010 (Chart 3.12). Published accounts, although not fully comparable across banks, also show that the term of banks' wholesale liabilities has lengthened in 2010, reducing the degree of maturity mismatch.

Both of these factors affect the ability of banks to meet deposit outflows. One measure of this is the Basel III Liquidity Coverage Ratio (LCR), which is the ratio of unencumbered, high-quality liquid assets to total net cash outflows over the next 30 calendar days under a severe liquidity stress scenario. From 2015, banks will be required to ensure that the ratio is no lower than 100% (the stock of high-quality liquid assets should at least equal total net cash outflows). Only three major UK banks have disclosed liquidity coverage ratios. These ranged from 71% to 125% at end-2010.

*...and strong issuance, deposit growth and asset reductions allowed banks to repay liquidity support...*

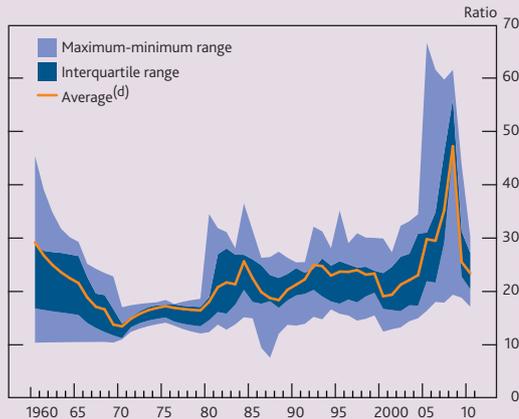
The major UK banks issued £150 billion of unguaranteed debt in public markets in the year to end-March 2011, 21% higher than in the same period a year earlier (Chart 3.13), and have also continued to access private funding markets since the previous Report. These high levels of unguaranteed wholesale debt issuance, combined with balance sheet shrinkage and retail deposit growth, have allowed UK banks to reduce official sector liquidity support more quickly than planned. Around £148 billion of the £185 billion in Treasury bills advanced

(1) Highly liquid assets are defined as those which count towards the FSA's liquidity buffer requirement. These include sight deposits with selected central banks, plus unencumbered holdings of highly rated central government debt securities.

## Box 3 Bank leverage and returns on equity

Bank leverage reached historically high levels in the run-up to the financial crisis (Chart A). It has since declined and could fall further as banks transition to higher capital requirements under Basel III. This has implications for UK banks' capacity to meet their stated targets for return on equity as well as the cost of their equity.

Chart A UK banks' leverage<sup>(a)(b)(c)</sup>



Sources: Published accounts and Bank calculations.

- (a) Ratio of total assets to shareholders' claims. A qualitatively similar picture emerges for a broader measure of capital (Tier 1 capital), as used in Chart B.  
 (b) The data are a backwardly consistent sample of institutions providing banking services in the United Kingdom in 2010. The sample includes the following financial groups: Barclays, HSBC, LBG, National Australia Bank, Nationwide, RBS and Santander UK. Where data are consistently available for the UK part of the group, these have been used.  
 (c) Given data limitations, this long-run chart uses a different definition of leverage and sample of banks to that used in Chart 3.4.  
 (d) Total peer group assets divided by total peer group capital.

A mechanical implication of declining leverage is a fall in a bank's return on equity, all else equal, as profits are distributed across a larger equity base. A bank could attempt to maintain a high return on equity by taking on more risk to increase its return on assets. But UK banks have not typically achieved returns on assets sufficient to guarantee the returns on equity that they are currently targeting, at lower levels of leverage (Chart 3.11).

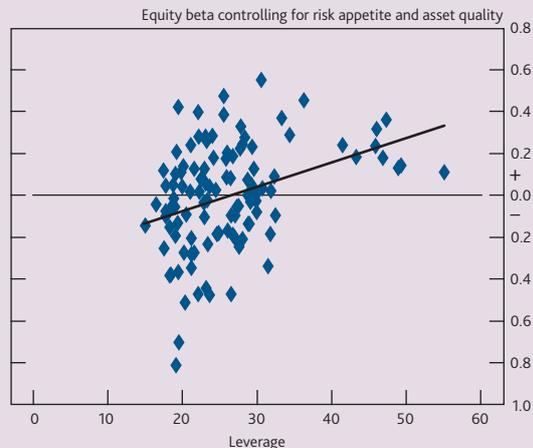
Banks may be concerned that lower returns on equity could make their equity less attractive to investors. But lower leverage should also reduce the risk-adjusted return that investors require to hold a bank's equity — in other words, the cost of equity. All things being equal, lower leverage decreases risk and should decrease investors' required returns for bearing that risk.

A widely used framework for understanding the determinants of investors' required returns on equity is the capital asset pricing model (CAPM). Under CAPM, investors require a lower return from those assets that covary less with the market (those with a lower 'beta'). Lower leverage lessens the covariance of equity returns with the market, reducing the return required by equity holders. But a number of other

factors may also be relevant in pricing risk, including investors' risk appetite and the actual or perceived quality of a bank's assets. These factors could vary over time. For example, in a credit cycle upswing, appetite for risk may increase and the actual and perceived quality of assets may improve, leading to a decline in the required return. In a downswing, on the other hand, a retreat from risk and a decline in asset quality may lead to investors demanding a higher return.

Empirical evidence suggests that a fall in leverage reduces the market's perception of equity risk.<sup>(1)</sup> This is illustrated by Chart B, which assesses the relationship between equity beta and leverage, controlling for additional factors. In particular, leverage is plotted against the residuals from a regression of equity beta on risk appetite (proxied by the VIX index) and asset quality (proxied by the non-performing loan share of total assets). The chart reveals a statistically significant and positive relationship between equity beta and leverage. This is consistent with equity investors requiring a lower return on equity as leverage declines, as observed in other recent studies.<sup>(2)</sup> It should be noted, though, that this analysis covers a period during which there were no regulatory controls on overall bank leverage. The imposition of a leverage ratio under Basel III could alter the relationship.

Chart B Equity beta and leverage<sup>(a)(b)(c)</sup>



Sources: Bloomberg, Capital IQ and Bank calculations.

- (a) Leverage is calculated as total assets divided by Tier 1 capital.  
 (b) The sample period is 1997–2010 and the sample includes Banco Santander, Barclays, HSBC, LBG and RBS.  
 (c) The y-axis shows the residuals from a regression of the banks' equity betas on the VIX index of market volatility, the share of non-performing loans in total assets and time fixed effects.

This evidence suggests that, while declining leverage implies that it may be difficult for UK banks to meet current return on equity targets, investors' required returns on equity should also fall over time. To the extent that banks' targets are influenced by market demands, they may too fall over time.

- (1) This relationship appears robust to other measures of risk appetite and asset quality, as well as exclusion of derivatives and outliers.  
 (2) See Kashyap, A K, Stein, J C and Hanson, S (2010), 'An analysis of the impact of substantially heightened capital requirements on large financial institutions', *mimeo*, and Miles, D, Yang, J and Marcheggiano, G (2011), 'Optimal bank capital', *External MPC Unit Discussion Paper no. 31*.

### Box 4 Bank funding resilience: a whole balance sheet approach

The smooth provision of banking services to the economy depends on banks being able to continue funding their activities when hit by adverse shocks. A number of balance sheet characteristics are relevant. Leverage determines how quickly erosion in a bank's asset base results in losses for its creditors. The credit quality of assets influences creditors' perception of the bank's risk. The liquidity of the asset base should determine the appropriate liability structure to fund the assets. And the liability structure affects the stability of funding in the face of shocks.

Figure 1 is a stylised summary of how these balance sheet characteristics affect different risks to creditor confidence in a bank. It suggests that a range of characteristics are key to maintaining creditor confidence. This box examines each in turn.

Figure 1 Risks to creditor confidence and mitigating balance sheet characteristics

Mitigating balance sheet characteristics	Risks to creditor confidence in a bank include				
	Constrained availability of refinancing	Bank recourse to fire sales	Credit losses on bank's assets	Correlated or concentrated exposures	Lack of transparency
Low leverage		✓	✓		
High-quality, diverse assets		✓	✓	✓	✓
Liquid assets	✓	✓			✓
Diverse funding sources	✓	✓		✓	
Low maturity mismatch	✓	✓			
Low currency mismatch	✓	✓			
Simple funding instruments					✓
Low encumbrance	✓		✓		
Stable deposit base	✓				
Stable investor base	✓			✓	

#### Leverage

A less leveraged bank can absorb greater erosion in the value of its assets (eg from credit losses or fire sales) before becoming insolvent, lowering the expected losses faced by its creditors. This means leverage is likely to drive creditors' perception of a bank's risk. But, in 2007, despite high leverage at some banks, their CDS premia were comparatively low. More recently, some banks have had relatively elevated CDS premia despite comparatively low leverage. This suggests factors other than leverage influence perceptions of bank risk as proxied by CDS premia.

