

Financial Stability Report

December 2010 | Issue No. 28



BANK OF ENGLAND





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The Bank of England has two core purposes — monetary stability and financial stability. The two are connected because serious disruption in the financial system can affect the implementation and effectiveness of monetary policy, while macroeconomic stability helps reduce risks to the stability of the financial system.

The Bank's responsibilities for monetary stability are set out in the Bank of England Act 1998. The Bank's current statutory responsibility for financial stability is set out in the Banking Act 2009.⁽¹⁾ The current respective roles of the UK authorities — HM Treasury (HMT), the Financial Services Authority (FSA) and the Bank of England — are also set out in a Memorandum of Understanding (MoU).⁽²⁾

In June, the Chancellor of the Exchequer set out a plan for fundamental changes to the system of UK financial regulation. These were summarised in a box on page 5 of the June 2010 *Report*.

Under the Banking Act, the Bank is responsible for contributing to the maintenance of the stability of the financial system as a whole. This derives from its responsibility for setting and implementing monetary policy, its statutory role in respect of payment systems in the United Kingdom and its role as banker and supplier of liquidity to the banking system. The Bank aims to bring its expertise in economic analysis and its experience, both as a bank and as a participant in financial markets, to the assessment and mitigation of risks to the UK financial system. Where necessary, this involves helping to manage and resolve financial crises, and making use of the Special Resolution Regime for dealing with distressed banks. The Bank works closely with authorities domestically and overseas on issues relevant to the stability of the UK financial system, including the international financial architecture and regulatory frameworks.

As part of that contribution, the *Financial Stability Report* aims to identify key risks to UK financial stability and to stimulate debate on policies needed to manage and prepare for these risks. The *Report* is produced half-yearly by Bank staff under the guidance of the Bank's Financial Stability Executive Board, whose best collective judgement it represents, and following review by the Financial Stability Committee of the Court of Directors of the Bank of England.

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This document was delivered to the printers on 15 December 2010 and, unless otherwise stated, uses data available as at 26 November 2010.

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

(1) The Banking Act 2009 is available at www.opsi.gov.uk/acts/acts2009/pdf/ukpga_20090001_en.pdf.

(2) The Memorandum of Understanding was revised in March 2006 and is available at www.bankofengland.co.uk/financialstability/mou.pdf.

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Overview

Sovereign and banking system concerns have re-emerged in parts of Europe. The IMF and European authorities proposed a substantial package of support for Ireland. But market concerns spilled over to several other European countries. At the time of writing, contagion to the largest European banking systems has been limited. In this environment, it is important that resilience among UK banks has improved over the past year, including progress on refinancing debt and on raising capital buffers. But the United Kingdom is only partially insulated given the interconnectedness of European financial systems and the importance of their stability to global capital markets.

More medium-term risks are posed by a redistribution of capital within the financial system. Capital has flowed into safe assets and, despite recent increases, bond yields remain low in many advanced economies. There are some signs of this intensifying a search for yield, including into emerging market assets. Low yields may also be masking latent distress among some overextended borrowers, including some households, corporates and sovereigns. Against that backdrop, it is in banks' collective interest to build resilience gradually through retention of earnings, which would be boosted if banks restrain distribution of profits to equity holders and staff.

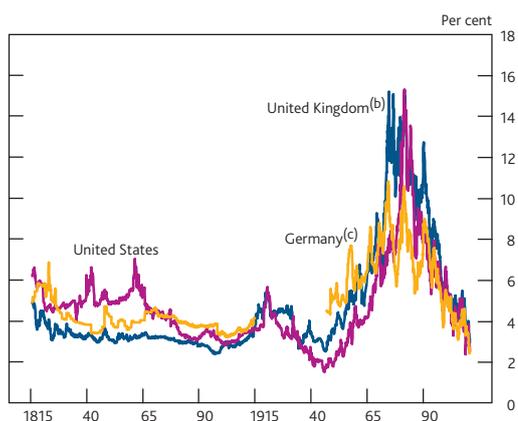
On the policy front, the FSB/G20 reform programme includes improvements in the loss-absorbency of systemically important financial institutions and in the regimes through which they could be resolved; strengthening of central counterparties' (CCP) risk management; and improvements in the capital regime for banks' trading books. Reform in those areas will engender incentives for activity to migrate to unregulated parts of the financial system, so it is important that policymakers exercise vigilance about the regulatory perimeter.

Table A Key risks to the UK financial system

- Contagion of sovereign concerns, interacting with and amplifying bank fragility in Europe.
- A redistribution of capital globally, increasing the risk of overheating in some emerging market economies.
- Low bond yields in advanced economies, which could reignite a search for yield but whose sudden reversal might lead to sharp falls in asset prices.
- The exposure of latent distress among some borrowers internationally, including in the commercial property sector, if growth is weaker than expected or market interest rates rise by much more than anticipated.
- Market disruption and contagion as a result of weaknesses in risk management, both in bilateral trades between market counterparties and at systemically important central counterparties.

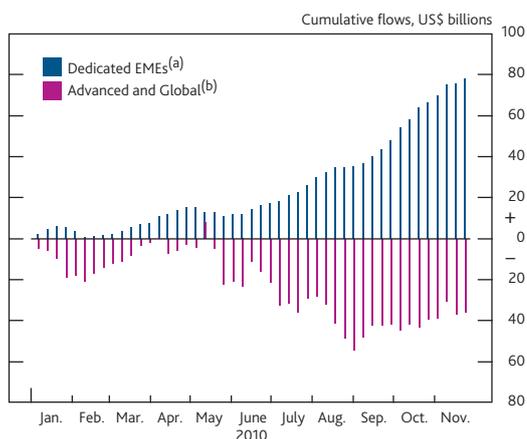
Table B Policy measures required

- Guided by tighter Basel III standards, a gradual transition by banks to greater resilience by retaining earnings, avoiding rapid adjustment via tightening credit conditions.
- Initiatives in securitisation markets to match better the investment requirements of long-term investors with banks' need to lengthen the maturity of funding.
- Measures to mitigate the risks associated with systemically important financial institutions, including capital surcharges and improved resolution arrangements in which losses are borne by existing liability holders.
- Extension to central clearing and strengthened CCP risk management, fostered by user-ownership and 'not-for-profit' arrangements.
- The BCBS review in 2011 of regulatory capital requirements for trading books to take account of liquidity risk and potential regulatory arbitrage.