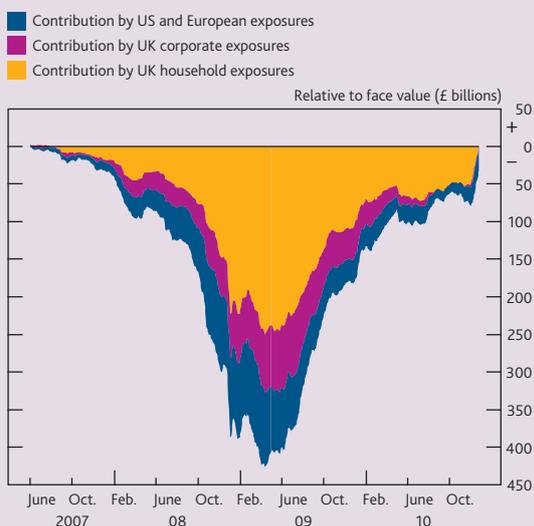
#### Asset credit quality

A bank's credit risk depends on the resilience of its borrowers and the collateral it holds to offset potential losses. But creditors' perception of these risks depends on their ability to observe a bank's asset quality. During market stress, an

inability to fund assets of higher perceived risk can result in fire sales that drive down traded prices of these assets. In 2008, market prices of some securities held by banks became detached from credit fundamentals, in part due to uncertainty about their true credit quality. As a result, many institutions suffered large mark-to-market losses on trading book assets.

Many institutions also experienced large falls in the implied value of their banking book assets (Chart A). These implied losses raised concerns about bank solvency and the substantial discount in 2008–09 suggests creditors may have faced substantial losses in the event of bank insolvency. But the discount reflects not only increases in expected losses, but also uncertainty over credit risk and illiquidity risk premia.

Chart A Estimated market value of UK banks' banking books(a)



Sources: Bank of America Merrill Lynch Global Research, Bank of England, JPMorgan Chase & Co., UBS Delta, published accounts and Bank calculations.

(a) Based on weekly moving average prices of traded instruments as proxies for market value of similar banking book exposures. Banking book exposures are estimated from published accounts on a best-efforts basis. Group comprises Banco Santander, Barclays, HSBC, LBG, Nationwide and RBS. Data are to 31 December 2010.

Interconnections across the financial system can increase uncertainty about banks' exposures to risky assets as a result of counterparty credit risk. Off balance sheet exposures may also exacerbate credit risks.<sup>(1)</sup> For example, committed facilities (particularly those to other financial institutions) may increase the exposure to distressed borrowers, who are more likely to draw on these facilities in times of stress. Not only does this increase credit risk, it also expands the asset base and so requires additional funding.

#### Asset liquidity

The suitability of a bank's funding structure depends on both the maturity and liquidity of its assets. It may appear prudent to fund liquid long-term assets with shorter-term liabilities. But the financial crisis showed that assets which appear liquid in benign conditions can prove illiquid in times of stress.

During the crisis, this led to an overhang of illiquid assets on banks' balance sheets. In 2008, the Bank introduced its Special Liquidity Scheme to allow UK banks to swap high-quality but illiquid securities for Treasury bills.

### Characteristics of liability structure

#### Diversity of funding sources

The larger the range of funding sources a bank can access, the lower the impact from a shock to one of these funding sources. Such diversity can be achieved across funding instruments, investors and regions. Northern Rock was highly dependent on a single funding source — securitisation — to fund its asset base. When this market became impaired in 2007, it struggled to find other ways to fund the assets that it had planned to securitise.<sup>(2)</sup>

#### Asset and liability mismatches

Maturity transformation (using short-term deposits to fund long-term lending) is at the core of the banking business model. Banks may also have a mismatch between the currency of their funding and their assets. They typically deal with this currency mismatch using the foreign exchange swap and overseas interbank markets. As noted in Section 3, 15% of UK banks' total dollar funding requirements comes from short-term funding from US money market funds. But, during the crisis, many European banks needing to fund dollar assets had difficulty accessing these markets and these investors due to counterparty credit risk concerns. And local central banks could only provide local currency. So, to alleviate stresses in dollar funding markets, the Federal Reserve established dollar swap facilities with other central banks so that they could lend dollars to their banks.

#### Characteristics of funding instruments

Liabilities with complex structures may expose both creditors and banks to unforeseen or hard-to-measure risks. The complexity of some securitisation activity by banks, such as CDOs of ABS (eg the securitisation of junior tranches of securitisations), may have made the underlying risks opaque to investors and contributed to the broader impairment of securitisation markets. The Bank's requirement for greater transparency<sup>(3)</sup> on ABS eligible as collateral in its operations aims to address this issue.

Some bank debt and capital instruments were associated with market conventions to redeem early despite a long contractual maturity — for example, call options incentivised by coupon step-ups in hybrid capital instruments. Failing to abide by such conventions can worsen funding problems. For example, when Deutsche Bank did not redeem a lower Tier 2 issue in December 2008, investors reappraised this market convention, reducing their appetite for hybrid capital more generally.

Some funding, such as repo and covered bonds, is secured against particular assets. That gives creditors additional protection. But this encumbrance also reduces the size, and possibly quality, of the pool of assets available to support the claims of unsecured creditors. During the crisis, it also proved a source of instability, following an effective withdrawal of some funding to banks via repo markets as higher haircuts were demanded or certain collateral was no longer deemed acceptable. Counterparty concerns for Bear Stearns and Lehman Brothers became so great that they struggled to raise cash in repo markets against even high-quality collateral.

#### Stability of depositor and investor bases

While customer deposits are generally considered a more stable source of funding than wholesale funding, not all deposits are equally stable. Some may be more interest rate or risk sensitive, such as internet savings products, deposits not covered by deposit insurance and deposits by corporate treasuries. Icesave, the Icelandic Landsbanki's online savings account in the United Kingdom and Netherlands, was frequently in the savings account best-buy tables. That may have attracted more flighty depositors. Indeed, as fears grew about the solvency of Icelandic banks, Icesave experienced large outflows.

Creditor characteristics also affect the stability of the funding they provide. These include the resilience of their own funding, use of leverage and maturity transformation and the impact of mandates and investment triggers on their behaviour. For example, the longer-term nature of life insurer or pension fund liabilities enables them to provide funding on a longer-term basis. But money market funds' maturity mismatch and hedge funds' use of leverage might make them less stable holders of bank debt.

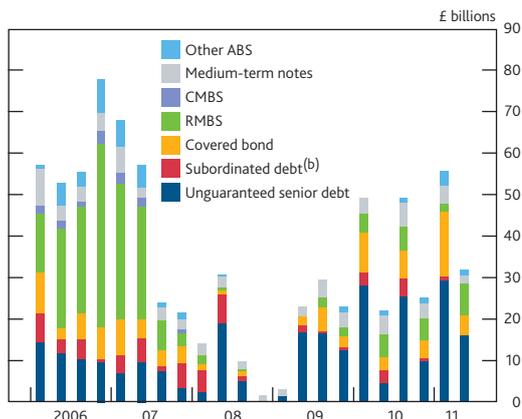
Funding from other banks — which accounted for a significant proportion of bank funding prior to the crisis, especially short-term funding — might also be less stable. During the crisis, cross-holdings between issuers with exposures to the same set of system-wide risks may have meant that aggregate funding from banks fell just as the need for this funding rose, revealing this funding fragility. As **Chart 3.18** in Section 3 indicates, banks have continued to represent a significant proportion of the primary investor base for UK banks' senior debt issuance.

(1) See Box 3, 'The impact of unanticipated balance sheet expansion on UK banks', October 2007 Report.

(2) See Box A, 'The funding crisis at Northern Rock', October 2007 Report.

(3) 'Information transparency for asset-backed securities', available at [www.bankofengland.co.uk/markets/marketnotice100719a.pdf](http://www.bankofengland.co.uk/markets/marketnotice100719a.pdf).

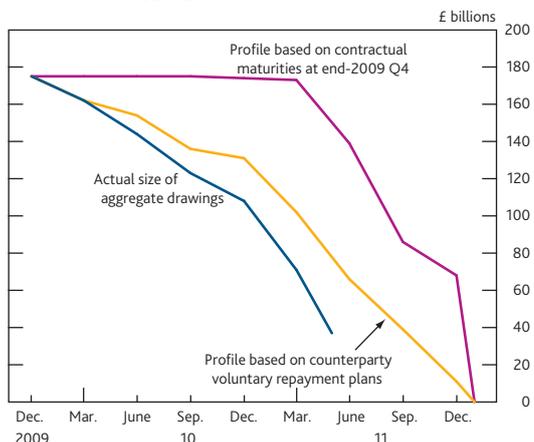
**Chart 3.13** Major UK banks' unguaranteed term issuance in public markets<sup>(a)</sup>



Sources: Bank of England, Dealogic and Bank calculations.

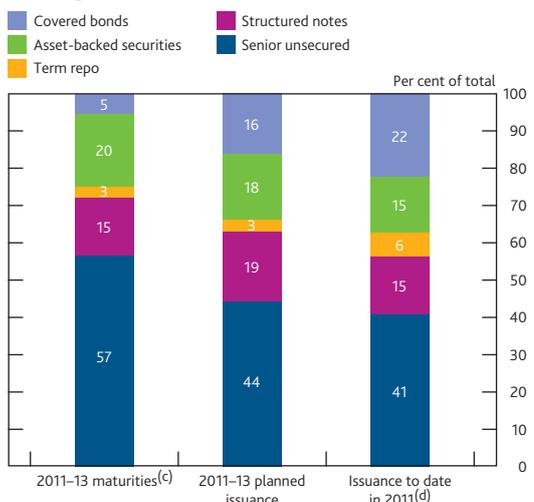
- (a) 2011 Q2 is up to and including 15 June 2011. Term issuance refers here to securities with original contractual maturity or earliest call date of at least 18 months. This excludes debt issued under HM Treasury's Credit Guarantee Scheme.
- (b) It includes subordinated lower Tier 2 and Tier 3 capital instruments with debt features.