Chart 1 Historical government bond yields^(a)

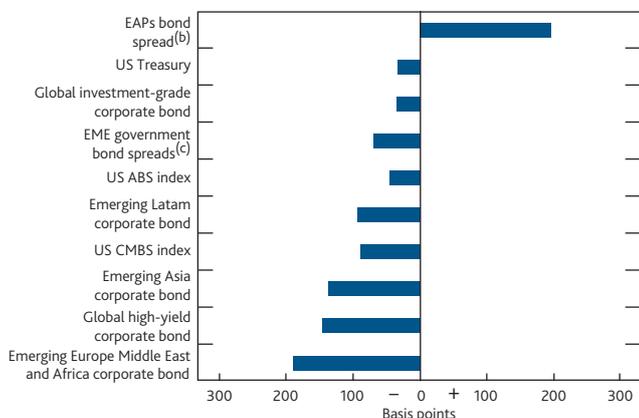
Source: Global Financial Data.

- (a) Ten-year yields.
 (b) Due to data limitations, the UK series prior to 1958 is compiled from yields on 2½% UK Consolidated Stock (Consols). As Consols are undated stock, the time-series comparison is only approximate.
 (c) Due to data limitations, no data are shown for Germany from 1915 to 1946.

Chart 2 Investments in equity funds

Sources: Emerging Portfolio Fund Research and Bank calculations.

- (a) Includes newly industrialised economies.
 (b) 'Advanced and Global' includes the following equity funds: Global, Japan, Pacific, United States and Western Europe.

Chart 3 Changes in yields and spreads of selected assets^(a)

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

- (a) Change in yields (unless otherwise specified) since June 2010 Report.
 (b) Ten-year government bond spreads to bunds. 'EAPs' (euro-area periphery countries) comprises Greece, Ireland, Italy, Portugal and Spain.
 (c) Emerging Market Bond Index Global Composite — yield to maturity over US Treasuries.

Challenges for financial stability

Appetite for safe assets increased...

Demand has shifted further towards assets perceived to be safe. Major advanced-economy government bond yields remain at historically low levels (Chart 1), despite recent increases. And capital has shifted geographically, flowing out of some advanced-economy equity funds as risk premia have risen and into emerging market economies (EMEs) (Chart 2). In part, that has reflected a search for higher yield (Chart 3).

...as sovereign concerns in some European economies intensified.

The deterioration in risk sentiment was largely triggered by a re-emergence of sovereign concerns. In recent months, markets have focused increasingly on strains placed on the balance sheets of the Irish banks and sovereign. The IMF and European authorities proposed a substantial package of support, but market concerns have spread beyond Ireland. Market measures of sovereign risk rose sharply in several other countries (Chart 4) and bank funding markets tightened (Chart 5). As yet, though, contagion to the largest EU financial systems has been limited.

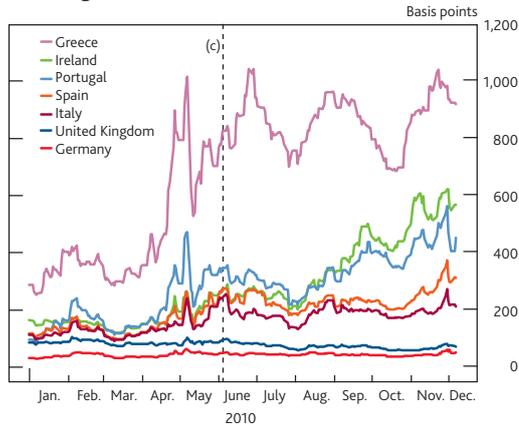
Intensification of these concerns poses a risk to financial stability,...

A risk to bank resilience internationally is a further intensification of recent concerns. UK banks' holdings of sovereign debt issued by countries under heightened strain are relatively small. But total claims on these economies, including lending to households and businesses, are larger (Chart 6). Losses on such lending could increase were heightened sovereign concerns to be accompanied by weakening economic conditions. Credit risk could also be amplified by the interconnectedness of European banking systems. UK banks have claims of almost £300 billion on France and Germany, whose banking systems are more heavily exposed to the most affected economies. Market prices appear to reflect already the risks that German and French banks face on their exposures.

In an environment of heightened investor risk aversion, funding conditions might deteriorate. Non-bank financial institutions — such as prime US money market mutual funds which provide around US\$1.3 trillion of funding to banks globally — could stop rolling over dollar funding to UK and other European banks. A broadening of sovereign concerns might also directly restrict the provision of financial services to the UK economy. Foreign-owned lenders, which account for around a third of outstanding bank lending to UK businesses, might restrict lending most in their non-core markets.

The systemic nature of these risks highlights the importance of developing a comprehensive, rather than country-by-country, solution. Recent events also underline the need for the next

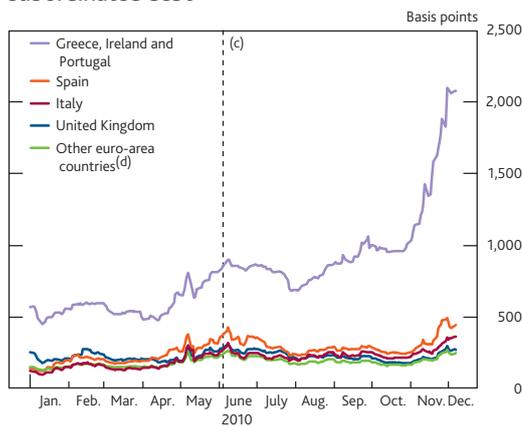
Chart 4 Cost of default protection for European sovereign debt^{(a)(b)}



Source: Thomson Reuters Datastream.

- (a) Senior five-year sovereign credit default swap premia.
- (b) Data to close of business on 7 December 2010.
- (c) June 2010 Report.

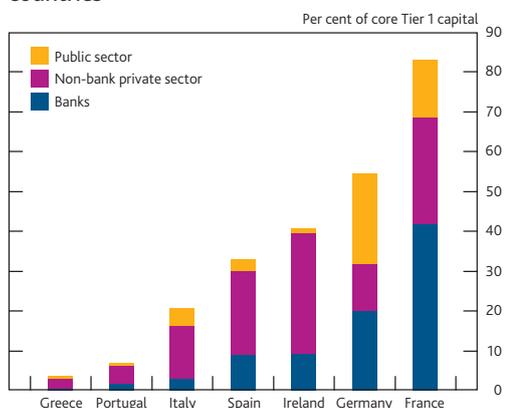
Chart 5 Cost of default protection for European banks' subordinated debt^{(a)(b)}



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

- (a) Asset-weighted five-year credit default swap premia.
- (b) Data to close of business on 7 December 2010.
- (c) June 2010 Report.
- (d) 'Other euro-area countries' consists of Austria, Belgium, France, Germany and the Netherlands.

Chart 6 Major UK banks' claims on selected European countries^{(a)(b)(c)}



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

- (a) Barclays, HSBC, Lloyds Banking Group, Nationwide Building Society and Royal Bank of Scotland.
- (b) Claims data are to end-June 2010, adjusted for risk transfers. Excludes guarantees and derivatives.
- (c) Core Tier 1 capital data are to end-June 2010, except for Nationwide Building Society (end-April 2010).

EU-wide stress-test exercise to provide greater transparency about banks' resilience to these risks.

...while the low interest rate environment could accentuate a developing search for yield...

A sustained period of low bond yields in major advanced economies appears to be generating a search for yield in some capital markets. That may be driven in part by insurance companies and pension funds seeking to meet nominal return targets.

...and lead to overheating in some EMEs.

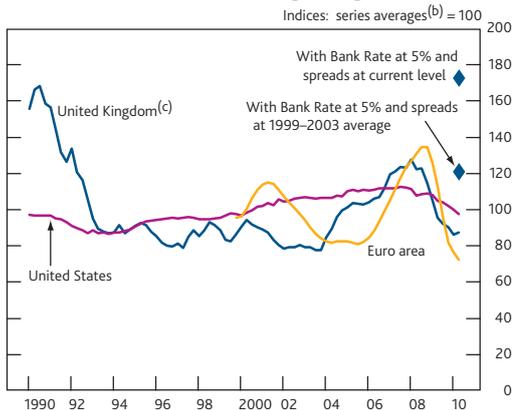
A search for yield could lead to overheating in some relatively small markets that are experiencing increasing capital inflows. To date, pressure has been most acute in parts of Asia, where property prices have increased sharply. This presents heightened risks to banks operating in the region, including some UK banks with growing exposures. Other institutions may also be vulnerable, given market reports of large, unhedged inflows into sovereign bonds and equities by investors seeking to gain on expected nominal appreciation of EME currencies. Some authorities have taken steps to contain overheating through monetary and macroprudential policy measures.

A reversal of yields could expose latent distress on banks' balance sheets.

But at such low levels, bond yields internationally could be susceptible to a sudden reversal, as experienced in the mid-1990s. The increase in yields in recent weeks has had a limited impact to date. But further increases could lead to falls in asset prices and trading book losses for banks internationally.

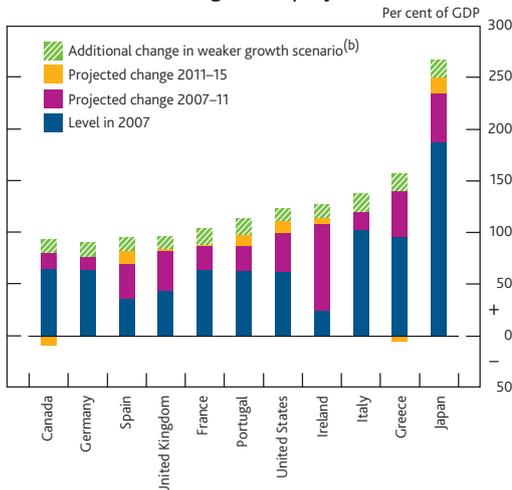
Higher market interest rates or lower growth could also expose banks' vulnerabilities to overextended borrowers. Around a third of the stock of UK banks' corporate lending globally is to commercial property. To date, banks have contained losses by extending maturing loans where these are being serviced, even when loan to value covenants have been breached. In the United Kingdom, up to 70% of loans that were due to mature last year were extended. But if conditions worsen, banks may be unwilling to refinance loans. Any subsequent rapid disposal of properties could place further downward pressure on UK valuations, increasing prospective credit losses. Similar dynamics might occur in some other countries, where forbearance also appears to have played a role in limiting liquidations.

Banks could also be exposed, either directly or indirectly, to further falls in residential property prices internationally. In the United States, the pipeline of foreclosures is around 15% of mortgages, which could place renewed downward pressure on house prices, and banks may be vulnerable to legal rulings on 'put-backs' of delinquent loans. Banks may be less

Chart 7 Household income gearing^(a)

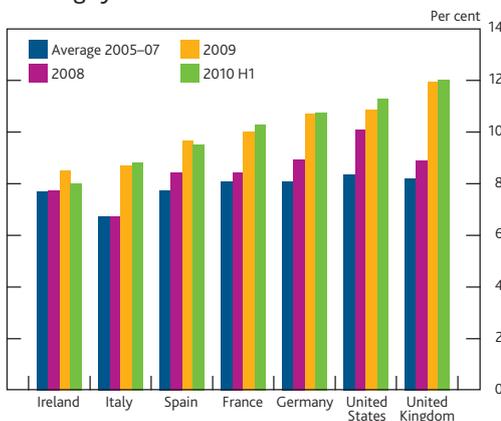
Sources: ECB, ONS, Thomson Reuters Datastream and Bank calculations.

- (a) For the United Kingdom and the euro area income gearing is measured as the ratio of household interest payments to post-tax income. For the United States it is measured as the ratio of total household debt repayments to post-tax income.
 (b) Series averages are calculated over the period shown on the chart.
 (c) Includes FISIM adjustment.

Chart 8 IMF sovereign debt projections^(a)

Sources: IMF *Fiscal Monitor* (November 2010), IMF *Global Financial Stability Report* (October 2010) and Bank calculations.

- (a) Gross general government debt.
 (b) Growth 1 percentage point weaker than the baseline IMF *World Economic Outlook* forecast.

Chart 9 Tier 1 capital ratios for selected international banking systems^{(a)(b)(c)(d)}

Sources: Capital IQ, Moody's Investors Service, SNL Financial, published accounts and Bank calculations.

- (a) Includes banks with total assets of more than \$100 billion at end-2009.
 (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.

immediately exposed to credit losses on secured UK household lending, since a relatively small proportion of UK households are in negative equity compared with around 25% in the United States. But the sensitivity of UK borrowers to interest rate rises (**Chart 7**) is likely to have increased as mortgagors have moved from expiring fixed-rate deals to floating-rate mortgages, which now account for around two thirds of outstanding mortgages. UK survey evidence also suggests that many unsecured borrowers, particularly mortgagors with limited equity, are already finding current borrowing a burden. In practice, the impact of higher interest rates would depend on the wider economic environment.