**Chart 3.14** Aggregate SLS repayment profiles



Source: Bank of England.

**Chart 3.15** The profile of the major UK banks' term debt funding<sup>(a)(b)</sup>



Sources: Bank of England, FSA, Group Treasurers and Bank calculations.

- (a) The major UK banks here refer to Barclays, HSBC UK, LBG, Nationwide, RBS and Santander UK.
- (b) Maturing funding, planned issuance and issuance to date in 2011 include term debt issued in both public and private markets.
- (c) 2011-13 maturities exclude the banks' voluntary repayment of the Special Liquidity Scheme but include debt issued under HM Treasury's Credit Guarantee Scheme.
- (d) Issuance to date in 2011 is as at end-April 2011. Funding shares may not sum to 100% because of rounding.

under the Bank's Special Liquidity Scheme (SLS) had been repaid by the end of May 2011 (Chart 3.14). The UK Government also recently announced the terms of a facility for early repayment of government-guaranteed debt issued under the Credit Guarantee Scheme (CGS).

Together, these repayments have had the beneficial effect of reducing the potential 'funding cliff' for UK banks in late 2011 and early 2012. This is likely to have contributed to the improvement in funding markets. But major UK banks still have up to £300 billion of term funding, including funding supported by the SLS and CGS, that is due to mature before the end of 2012. This continues to present them with a substantial funding challenge. UK banks anticipate meeting this in part through the asset reductions noted earlier and in part by increasing retail deposits.

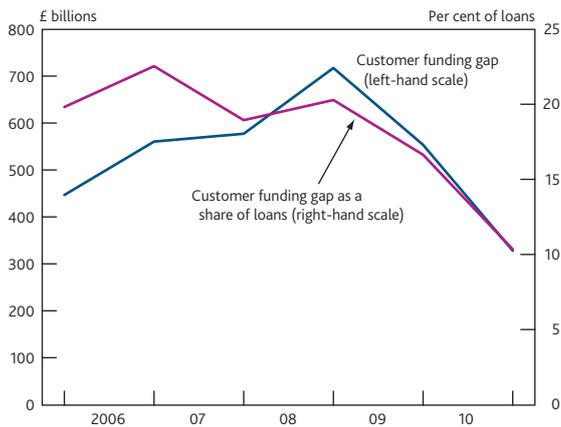
*...but fragilities remain in some banks' funding models...*

Major UK banks have continued to access a diverse range of wholesale funding instruments since the previous Report. The pattern of debt issuance, especially in 2011 Q1, suggests a modest shift towards issuance of covered bond funding (Chart 3.13). This was in part driven by the continued anaemic state of securitisation markets and uncertainty about the treatment of unsecured creditors in future bank failures. In aggregate, the major UK banks plan to increase their use of covered bonds over the next few years (Chart 3.15).

Moody's recently announced that it was placing the long-term debt ratings of 14 UK banks and building societies on review for a downgrade, based on its perception that the UK authorities have become less willing to support bank creditors. And Standard & Poor's is planning to change its bank ratings methodology later this year, including how it takes account of sovereign support. Any reduction in ratings that is not already anticipated by the market could increase banks' funding costs. It might also affect the quantity of funding from sources such as US money market funds. But any increase in funding costs related to the removal of an implicit funding subsidy is positive for the long-term health of the financial system.

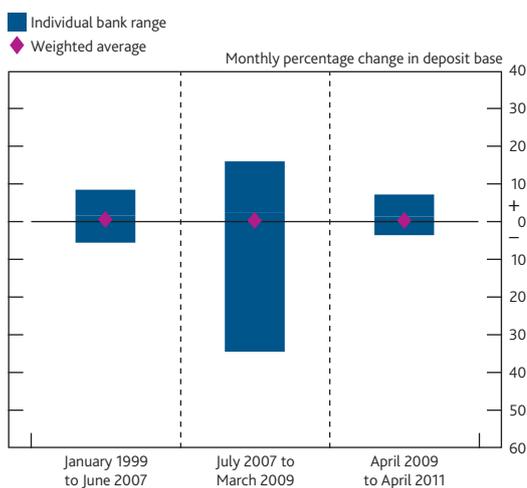
The changing pattern of funding is not without risks. Covered bonds, or increased use of other forms of secured funding, result in higher levels of encumbrance on banks' balance sheets, which can carry risks (Box 4). So too can reliance on complex funding instruments designed to meet new liquidity regulations, such as puttable certificates of deposit (see Box 3 in the December 2010 Report).

Market contacts have reported increased demand for a related innovation, collateral swaps. Banks borrow securities which are eligible for regulatory liquid asset buffers from pension funds and insurers. In exchange, the banks provide less liquid

**Chart 3.16** Major UK banks' customer funding gap<sup>(a)</sup>

Sources: Published accounts and Bank calculations.

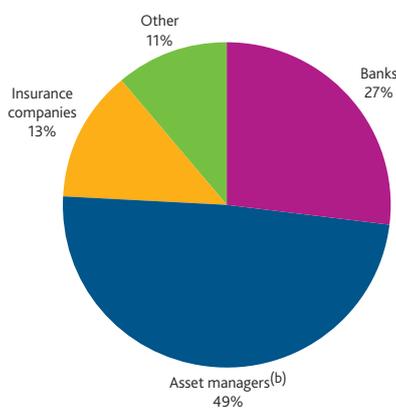
(a) Customer funding gap is calculated as loans to households and PNFCs less customer deposits. Repurchase agreements are excluded from loans and deposits.

**Chart 3.17** Monthly change in UK banks' household and PNFC deposits<sup>(a)(b)</sup>

Sources: Bank of England and Bank calculations.

(a) Banks included: Barclays, Co-operative Bank, HSBC, LBG, National Australia Bank, Northern Rock, RBS and Santander UK.

(b) Monthly movement after adjusting for bank and portfolio acquisitions.

**Chart 3.18** Primary investor base in UK bank senior debt in 2010<sup>(a)</sup>

Sources: Bookrunners and Bank calculations.

(a) Chart is based on a sample of around £25 billion of issuance in 2010.

(b) Asset managers includes pension funds, mutual funds, hedge funds and asset managers investing on behalf of clients, such as insurance companies.

assets as collateral and pay a fee. At times of stress, banks might need to provide additional collateral for these transactions or may come under pressure from owners to return the liquid assets despite no contractual obligation to do so. This could make this arrangement less reliable than owning highly liquid assets outright. So far, though, the amount of this collateral swap activity appears to be limited.

*...highlighting the importance of a stable investor base for bank liabilities.*

The framework discussed in Box 4 also highlights the importance of a stable investor base. A simple metric of this is bank dependence on wholesale funding sources to back their lending. For the major UK banks, this customer funding gap continued to improve sharply in 2010, due to both a reduction in loans and an increase in deposits (**Chart 3.16**). It is now around £330 billion, down from a peak of £720 billion.

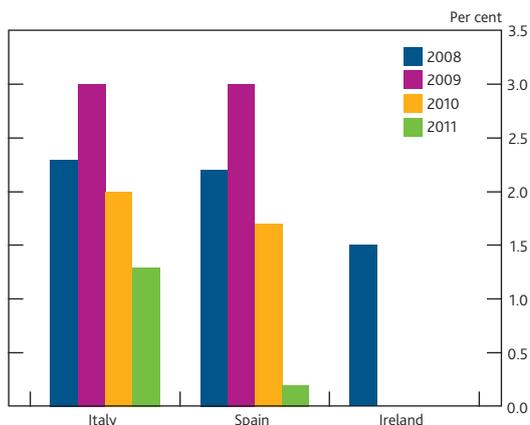
While customer deposits are generally a highly stable source of funding, the experience of a number of distressed banks during the financial crisis demonstrates that they are not stable in all circumstances (**Chart 3.17**). How stable they are depends on the type of depositor, the bank's relationship with them, and whether they are covered by deposit insurance. UK deposit insurance arrangements have been significantly strengthened since 2007, and coverage has been further increased to £85,000 per depositor from the end of 2010.

A more sophisticated measure of structural funding resilience is the Basel III Net Stable Funding Ratio (NSFR). This is the ratio of available stable funding to the amount of required stable funding, measured across the entire balance sheet. 'Stable funding' is defined as financing expected to be reliable over a one-year time horizon under stress. The amount required depends on the asset and liquidity characteristics of each institution. As with the LCR, disclosure of this ratio has so far been patchy. Only four major UK banks have disclosed net stable funding ratios, ranging from 88% to 106% at end-2010. From 2018, banks will need to maintain an NSFR above 100%.

The characteristics of the lender also matter for the stability of a bank's investor base. Available data suggest that banks continue to represent a significant proportion of the overall investor base in UK banks' long-term publicly issued debt (**Chart 3.18**). But banks are leveraged and are also exposed to correlated funding and asset shocks. So they may be an unreliable source of funding in a stress situation.