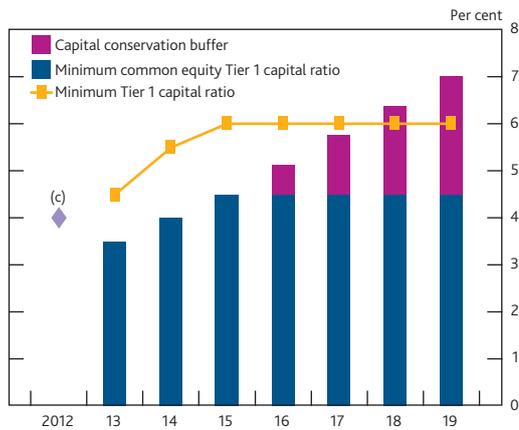
Sovereigns might also face increased difficulties in servicing debt. Government debt levels increased markedly during the financial crisis. They rose particularly rapidly in countries, such as Ireland, where the banking system is large relative to the size of the economy. Debt levels are sensitive to the future path of growth, as suggested by IMF projections for general government debt (**Chart 8**). A deterioration in growth prospects might restrict the ability of some sovereigns, including those heavily reliant on external debt markets, to provide support to their banking systems.

Increased UK financial system resilience provides insurance against these challenges.

Against this more challenging operating backdrop, UK banks have improved their resilience. Capital ratios have risen, supported by higher earnings and a reduced dividend payout ratio. All the major UK banks reported profits in 2010 H1. Reported large exposures also fell, reducing the risk of concentrated losses. Tier 1 capital buffers have also risen in the largest European banking systems (**Chart 9**), though loss-absorbency across countries is uncertain in the absence of a commonly agreed definition of core capital. Basel III will deliver a new definition for common equity Tier 1 capital that is consistent across countries.

Funding positions have also improved. Gross issuance by the major UK banks has been substantial, with more than £130 billion of term debt raised in public markets this year. Banks have used new funding instruments and diversified their funding sources internationally. They have also voluntarily agreed to smooth Special Liquidity Scheme (SLS) repayment schedules to remove a refinancing cliff at the end of 2011. But challenges remain: including funding supported by the SLS and the Credit Guarantee Scheme, around £400 billion to £500 billion of wholesale term debt is due to mature by the end of 2012.

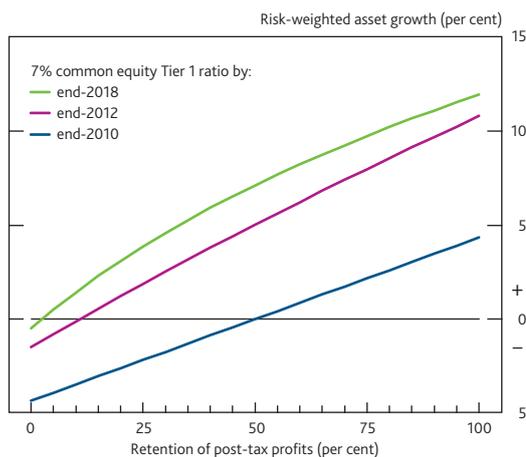
Chart 10 The extended transition to Basel III regulatory capital requirements^{(a)(b)}



Sources: BIS and Bank calculations.

- (a) Phase-in arrangements will be effective from 1 January each year.
 (b) The definition of common equity Tier 1 capital will be strengthened under Basel III.
 (c) Diamond represents current 4% FSA regulatory core Tier 1 capital requirement.

Chart 11 Combinations of asset growth and profit retention during the transition to new Basel capital levels^(a)



Sources: Bloomberg, Citibank, Deutsche Bank, Thomson Reuters Datastream, UBS and Bank calculations.

- (a) See Chart 5.6 for further details.

Safeguarding stability

Banks should take advantage of the extended transition to new regulatory requirements...

These challenges highlight the importance of banks boosting resilience further as they adjust to new, tighter Basel III standards for capital and liquidity. In September, policymakers agreed an extended transition period until 2019, allowing banks to accumulate capital and liquidity gradually while expanding lending to the real economy (Chart 10). The Bank is content for banks to make use of this transition period.

From a system-wide perspective, a desirable adjustment path to tighter prudential standards would be for banks to build capital by retaining earnings (Chart 11). That is why authorities internationally agreed the extended transition to tighter standards; they should maintain this commitment. Banks' boards should apply restraint in distribution of profits to equity holders and staff. And distributions to staff in a form such as contingent capital or subordinated debt would boost loss-absorbency, at the same time as better aligning risk incentives.

...and bolster resilience to stress in funding markets.

Policy initiatives to deepen the market for long-term bank debt could also help smooth the transition. This might include facilitating market efforts to tackle weaknesses in securitisation markets and match better the requirements of natural long-term unleveraged investors with banks' need to lengthen the maturity of their funding. Initiatives to improve disclosure and expand the market for long-term fixed-rate mortgages in the United Kingdom may have a role to play.

Further work is needed on systemically important financial institutions (SIFIs) and market infrastructures,...

As the EU implements the new Basel III package, it is important that national policymakers are provided with sufficient flexibility to vary regulatory requirements to achieve macroprudential objectives. Maximum harmonisation of Basel III standards across the EU would limit policymakers' ability to vary regulatory requirements countercyclically to reduce the build-up of risk.

In November, G20 leaders endorsed Financial Stability Board (FSB) work to tackle risks stemming from SIFIs. These institutions will in future need to have greater loss-absorbency than the minimum Basel III standards. This requirement, which might be met in part by loss-absorbing contingent capital, should be calibrated to measures of the disruption that SIFIs' failure or distress might impose on the wider financial system in the absence of taxpayer support. The ability to haircut or convert debt into equity could ensure that existing creditors provide the capital required to maintain continuity of essential services when an institution is on the verge of failure, while enhancing market discipline.

The G20 have encouraged greater use of central counterparty (CCP) clearing for over-the-counter derivatives. But CCP clearing will raise resilience only if risk management standards are strengthened. CCPs should act as risk managers, employing 'intelligent' risk management processes as well as mechanical algorithms, and increase the resources they hold to manage a counterparty default. CCP treasury units should act not as profit centres, but invest in safe and liquid assets. User-ownership and not-for-profit governance arrangements provide the strongest incentives for effective risk management, aligning CCPs' interests with suppliers of capital.

...on other outstanding parts of the regulatory reform agenda...

During the crisis, sharp movements in liquidity premia resulted in widening spreads on a range of debt instruments. The current BCBS review of the regulatory trading book regime should ensure that banks hold sufficient capital against such risks. And calibration of the Basel III liquidity regime needs to be sufficiently robust to ensure that banks are able to absorb large shocks to liquidity.

...and to monitor disintermediation of the banking system.

As highlighted by the FSB, regulatory and structural reforms are likely to engender strong incentives for activity to migrate to the unregulated 'shadow' sector. That underlines the importance of closely monitoring wider capital market developments.

1 The provision of financial services

A well-functioning economy requires a financial system that can sustain key financial services. This section reviews the performance of financial institutions, markets and infrastructure in delivering these core services to the UK economy over the past six months. Subsequent sections of this *Report* assess threats to the financial system and policy actions required to safeguard stability.

There has been some improvement in the availability of finance for larger companies, but credit conditions remain tight for smaller firms and some households. Capital market functioning has improved, and payment systems and other financial market infrastructure have continued to be resilient. While issuance of asset-backed securities has increased, securitisation markets are still not acting as a mechanism for banks to transfer risk.

Table 1.A Selected payment systems^(a)

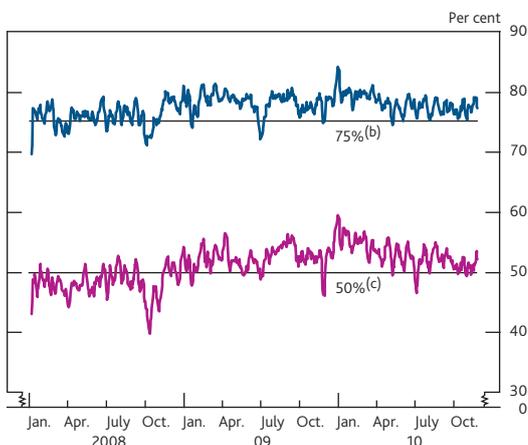
		CHAPS	Bacs ^(b)	FPS ^(b)	CREST	CLS
Average daily volumes (thousands)	July-Nov. 2010	127	22,038	1,718	175	744
	Jan.-June 2010	126	22,299	1,649	189	793
Average daily values (£ billions)	July-Nov. 2010	222	15.7	0.67	495	2,674
	Jan.-June 2010	224	16.1	0.63	528	2,682
Operational availability of core infrastructure (per cent)	July-Nov. 2010	100.000	100.000	100.000	99.953	99.975
	Jan.-June 2010	99.987	100.000	100.000	99.950	99.887

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 close of business on 29 October 2010.

Chart 1.1 Average percentage of sterling payments sent by CHAPS members by 12.00 and 14.30^(a)



Sources: Bank of England and Bank calculations.

(a) Five-day moving average (weighted by the value of payments sent).

(b) CHAPS throughput guideline at 14.30.

(c) CHAPS throughput guideline at 12.00.

Preserving financial stability involves maintaining the supply of three vital services to the wider economy:⁽¹⁾

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

This section reviews how the supply of these services has changed during the past six months.

1.1 Payment, settlement and transaction services

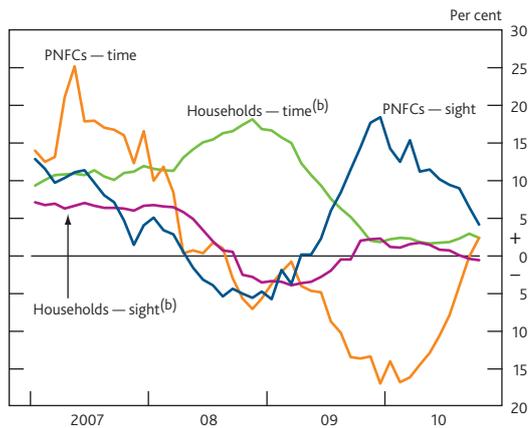
Payment and settlement systems continue to operate well...

The provision by banks of transaction services to households and companies relies on the smooth functioning of payment and settlement systems. In the United Kingdom, these include CHAPS, Bacs, the Faster Payments Service (FPS), CREST and CLS.⁽²⁾ Despite periods of market volatility, each of these systems has continued to exhibit high levels of operational availability since June (**Table 1.A**).

CHAPS provides real-time gross settlement of sterling payments. To encourage members to make their payments in a timely fashion, CHAPS stipulates guidelines for 'throughput' (the proportion of the daily total value of payments to be made by specific times of the day). Aggregate throughput

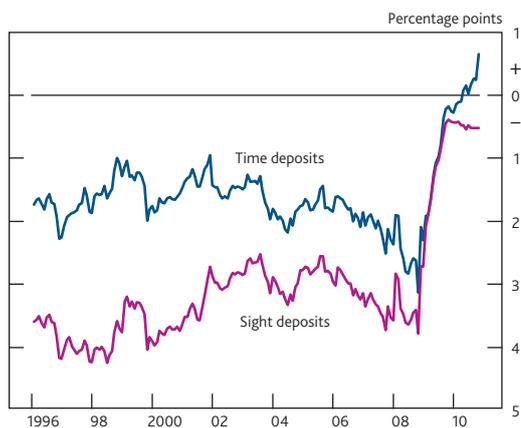
(1) Bank of England *Annual Report 2010*.

(2) Each of these systems is subject to oversight by the Bank. The interbank payment systems operated as part of LCH.Clearnet Ltd and ICE Clear Europe Ltd are also overseen by the Bank.

Chart 1.2 Household and corporate deposit growth^(a)

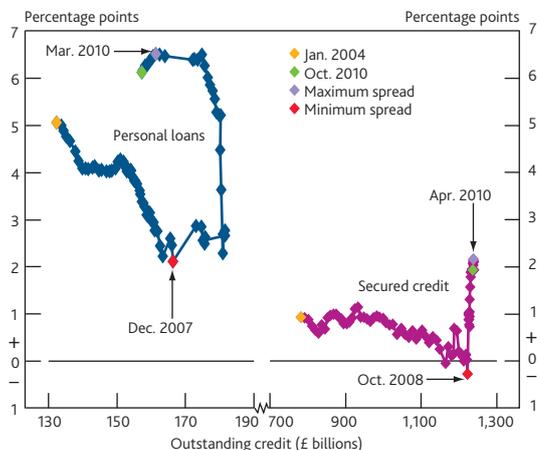
Sources: Bank of England and Bank calculations.