Money market funds and insurers are also important providers of funding (**Chart 3.18**). While US money market funds provide a relatively small proportion of total wholesale funding, they continue to be key providers of short-term dollar funding, providing around US\$200 billion or up to 15% of UK banks' total dollar funding. They have sharply reduced the

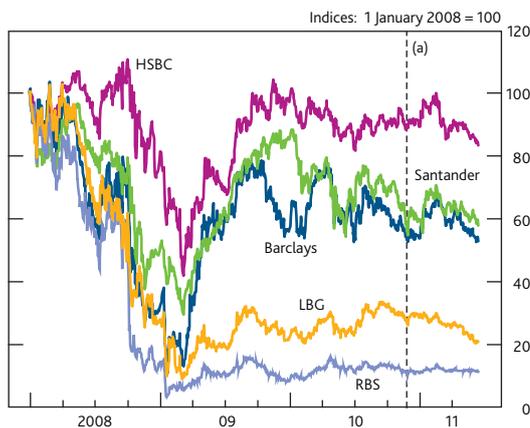
**Chart 3.19** Top ten US prime money market funds' portfolio allocation to selected European countries<sup>(a)(b)</sup>



Source: Fitch Ratings.

(a) Data based on public filings from ten largest US prime institutional and retail money market funds. Sample represents roughly US\$736 billion of approximately US\$1.63 trillion in total US prime money market funds as at February 2011.  
 (b) Portfolio holdings at June of each year or February for 2011.

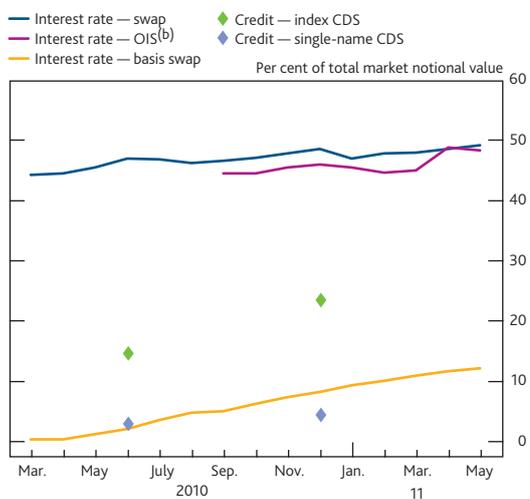
**Chart 3.20** Major UK banks' equity prices



Sources: Thomson Reuters Datastream and Bank calculations.

(a) December 2010 Report.

**Chart 3.21** Proportion of OTC derivatives cleared through central counterparties<sup>(a)</sup>



Sources: BIS, TriOptima and Bank calculations.

(a) Interest rate derivative data are available weekly, while credit derivatives data are published every six months. Both series have been adjusted to remove the double-counting of CCP-cleared transactions by dividing the notional amount of CCP-cleared trades by two.  
 (b) Prior to September 2010 OIS data were reported with interest rate swap data.

amount and maturity of their lending to some European banking systems, highlighting the potential instability of this source of funding (Chart 3.19).

Insurance companies, unlike banks, do not have high levels of leverage or a maturity mismatch between their assets and liabilities, so are typically stable investors. Losses from recent earthquakes in Japan and New Zealand, and floods in Australia have not significantly harmed UK insurers' strong solvency position. But estimates of losses, especially from the Japanese earthquake, could continue to increase. And these events have somewhat reduced the resilience of reinsurers to future shocks, such as a severe US hurricane season. Market contacts report mixed views on the extent to which these factors might lead to an increase in pricing by reinsurers, and in turn by general insurers.

Like banks, both life and general insurers may face longer-term headwinds to profitability. For life insurers, these challenges include: falling demand; competition from other savings products including bank deposits; and regulatory changes, such as Solvency II. For general insurers, low interest rates appear to be constraining investment income. As with banks, insurers may face pressures to boost returns on equity. Indeed, there are signs that some companies may have begun to relax the terms on which they offer cover, at least before the recent run of catastrophe losses.

*Market indicators have remained stable.*

Market indicators of the resilience of the major UK banks, such as CDS premia (Chart 3.9) and equity prices (Chart 3.20), have mostly remained stable since the previous Report. This suggests that investors view changes in the risks discussed above as balanced, although they continue to differentiate among banks.

**3.2 Developments in financial infrastructure**

*Increased use of central counterparty clearing helps to reduce counterparty credit risk, but the pace of change has so far been modest...*

The proportion of over-the-counter (OTC) derivatives cleared through central counterparties (CCPs) continues to increase, consistent with the G20 commitment to clear standardised OTC derivatives through CCPs by end-2012 (Chart 3.21). Nearly half of the combined interest rate swap and overnight index swap market is now CCP-cleared. But recent growth in CCP clearing of these products has been modest, increasing by only around 3 percentage points in the year to April 2011. The expansion of CCP clearing to non-dealer market participants would increase this proportion further.

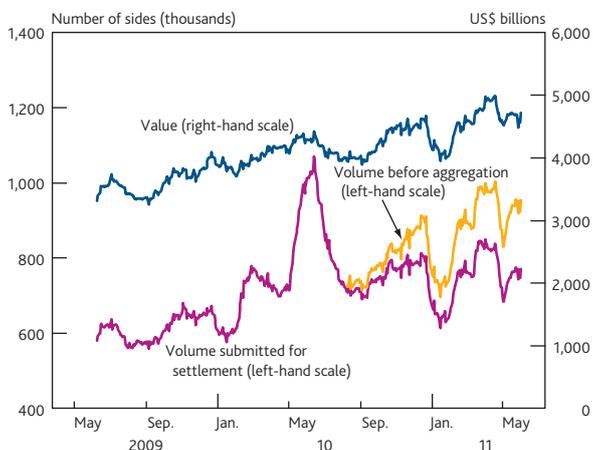
The proportion of CDS index products cleared through CCPs increased by over 8 percentage points to 23% of the total

notional value of contracts in the second half of 2010, although CCP clearing of single-name CDS remains less than 5% of the total notional value of contracts. A number of factors explain this low level of central clearing, notably that single-name contracts are more heterogeneous than index contracts.

In clearing such contracts, CCPs typically require counterparties to post margin, as well as contribute to default funds that mutualise risks in excess of margin. In contrast, the collateralisation of non-cleared trades is subject to bilateral negotiation between counterparties. The total credit exposure faced by counterparties from OTC derivatives trades was around US\$3.3 trillion at end-2010. Equivalent data on collateral held against this risk are not collected. However, the International Swaps and Derivatives Association estimates that the total amount of collateral held against OTC derivatives exposure at end-2010 was around US\$2.9 trillion.

The expansion of CCP clearing highlights the importance of CCP risk management standards. A key way by which CCPs manage their risk is by ensuring that the collateral taken as margin is of sufficient quality. One important aspect of this is avoiding negative correlations between the value of collateral held and the risk of member default, which would otherwise introduce 'wrong-way risk' for the CCP. These issues are among those highlighted by central banks and securities regulators in the consultation on principles for financial market infrastructures published in March.<sup>(1)</sup>

**Chart 3.22** Daily volumes and values of CLS transactions<sup>(a)(b)(c)(d)(e)</sup>



Source: CLS Bank International.

- (a) The unit for measurement of trade volumes is 'sides'; there are two sides to FX transactions where currency is delivered. Both sides are counted in the value figures.  
 (b) Thirty-day moving averages.  
 (c) The difference between the yellow and magenta series demonstrates the compression achieved by CLS Aggregation.  
 (d) Volume of aggregated transactions is the total number of instructions submitted for aggregation minus the number of aggregated instructions settled. Data from 1 July 2010.  
 (e) Data cut-off 3 June 2011.

*...and the use of Continuous Linked Settlement (CLS) for foreign exchange transactions continues to increase.*

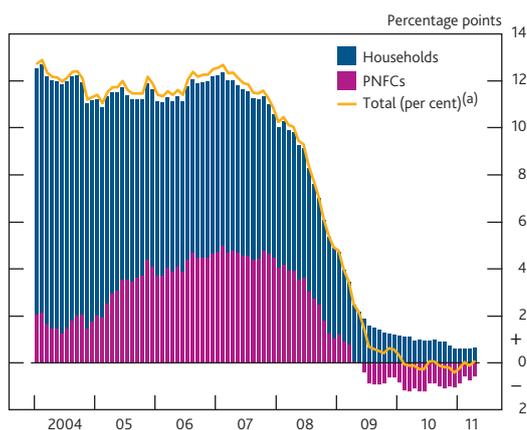
In the foreign exchange market, the value and volume of transactions settled through the CLS system continued on an upward trend (Chart 3.22). CLS eliminates principal risk in the settlement of FX transactions by settling each side of the transaction simultaneously. Participation in CLS has continued to increase, with the number of indirect 'third-party' participants having more than doubled in the two years to end-2010. In January 2010, CLS introduced a service which allows participants to compress (without netting) the large number of low-value FX transactions produced by high-frequency trading and prime brokerage. By end-May 2011, this service was reducing total settlement volumes by over 19%. This compression reduces the risk of operational capacity problems in banks' back offices and at CLS.

(1) See CPSS-IOSCO, 'Principles for financial market infrastructures', March 2011.

# 4 Prospects for financial stability

The outlook for financial stability is shaped by two factors: the key risks faced by the financial system and the system's resilience in the face of those risks. In the current conjuncture, the key risks include immediate sovereign concerns, slower-burn risks from forbearance, and structural risks from instrument opacity, complexity and interconnectedness. Within this environment, it is important that the resilience of the UK banking system has improved recently, with lower leverage levels and progress in raising longer-term funding. But given the significant risks to the financial system, the Committee judges that UK banks should take the opportunity to build capital to strengthen resilience when conditions are favourable, without jeopardising lending.

**Chart 4.1** Contributions to growth in lending to UK households and corporates



Sources: Bank of England and Bank calculations.

(a) Percentage change on a year earlier in the stock of sterling lending.

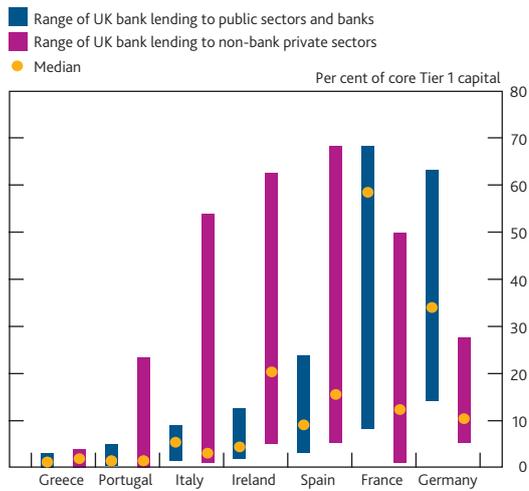
As outlined in Sections 1 to 3, the UK financial system continues to face a number of key risks. And while resilience has improved, lending growth remains weak (**Chart 4.1**) with spreads relative to risk-free rates on new loans elevated (**Box 5** discusses the overall provision of financial services). The balance of all these factors determines the system's capacity to sustain financial services to the real economy. This section discusses these factors and summarises the policy steps which, in the Committee's view, are needed to help support financial stability.

## 4.1 Mitigating risks to the financial system

### Sovereign and banking sector concerns

The Committee believes that sovereign and banking sector strains in some peripheral euro-area economies are the most material and immediate threat to UK financial stability. Markets remain concerned about the sustainability of fiscal positions of a number of sovereigns, particularly those countries that have experienced a persistent loss of competitiveness over the past decade. As discussed in Section 2, while UK banks' direct exposures to the most vulnerable sovereigns are limited, they have larger claims on the private sectors of some of those economies (**Chart 4.2**). Credit risks could also arise from links between banking systems. There is a risk that a sharp deterioration in vulnerable European economies may have adverse implications for credit conditions in larger European economies which are more heavily exposed, such as France and Germany. In conditions of severe stress in the euro area this could increase the risk of losses to UK banks given that their combined claims on France and Germany represent around 130% of their core Tier 1 capital, with close to half accounted for by claims on banks. Any escalation of stresses could also be transmitted via interconnected global markets, including via the United States, leading to a tightening of bank funding conditions.

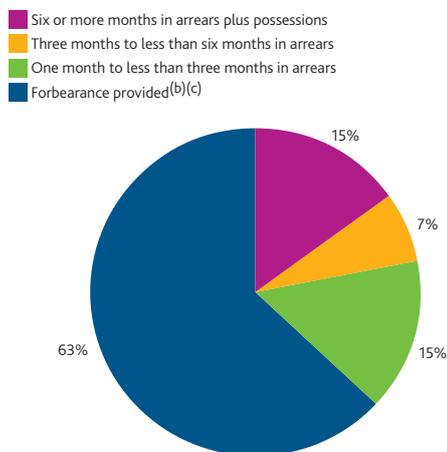
**Chart 4.2 UK banks' lending to selected euro-area countries<sup>(a)(b)(c)</sup>**



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

- (a) Shows the range of UK bank lending to sectors of selected euro-area economies. The sample of banks comprises Barclays, HSBC, Lloyds Banking Group, Nationwide and Royal Bank of Scotland.  
 (b) Claims data are to end-December 2010, adjusted for risk transfers. Excludes guarantees and derivatives.  
 (c) Core Tier 1 capital data are to end-December 2010, except for Nationwide which are to 4 April 2011.

**Chart 4.3 Breakdown of UK residential mortgages entering forbearance or in arrears<sup>(a)</sup>**



Source: FSA Prudential Risk Outlook, March 2011.

- (a) The arrears figures are as at December 2009.  
 (b) Represents the number of changes made to mortgage contracts in the twelve months to March 2010 for forbearance purposes.  
 (c) Forbearance processes included are: capitalisation of existing arrears into the balance; a temporary or permanent transfer onto interest-only terms; term extensions; and reduced payments or payment holidays which do not accrue arrears.

UK banks have strengthened their capital positions and made progress in raising longer-term funding. But considerable market uncertainties remain about the current level of provisioning against banks' exposures to such country risks, particularly when they are held in the banking book. Contagion could be amplified if bank creditors are unsure about the resilience of their counterparties, if there are doubts about the ability of banks from EU Member States to recapitalise or if mechanisms for dealing promptly with failing banks prove ineffective.

In that context, the Committee welcomes steps towards greater transparency as part of current stress-testing initiatives. Given the inherent uncertainties surrounding any particular stress-testing exercise, it is important that banks and markets do not focus on single, point estimates of the impact of particular scenarios when assessing resilience. Instead a range of different tests can provide broader information about vulnerabilities.

Against that background, the Committee welcomes the recent ECOFIN commitment<sup>(1)</sup> that all Member States will ensure that detailed and credible mechanisms are put in place to raise capital for all banks, where necessary. Having such a backstop should not be seen as a sign of weakness, but rather as a positive precautionary measure given the current heightened uncertainty in the international financial system.

#### Recommendation 1

The Committee advises the Financial Services Authority (FSA) to ensure that improved disclosure of sovereign and banking sector exposures by major UK banks becomes a permanent part of their reporting framework, and to work with the FPC to consider further extensions of disclosure in the future.

#### Recommendation 2

The Committee advises the FSA to compile data on the current sovereign and banking sector exposures of other UK banks not subject to the EBA stress tests. If these exposures are significant, then the FSA should publish an aggregate estimate.

#### Loan forbearance

Interest rates remain very low by historical standards. But economic growth is still subdued in many parts of the world. If that were to persist, or if market interest rates rose, pressures on highly indebted borrowers in parts of the household and corporate sectors internationally would increase. Although backward-looking measures of distress remain low, the Committee is concerned that the underlying risks may be masked by loan forbearance by banks (Chart 4.3).

Loan forbearance allows borrowers greater flexibility in meeting their obligations during temporary periods of distress. As such, if

(1) Statement by the Council of the European Union, 'Backstop mechanisms in the context of the 2011 EU-wide stress test exercise', 17 May 2011.

## Box 5 The provision of financial services

Preserving financial stability is about maintaining the three vital functions which the financial system performs for the economy:

- intermediating between savers and borrowers through bank credit, and debt and equity instruments;
- providing the main mechanism for paying for goods, services and financial assets; and
- insuring against and dispersing risk.

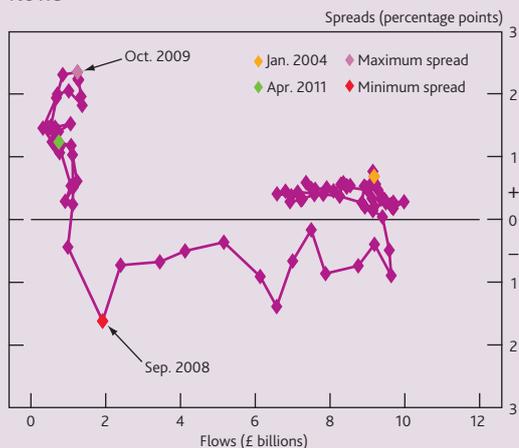
This box reviews how the financial system has delivered these services to UK households and companies during the past six months.

### Intermediation services

#### Lending to households

Following rapid increases in household borrowing in the run-up to the financial crisis, the rate of growth of UK banks' lending to households has fallen sharply. Annual growth of secured lending decreased from 11% in 2007 to 0.9% in 2010. Unsecured household lending growth fell from 6.1% to 0.2%. And growth rates have remained below 2% so far in 2011. Some evidence — such as the rise in spreads at the same time as new lending slowed (**Chart A**) — is consistent with an important role for tighter credit supply in explaining the weakening in household lending growth. But weaker demand for credit is also likely to have played a role.<sup>(1)</sup>

**Chart A** Household secured lending spreads and flows<sup>(a)(b)</sup>



Sources: Bank of England and Bank calculations.

(a) Spread based on average quoted rate on new 75% loan to value ratio tracker mortgages minus estimated bank marginal funding cost (calculated as the sum of three-month Libor plus a weighted average of the five-year CDS premia of the major UK lenders).  
 (b) Three-month rolling average of lending flows.