- (a) Twelve-month growth rate.
 (b) Includes individuals, unincorporated businesses and non-profit institutions serving households.

Chart 1.3 Spreads on quoted household deposit rates^(a)

Sources: Bank of England and Bank calculations.

- (a) Quoted deposit rates minus three-month Libor.

Chart 1.4 Spreads on lending to households^(a)

Sources: Bank of England and Bank calculations.

- (a) Spread based on effective rate on variable-rate lending minus three-month Libor. Households are defined as individuals and individual trusts and unincorporated businesses (other than unlimited liability partnerships). 'Secured credit' is lending to individuals, individual trusts and housing associations. 'Personal loans' is lending to individuals only.

performance deteriorated at the height of the crisis as some banks waited for incoming payments before making payments (**Chart 1.1**). But average throughput has exceeded CHAPS requirements during much of the past six months, despite strains in some financial markets.

Banks use reserves at the Bank of England, intraday repos with the Bank and overnight sterling money markets to meet their own payment needs and those of their customers. Banks continue to hold large reserve account balances at the Bank — of around £140 billion — in part as a result of the MPC's asset purchase programme. With liquidity plentiful, sterling overnight money markets are functioning well and short-term money market interest rates remain close to Bank Rate.

...supporting banks' provision of transaction services.

Bank sight deposits are an important way for households and companies to pay for goods, services and financial assets. Sight deposit growth has continued to weaken over the past six months. This has been driven by a sharp slowdown in companies' sight deposits, following rapid increases during 2009 (**Chart 1.2**). This may have reflected companies choosing to hold funds in immediate access, rather than term, bank accounts in response to a narrower differential between sight and time deposit rates from late 2008.

1.2 Intermediation services

Savers place funds with banks and building societies or pension and mutual funds. Those with funding needs borrow from banks or issue debt or equity in capital markets.

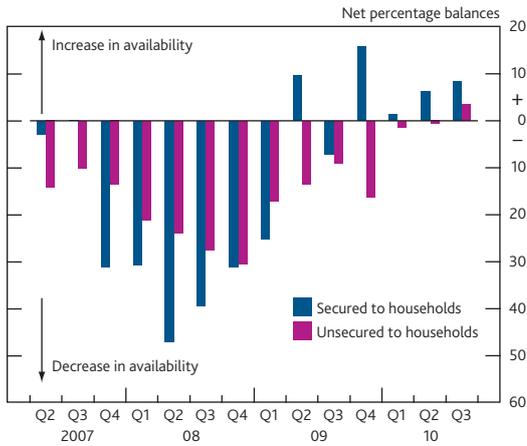
Banks continue to fulfil their deposit-taking function...

Household saving deposits have continued to grow slowly over the past six months (**Chart 1.2**). Companies' time deposits have increased for the first time since August 2008. Interest rates offered by banks on deposit accounts have decreased significantly from pre-crisis levels. But the spread between household deposit rates and Libor remains much narrower than in recent years (**Chart 1.3**). Banks are increasingly attracting longer-maturity deposits. In September, over half of new household deposits had a maturity of greater than one year, compared with around 10% during the latter half of 2008. But competition from non-banks for longer-term funding is still strong, with flows into mutual funds from households remaining high throughout 2010.

...but the availability of household credit remains restrictive...

Growth in household borrowing fell sharply during the financial crisis, following a period of rapid increases in bank lending. From 2000 to 2007, the average annual growth rate of secured lending was over 11%, while growth of unsecured lending exceeded 12%. Although credit conditions have improved relative to the height of the crisis, household secured

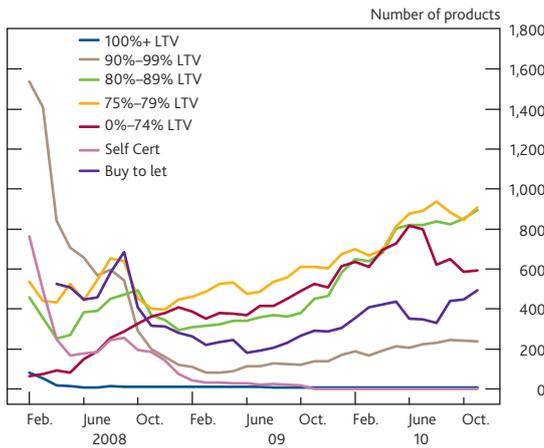
Chart 1.5 Changes in the availability of household credit^(a)



Source: Bank of England Credit Conditions Survey.

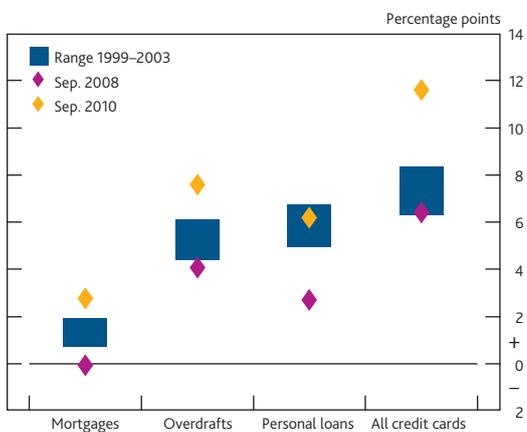
(a) Net percentage balances are calculated by weighting together the responses of those lenders who answered the question as to how the availability of credit provided to the sector overall had changed in the past three months. A positive balance indicates that more credit is available.

Chart 1.6 Mortgage product availability



Sources: Moneyfacts Group plc and Bank calculations.

Chart 1.7 Comparison of historical household lending spreads^(a)



Sources: Bank of England and Bank calculations.

(a) Effective lending spreads on outstanding loans over three-month Libor. Households are defined as individuals and individual trusts and unincorporated UK businesses (other than unlimited liability partnerships). It is likely that the proportion of lending to unincorporated businesses within total household lending has increased in recent years. This is likely to have affected the personal loans series in particular, depressing current spreads relative to past levels.

and unsecured lending growth over the past six months has remained below 1%.

It is difficult to disentangle the extent to which this weakening of bank lending was caused by a fall in demand for credit or a fall in supply. Although both are likely to have played a role, tight credit supply seems likely to have been the dominant influence.⁽¹⁾ In the run-up to the crisis, there was a relatively stable relationship between spreads on lending to households and loans outstanding (Chart 1.4). But following the crisis, the flow of new lending has slowed, while spreads have increased markedly. And much of the increase in spread levels appears to reflect a reduction in the supply of credit, rather than a deterioration in the average credit quality of potential borrowers.