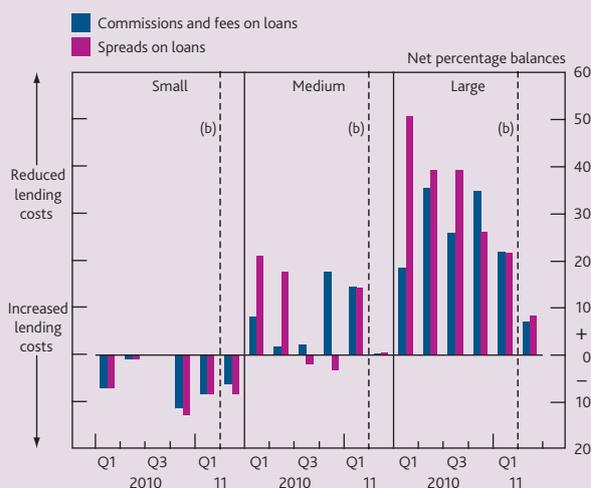
Although evidence from the Bank's *Credit Conditions Survey* suggests that secured credit conditions remain restrictive, the main lenders reported a slight increase in credit availability

over the past year. They expected a further improvement in credit availability in 2011 Q2, in particular for mortgage borrowers with loan to value ratios greater than 75%. Lenders also reported that the supply of unsecured loans had increased a little in recent months, indicating some recovery in their credit risk appetite.

### Access of companies to finance

Since its peak in 2008, the stock of lending by UK banks to private non-financial companies decreased by around 1.8% in 2009 and by 7.1% in 2010. It continued to decrease in early 2011. But lenders report that, in recent months, there has been some improvement in the supply of corporate finance, and the Bank's Agents note improved availability to some small and medium-sized enterprises with strong asset positions or cash-flow prospects. On the other hand, credit has become more costly for small businesses: the *Credit Conditions Survey* indicates that lending spreads and fees and commissions on loans have increased for smaller firms since 2010 Q4 (**Chart B**).

**Chart B** *Credit Conditions Survey*: corporate credit costs<sup>(a)</sup>



Source: Bank of England *Credit Conditions Survey*.

(a) Net percentage balances are calculated by weighting together the responses of those lenders who answered the question as to how the cost of credit provided to the sector overall changed in the past three months. A positive balance indicates reduced lending costs to businesses.  
 (b) 2011 Q2 data are values expected by survey respondents.

As well as borrowing from banks, larger companies can issue debt and equity. Following the crisis, companies significantly restructured their balance sheets: bank borrowing was paid down and issuance of capital instruments, in particular equities, increased.

While the gross value of equity issued by companies has fallen back significantly since its peak in 2009, it remains around levels seen prior to the crisis. The number of firms undertaking an initial public offering (IPO) has yet to recover to pre-crisis levels, though. A number of planned IPOs have been withdrawn during the past year, in part due to equity market volatility.

In corporate bond markets, sterling investment-grade bond spreads have fallen to around 150 basis points, compared with over 400 basis points reached during the height of the crisis. UK bond issuance has been dominated by large, investment-grade companies. But bond markets are opening up to a wider range of borrowers. New borrowers most commonly issue high-yield bonds, and such issuance increased rapidly following the crisis. In the first five months of 2011, gross issuance of high-yield bonds reached a monthly average of £1 billion.

### Payment, settlement and transaction services

Households and companies rely on transaction services offered by banks to make and receive payments and to transfer financial assets. These services include providing access to payment and settlement systems and sight deposit accounts from which payments are made.

There was no significant disruption to these services during the financial crisis. The main UK payment and settlement systems — including CHAPS, Bacs, the Faster Payments Service, CREST and CLS — continue to operate smoothly (Table 1). Households' bank sight deposits, which fell following the crisis, have increased a little since the beginning of the year.

**Table 1** Selected payment systems<sup>(a)</sup>

		CHAPS	Bacs <sup>(b)</sup>	FPS <sup>(c)</sup>	CREST	CLS
Average daily volumes (thousands)	Jan. 2011–May 2011	135	22,914	2,030	190	773
	2007–09	134	22,221	936	219	484
Average daily values (£ billions)	Jan. 2011–May 2011	241	17.4	0.82	435	2,886
	2007–09	262	15.2	0.34	514	2,036
Operational availability of core infrastructure (per cent)	Jan. 2011–May 2011	100	100	100 <sup>(b)</sup>	99.833	99.938
	2007–09	99.848	99.987	100	99.462	99.930

Sources: Bank of England, CLS Bank International, Euroclear UK & Ireland, UK Payments Administration and Bank calculations.

(a) CLS data show the value and volume of obligations as submitted to CLS for settlement (effectively double the value/volume of the underlying transactions). CREST volumes and values are for sterling only and exclude flows generated by the self-collateralising repo mechanism.

(b) Data to end-April 2011.

(c) FPS scheme commenced operation 27 May 2008; data from 1 June 2008, its first full month of operation.

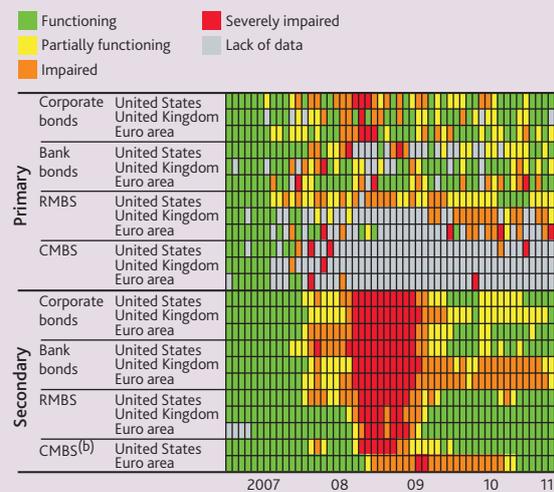
Banks use overnight sterling money markets — in addition to reserves at the Bank of England and intraday repos with the Bank — to meet their payment obligations and those of their customers. During the peak of the crisis, money markets experienced significant disruption. Short-term money markets are now functioning well, and liquidity is plentiful. Reflecting that, overnight market interest rates are close to Bank Rate.

### Risk transfer and insurance

A key function of the financial system is to allow participants to manage and transfer risk to those best placed to bear it, including through the use of securitised assets, financial derivatives and insurance.

Despite significant losses related to natural disasters, insurance companies and markets have continued to function effectively. Derivatives markets have also continued to operate smoothly. But primary markets for asset-backed securities, which became severely impaired during the crisis, remain fragile (Chart C). Recently, though, there has been some evidence of increased investor appetite for UK residential mortgage-backed securities. Banks have also been able to issue covered bonds to obtain funding — issuance in public markets so far in 2011 is over 50% higher than the same period last year. As discussed in Box 4, however, this results in higher levels of encumbrance on banks' balance sheets.

**Chart C** Market functioning<sup>(a)</sup>



Sources: Bank of America Merrill Lynch Global Research, Bloomberg, Dealogic, JPMorgan Chase & Co. and Bank calculations.

(a) Shading is based on a score that reflects, for unguaranteed debt, both issuance (relative to GDP) and spreads in primary markets and secondary markets, expressed as a number of standard deviations from average, using as much data as was available from January 1998. Updated to end-May 2011; recent months use 2011 Q1 GDP.

(b) Insufficient data for UK CMBS secondary markets.

### Summary

Overall, the financial system has generally continued to support the functioning of the UK economy. There has been no interruption to the provision of transaction services. While securitisation markets remain impaired, other key risk transfer markets have been resilient. And, in most cases, financial institutions and markets have acted as an effective mechanism to channel surplus funds from households and firms to those that want to borrow. But evidence suggests that, for some households and smaller companies, the supply of bank lending remains restrictive.

(1) See Bell, V and Young, G (2010), 'Understanding the weakness of bank lending', *Bank of England Quarterly Bulletin*, Vol. 50, No. 4, pages 311–20, and Button, R, Pezzini, S and Rossiter, N (2010), 'Understanding the price of new lending to households', *Bank of England Quarterly Bulletin*, Vol. 50, No. 3, pages 172–82.

provisioned for properly, it can be positive for financial stability and for economic growth. By reducing loan foreclosures, it can protect the resilience of both banks and their customers, and prevent fire sales of assets that could depress prices further.

But inadequate, or opaque, provisioning of loans subject to forbearance may mask underlying credit risks and heighten uncertainty among bank creditors about profit and capital positions. Inadequate provisioning can lead to an overly sanguine view of the resilience of the banking sector. It can also tie up funding in assets generating low returns, potentially impeding the allocation of capital to the real economy. Box 2 discusses the different types of forbearance, its potential benefits and the risks it creates, drawing on a recent review of mortgage loan forbearance by the FSA.

The Committee welcomes the information obtained in the FSA's recent review. It supports the proposal that banks should develop a firm-wide strategy and policy regarding forbearance to ensure that effective processes are in place to identify, report and monitor it.

However, it remains hard to assess the implications of forbearance without further information.