While credit conditions for households have improved recently, they remain significantly tighter than before the crisis. The increase in the availability of secured and unsecured credit to households reported in the Bank's *Credit Conditions Surveys* in recent quarters is modest in comparison with the reduction in availability reported in the early stages of the crisis (Chart 1.5). And while the number of mortgage products advertised by lenders has increased across many product types (Chart 1.6), this may overstate the improvement in secured credit availability. Lenders have indicated that this may reflect factors such as increased marketing activity and product differentiation, in particular at higher loan to value ratios.

Looking ahead, it is likely that spreads on lending will remain high, at least relative to levels seen in the run-up to the crisis. Current household spreads are nearer to the ranges typical in the earlier part of the decade than to spread levels seen immediately before the crisis (Chart 1.7).

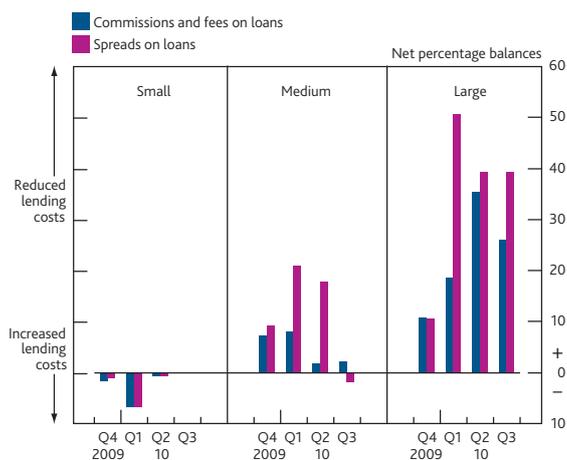
...and some smaller companies may struggle to access adequate finance...

Bank lending to UK companies has continued to fall during the past six months. Reduced lending by UK-owned banks accounts for much of this. But some foreign-owned UK-resident banks, in particular Irish banks, are also withdrawing from the corporate lending market. Box 2 in Section 3 discusses the provision of financial services by foreign banks to the UK economy.

Credit conditions for companies tightened substantially during the crisis. The availability of credit has improved over the past two years, but there remains a distinction between companies of different size. Credit availability has improved markedly for larger companies, in particular those outside the property and construction sectors and with low levels of debt. But survey data from the Department for Business, Innovation and Skills

(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.

Chart 1.8 Corporate lending costs by firm size^(a)



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 had changed in the past three months. A positive balance indicates reduced lending costs to businesses.

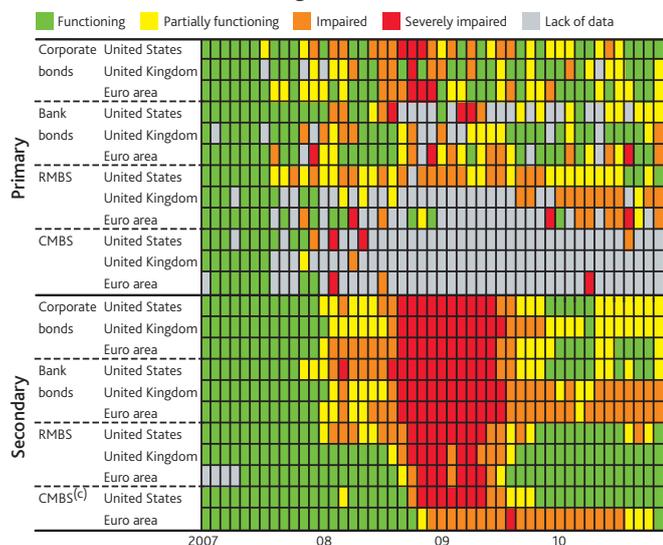
Table 1.B Issuance of corporate bonds and equity by PNFCS^(a)

	Annual average issuance		Total issuance		
	2003–08	2009	2010		
			Q1	Q2	Q3
Corporate bonds^(b)					
Net issuance	13.6	17.6	1.4	-3.6	0.4
Gross issuance	31.2	51.1	7.3	4.1	5.1
Repayments	17.5	33.5	5.9	7.7	4.7
Equities					
Net issuance	-8.3	31.7	1.9	4.6	0.1
Gross issuance	9.9	31.9	2.3	5.5	7.0
Repayments	18.2	0.2	0.5	0.9	0.9

Sources: Bank of England and Bank calculations.

(a) Includes sterling and foreign currency issuance, non seasonally adjusted. Due to rounding, net issuance may not equal gross issuance minus repayments.
 (b) Includes stand alone and programme bonds.

Chart 1.9 Market functioning^{(a)(b)}



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

(a) Shading is based on a score that reflects, for unguaranteed debt, issuance (relative to GDP) and spreads in primary and secondary markets, expressed as a number of deviations from average.
 (b) Data to close of business on 30 November 2010.
 (c) Secondary market data for UK CMBS are insufficient to calculate scores.

indicate a continued reduction in lending to small and medium-sized enterprises (SMEs), consistent with reports from the Bank's Agents. Over the past four quarters, lenders report that the cost of lending — as measured by spreads and fees and commissions charged on loans — has declined significantly for large companies. But there has been little change in the lending costs faced by small companies (Chart 1.8). Some lenders have noted that competition has focused more on SMEs with lower credit risk, favouring larger firms within the SME spectrum.

In response to concerns about the financing of SMEs, the Government has announced measures to improve the access of such companies to bank credit and capital markets.⁽¹⁾ A Business Finance Taskforce, consisting of six major UK banks, has also established a £1.5 billion fund to provide equity finance to SMEs.

...although corporate capital market functioning has improved.

Larger companies are typically able to raise funds from capital markets, for example through debt and equity issuance. Gross corporate bond issuance has fallen back sharply so far in 2010, following very strong issuance in 2009 (Table 1.B). Net issuance has also decreased. Responses to the 2010 Q3 Deloitte CFO Survey suggest that bond issuance remains the preferred source of funding by large companies.

Typically, UK bond issuance has been dominated by large, investment-grade companies. But, perhaps reflecting the tightness of bank credit availability, so far in 2010 there has been a greater proportion of sub-investment grade bond issuance. Around 40% of new issuance has been from first-time issuers.