### **Recommendation 3**

**The Committee advises the FSA to extend its review of forbearance and associated provisioning practices across UK banks' household and corporate sector exposures on a global basis.**

### **Instrument complexity and interconnectedness**

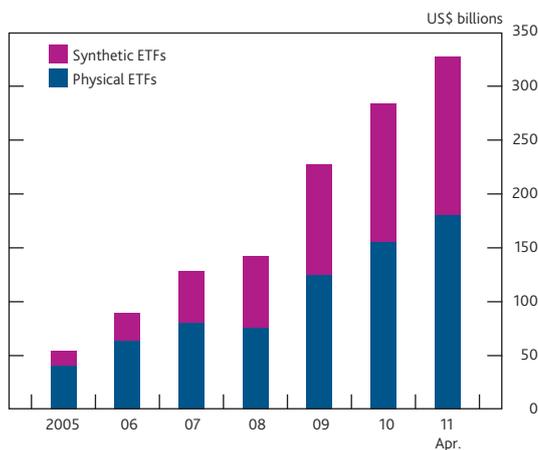
Although there is little evidence of excessive risk-taking on a generalised basis across the financial system, an escalation of sovereign and banking system concerns could trigger market dislocation, leading to mark-to-market losses and increased market volatility. Interconnectedness in the financial system and complex or opaque instrument structures could amplify and propagate any stresses that emerge, as discussed in Box 1. Financial systems have a tendency to proliferate gross intra-sector exposures far in excess of the net exposures of the financial system to the wider economy. Instrument opacity further reduces clarity over the underlying assets in a security, making it hard for investors to understand and manage the risks to which they are exposed.

In terms of tackling the broader issues of complexity and interconnectedness, the Committee notes the lack of timely and consistent information in some areas. Many steps are under way internationally to improve the availability and quality of data on intra-financial system activity, including the Financial Stability Board (FSB) data initiative and the

CPSS-IOSCO principles for financial market infrastructures.<sup>(1)</sup> And attempts are being made to improve understanding of the risks created by intra-financial system activity. These include the FSB initiative on shadow banking and the Committee on the Global Financial System (CGFS) review of the system-wide impact of haircut and margining practices in securities financing and over-the-counter derivatives transactions.<sup>(2)</sup> The Committee supports these initiatives.

Domestically, a key way the Committee will monitor product innovation and interconnectedness is via market intelligence. But, in future, quantitative information could be collated in trade repositories, helping to map counterparty relationships, assess aggregate levels of counterparty risk and identify major concentrations. These data could then be used by authorities to assess risks to the system and allow the Committee to reach views, and potentially make recommendations, on the potentially destabilising effects of interconnectedness.

Chart 4.4 Value of the European ETF market



Source: BlackRock.

There are signs in certain markets of renewed innovation as market participants look to generate higher returns in the low interest rate environment. In its June 2010 *Report* the Bank highlighted the emergence of exchange-traded funds (ETFs). ETFs offer a wider population of investors affordable access to a broad range of instruments in a reasonably liquid form. But their rapid growth (Chart 4.4) has been associated with increased innovation, especially via synthetic replication. And growing complexity has raised counterparty risk, with the underlying collateral potentially illiquid and difficult to value. These developments could become a source of risk to the system as the market evolves.

The growth and evolution of the ETF industry has attracted significant attention from international policymakers — over recent months, the FSB, the BIS and the IMF have all published separate reports highlighting the financial stability risks posed by ETFs.<sup>(3)</sup>

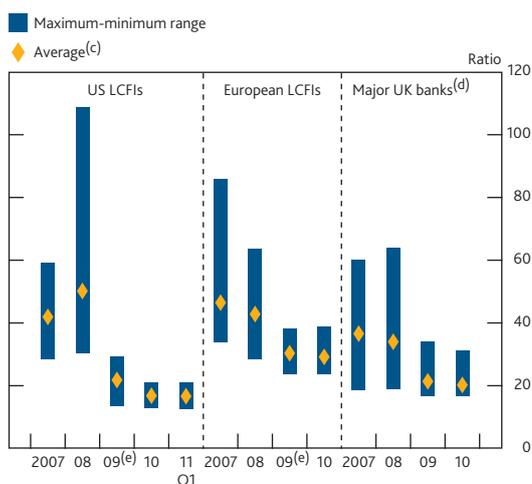
Steps are under way internationally to strengthen the market resilience of ETFs. The Committee supports the continuing work by the FSA and HMT with the European Securities and Markets Authority (ESMA) and other international authorities to promote a strengthening of regulatory risk standards applied to ETFs, particularly concerning improved characterisation and disclosure requirements and collateral and liquidity management.

While UK banks do not currently appear heavily involved in the ETF market, the use of structured derivative transactions via synthetic ETF structures has become a material source of funding for some European banks.

(1) See 'The financial crisis and information gaps', FSB and IMF, May 2010 and 'Principles for financial market infrastructures', CPSS-IOSCO Consultative Paper, March 2011.

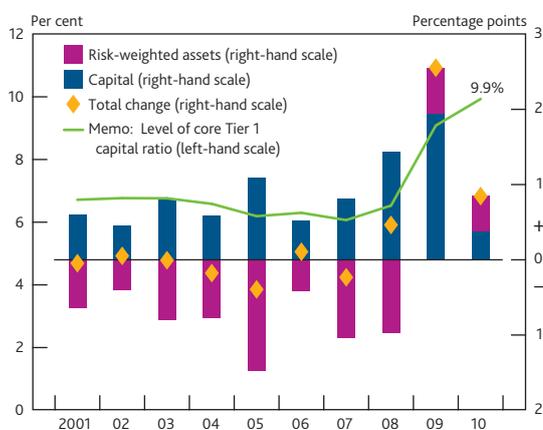
(2) See 'The role of margin requirements and haircuts in procyclicality', CGFS Papers No. 36, March 2010.

(3) For the full report see FSB (2011), 'Potential financial stability issues arising from recent trends in Exchange-Traded Funds'. See also Ramaswamy, S (2011), 'Market structures and systemic risks of exchange-traded funds' and IMF (2011), *Global Financial Stability Report*, Annex 1.7.

**Chart 4.5** Major UK banks' and LCFIs' leverage ratios<sup>(a)(b)</sup>

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

- (a) The leverage ratio is defined as assets divided by capital. Assets are adjusted for cash items, tax assets, goodwill and intangibles. Capital includes total shareholders' equity adjusted for minority interest, preference shares, goodwill and intangibles.
- (b) Assets are also adjusted on a best-efforts basis to achieve comparability between US GAAP and IFRS with respect to derivatives and off balance sheet vehicles.
- (c) Total peer group assets divided by total peer group capital.
- (d) Excludes Northern Rock. Data for The Co-operative Bank are used for Co-operative Financial Services. *Pro-forma* data are used for RBS from 2007 to 2009.
- (e) Revisions to US GAAP accounting rules on consolidation from 1 January 2010 are applied to end-2009 data giving a clearer measure of leverage.

**Chart 4.6** Contributions to the change in major UK banks' core Tier 1 capital ratios

Sources: Published accounts and Bank calculations.

## Recommendation 4

The Committee advises the FSA that its bank supervisors should monitor closely the risks associated with opaque funding structures, such as collateral swaps or similar transactions employed by exchange-traded funds.

## 4.2 Capital retention policies

### Resilience and lending

The FSA's interim capital and liquidity regimes have strengthened the resilience of the major UK banks.<sup>(1)</sup> Leverage ratios have continued to edge down (Chart 4.5) and capital positions are significantly stronger (Chart 4.6), comparing favourably to international peers. Deleveraging and strong debt issuance have reduced the extent of the immediate funding challenge. And liquid asset holdings have increased. But some major banks continue to report losses or weak profits and fragilities remain in the funding models of some banks.

The resilience of the system has to be assessed in the light of current risks, notably from sovereign and banking system concerns in Europe and from latent credit risks in parts of the household and corporate sectors. Given that risk outlook the Committee judges that UK banks should exploit any favourable conditions which arise to raise the level of capital. The resulting greater resilience will reduce the likelihood of future constraints on credit supply should these risks crystallise. This does not imply that banks should aim to satisfy the new, higher long-term Basel III capital ratio requirements before the end of the internationally agreed transition period in 2019.

## Recommendation 5

The Committee advises UK banks that, during the transition to the new Basel III capital requirements, they should take the opportunity of periods of strong earnings to build capital so that credit availability is not constrained in periods of stress.

The Committee judges that banks may currently have insufficient incentives to build up their capital levels when conditions are favourable, for example, given pressure from shareholders to deliver short-term returns and market constraints to compete with the distribution policies of other institutions.

## Recommendation 6

The Committee advises the FSA, as part of its regular supervisory dialogue with banks, to ensure that the proportion of earnings retained is consistent with the advice in Recommendation 5.

(1) This supervisory framework is currently applied in the United Kingdom pending the planned implementation of the new Basel III capital and liquidity standards agreed in September 2010, including through changes to EU law. The interim capital framework was introduced in 2008. The major UK banks are expected to meet a minimum 4% core Tier 1 ratio in a severe stress scenario specified by the FSA, and a 6% core Tier 1 ratio and an 8% Tier 1 ratio in normal economic conditions. 6%–7% is the post-stress Tier 1 ratio relevant to building societies. The FSA's enhanced liquidity regime was published in October 2009, and introduced tougher qualitative and quantitative standards for firms. Among other elements, these include granular and more frequent reporting requirements and an Individual Liquidity Guidance (the liquid asset buffer) that firms must hold to meet an FSA-specified stress.

# Index of charts and tables

## Charts

<b>1</b>	<b>Risks from the international financial system</b>	<b>6</b>	2.12	Default rate on loans by firm size	22
1.1	Mechanical market-implied default probabilities over the next five years for selected European sovereigns	6	2.13	Arrears on UK commercial real estate loans	22
1.2	Mechanical market-implied default probabilities over the next five years for Spanish sovereign debt	7	2.14	Corporate write-off and liquidation rates	22
1.3	International equity indices	7	2.15	Domestic credit to GDP ratios in selected emerging economies	23
1.4	Contributions to changes in international equity indices	7	2.16	Hong Kong and Chinese real property prices	23
1.5	Change in US corporate bond spreads by rating	8	2.17	Cost of default protection for corporates	23
1.6	Indicators of risk appetite	8	2.18	Household debt relative to income	26
1.7	Implied volatilities	8	2.19	Household sector write-off rates	27
1.8	Revisions to 2011 economic growth forecasts for selected countries	9	2.20	Inventory of houses potentially for sale in the United States	27
1.9	Pattern of investment flows into equity and bond funds	9	2.21	Illustrative estimates of debt held by vulnerable households	27
1.10	Change in gross cross-border banking claims	9	2.22	Major UK banks' domestic exposure to high and very high LTV secured debt	28
1.11	Portfolio flows between the United States and non-Japan Asia	9	2.23	Household income gearing	28
1.12	Holdings of US Treasuries	9	<b>Box 2</b>		
1.13	Holdings of US securities by China, Japan and Middle East oil-exporting countries	9	1	Risks from forbearance	24
1.14	Real policy rates in selected emerging economies	10	A	Breakdown of UK residential mortgages entering forbearance or in arrears	25
1.15	Market liquidity and volatility	10	<b>3</b>	<b>Resilience of the financial system</b>	<b>29</b>
1.16	Measures of UK economic uncertainty	11	3.1	Major UK banks' total assets	29
1.17	International ten-year spot government bond yields	11	3.2	Contributions to the change in major UK banks' core Tier 1 capital ratios	30
1.18	Slope of the sterling yield curve	11	3.3	Tier 1 capital ratios for selected international banking systems	30
1.19	Attractiveness of selected emerging-economy currency carry trades against the US dollar	12	3.4	Major UK banks' and LCFIs' leverage ratios	31
1.20	Comovement of asset returns	12	3.5	Major UK banks' revenues, costs and profits	31
1.21	Equity price valuation measure	12	3.6	US and European LCFIs' profits	31
1.22	Issuance of sub-investment grade corporate bonds by region	13	3.7	Major UK banks' distributions to shareholders and employees	32
1.23	Corporate bond valuation measure	13	3.8	UK banks' impairments and estimated impairments under expected loss accounting	32
1.24	Issuance of 'covenant-lite' leverage loan deals	13	3.9	Credit default swap premia	33
1.25	Average hedge fund leverage and leverage by strategy	16	3.10	Major UK banks' and LCFIs' price to book ratios	33
1.26	US dollar-denominated debt issuance by European banks	16	3.11	UK banks' return on tangible equity	34
1.27	Sterling-dollar and euro-dollar basis swap rates	16	3.12	Sterling liquid assets relative to total asset holdings of UK banking sector	34
<b>Box 1</b>			3.13	Major UK banks' unguaranteed term issuance in public markets	38
1	Stylised example of a synthetic ETF	15	3.14	Aggregate SLS repayment profiles	38
A	Total expense ratios (TERs) of physical and synthetic ETFs listed in Europe	15	3.15	The profile of the major UK banks' term debt funding	38
<b>2</b>	<b>Credit risks to the banking system</b>	<b>17</b>	3.16	Major UK banks' customer funding gap	39
2.1	Stock of UK banks' lending	17	3.17	Monthly change in UK banks' household and PNFC deposits	39
2.2	Government financing needs and domestic bank claims on government	18	3.18	Primary investor base in UK bank senior debt in 2010	39
2.3	An illustration of sovereign debt dynamics	18	3.19	Top ten US prime money market funds' portfolio allocation to selected European countries	40
2.4	UK banks' lending to selected euro-area countries	19	3.20	Major UK banks' equity prices	40
2.5	Hypothetical pre-provision write-downs on UK banks' direct exposures to Greece, Ireland, Portugal and Spain	19	3.21	Proportion of OTC derivatives cleared through central counterparties	40
2.6	Banking system capital and reliance on wholesale funding	20	3.22	Daily volumes and values of CLS transactions	41
2.7	Cost of default protection for banking systems	20	<b>Box 3</b>		
2.8	Senior term debt issuance by selected euro-area banking systems	20	A	UK banks' leverage	35
2.9	Corporate debt relative to profits	21	B	Equity beta and leverage	35
2.10	Attitudes of UK CFOs to risk and gearing	21	<b>Box 4</b>		
2.11	Percentage of firms with interest payments greater than profits	22	1	Risks to creditor confidence and mitigating balance sheet characteristics	36
			A	Estimated market value of UK banks' banking books	36

<b>4</b>	<b>Prospects for financial stability</b>	<b>42</b>
4.1	Contributions to growth in lending to UK households and corporates	42
4.2	UK banks' lending to selected euro-area countries	43
4.3	Breakdown of UK residential mortgages entering forbearance or in arrears	43
4.4	Value of the European ETF market	47
4.5	Major UK banks' and LCFIs' leverage ratios	48
4.6	Contributions to the change in major UK banks' core Tier 1 capital ratios	48
<b>Box 5</b>		
A	Household secured lending spreads and flows	44
B	<i>Credit Conditions Survey</i> : corporate credit costs	44
C	Market functioning	45

## Tables

<b>1</b>	<b>Risks from the international financial system</b>	<b>6</b>
1.A	<i>Systemic Risk Survey</i> : key risks to the UK financial system	6
<b>3</b>	<b>Resilience of the financial system</b>	<b>29</b>
3.A	UK banks' non-core assets	30
<b>4</b>	<b>Prospects for financial stability</b>	<b>42</b>
<b>Box 5</b>		
1	Selected payment systems	45

# Glossary and other information

## Glossary of selected data and instruments

**ABS** – asset-backed security.  
**CDO** – collateralised debt obligation.  
**CDS** – credit default swap.  
**CLO** – collateralised loan obligation.  
**CMBS** – commercial mortgage-backed security.  
**ERI** – exchange rate index.  
**Euribor** – euro interbank offered rate.  
**FICC** – fixed income, currency and commodities.  
**GDP** – gross domestic product.  
**Libor** – London interbank offered rate.  
**MBS** – mortgage-backed security.  
**OIS** – overnight index swap.  
**RMBS** – residential mortgage-backed security.

## Abbreviations

**ARF** – absolute return fund.  
**BBA** – British Bankers' Association.  
**BHPS** – British Household Panel Survey.  
**BIS** – Bank for International Settlements.  
**BoAML** – Bank of America Merrill Lynch.  
**CAPM** – capital asset pricing model.  
**CBI** – Confederation of British Industry.  
**CCP** – central counterparty.  
**CEIC** – CEIC Data Company Ltd.  
**CFO** – chief financial officer.  
**CGFS** – Committee on the Global Financial System.  
**CGS** – Credit Guarantee Scheme.  
**CHAPS** – Clearing House Automated Payment System.  
**CLS** – Continuous Linked Settlement.  
**CRE** – commercial real estate.  
**EBA** – European Banking Authority.  
**ECB** – European Central Bank.  
**ETF** – exchange-traded fund.  
**EU** – European Union.  
**FDIC** – Federal Deposit Insurance Corporation.  
**FISIM** – Financial Intermediation Services Indirectly Measured.  
**FOMC** – Federal Open Market Committee.  
**FPC** – Financial Policy Committee.  
**FPS** – Faster Payments Service.  
**FSA** – Financial Services Authority.  
**FSB** – Financial Stability Board.  
**FTSE** – Financial Times Stock Exchange.  
**FX** – foreign exchange.  
**G20** – The Group of Twenty Finance Ministers and Central Bank Governors.  
**GAAP** – generally accepted accounting principles.  
**GfK** – Gesellschaft für Konsumforschung, Great Britain Ltd.  
**HAMP** – Home Affordable Modification Program.  
**HMT** – Her Majesty's Treasury.  
**IBES** – Institutional Brokers' Estimate System.  
**IFRS** – International Financial Reporting Standard.

**IMF** – International Monetary Fund.  
**IPO** – initial public offering.  
**LBG** – Lloyds Banking Group.  
**LCFI** – large complex financial institution.  
**LCR** – Liquidity Coverage Ratio.  
**LTV** – loan to value.  
**NIM** – net interest margin.  
**NSFR** – Net Stable Funding Ratio.  
**NYSE** – New York Stock Exchange.  
**OECD** – Organisation for Economic Co-operation and Development.  
**OFC** – other financial corporation.  
**ONS** – Office for National Statistics.  
**OTC** – over the counter.  
**PNFC** – private non-financial corporation.  
**QE** – quantitative easing.  
**RBS** – Royal Bank of Scotland.  
**RoTE** – return on tangible equity.  
**RWA** – risk-weighted asset.  
**SLS** – Special Liquidity Scheme.  
**S&P** – Standard & Poor's.  
**TER** – total expense ratio.

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