Bond market issuance, and spreads at issue and within secondary markets, provide useful indicators of market functioning (Chart 1.9). Investment-grade corporate bond spreads have compressed somewhat during the past six months but remain above levels seen during 2007.

Equity issuance is the largest source of finance for UK companies. While gross equity issuance so far in 2010 is significantly lower than in 2009, it is broadly in line with earlier years (Table 1.B). Equity price volatility increased during the financial market instability in May and June. But equity markets, and the related capital market infrastructure, have continued to operate smoothly. Section 4 describes the role of trading infrastructure in supporting the functioning of equity markets.

(1) See HM Treasury and Department for Business, Innovation and Skills (2010), *Financing business growth: the Government's response to finance a private sector recovery*.

1.3 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 markets for securitised assets, financial derivatives and insurance.

Risk transfer via securitisations remains limited...

Securitisation markets can be used to provide funding to support bank lending and to transfer some of the associated credit risk. After severe dislocation during the crisis, there has been some improvement in the functioning of markets for residential mortgage-backed securities (RMBS) (Chart 1.9). RMBS issuance has recovered somewhat and spreads in secondary markets are lower. The first yen-denominated issue by a UK bank took place in October. But issuance remains mainly limited to AAA-rated RMBS tranches, with the subordinated tranches retained by the originator resulting in little risk transfer. Primary markets for commercial mortgage-backed securities remain dysfunctional. While UK banks have continued to be active in the market for covered bonds, their issuance results in limited risk transfer. Section 5 discusses how securitisation markets might be improved.

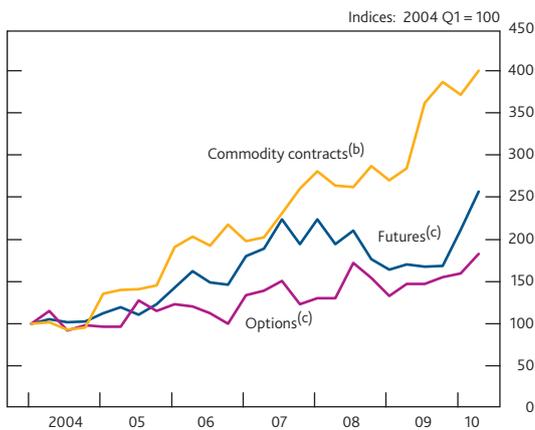
...but derivatives markets are functioning smoothly...

Financial institutions use derivatives markets to manage risk, either on their own behalf or for others. Derivatives markets continue to function smoothly and activity continues to increase (Chart 1.10). Use of central counterparties (CCPs) is widespread in exchange-traded markets and is increasing for products traded over the counter, including credit default swaps and interest rate swaps (Chart 1.11). Over the past six months, CCPs have continued to extend their clearing services. For example, LCH.Clearnet Ltd has started clearing repo and outright purchases of Spanish government debt.

...and insurance markets are operating well.

Insurance markets can also be used to transfer risk. There has been no disruption to the provision of insurance services over the past six months. According to the 2010 Q3 CBI/PricewaterhouseCoopers Financial Services Survey, life insurance activity has continued to recover following a period of weakness during the crisis. Retail insurance premiums have increased, in particular for motor and home insurance products, though commercial premiums have been relatively stable.

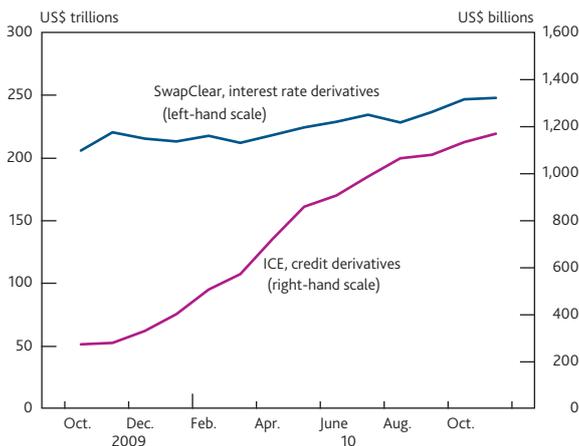
Chart 1.10 Activity in exchange-traded derivatives markets^(a)



Source: BIS.

- (a) Turnover in the number of contracts.
 (b) Commodity contracts include both futures and options contracts.
 (c) Interest rate, currency and equity index derivatives on all exchanges.

Chart 1.11 CCP clearing of interest rate swaps and credit default swaps^(a)



Sources: ICE Clear Europe Ltd, ICE Trust (US) and LCH.Clearnet Ltd.

- (a) Open interest on derivatives at month end.

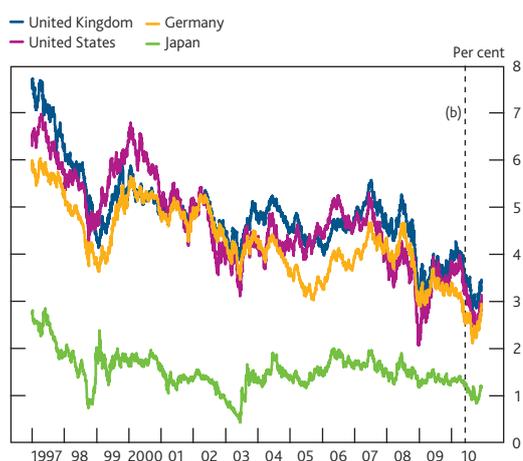
2 Risks from the international financial system

Despite recent increases, government bond yields in major advanced economies remain at very low levels. There has been a redistribution of risk in the financial system. Within advanced economies, there have been strong flows into less risky assets and away from riskier equity funds. In contrast, there have been strong inflows into some emerging market economies (EMEs) and higher-yielding corporate debt amid signs of a renewed search for yield globally.

At such low levels, bond yields internationally remain susceptible to further reversal. If low, risk-free interest rates are sustained this could intensify a search for yield within international capital markets, exacerbating distortions in capital markets. As demonstrated in the spring, increasing sovereign risk concerns can quickly lead to deterioration in funding markets.

UK banks remain materially exposed to risks from the international financial system, given their sophistication and international focus. Reflecting that, respondents to the Bank's latest *Systemic Risk Survey* continue to view funding and liquidity problems, and financial market dislocation, as key risks for UK financial institutions (Table 3.B in Section 3).

Chart 2.1 International ten-year spot government bond yields^(a)



Source: Thomson Reuters Datastream.

(a) Data to close of business on 7 December 2010.
(b) June 2010 Report.

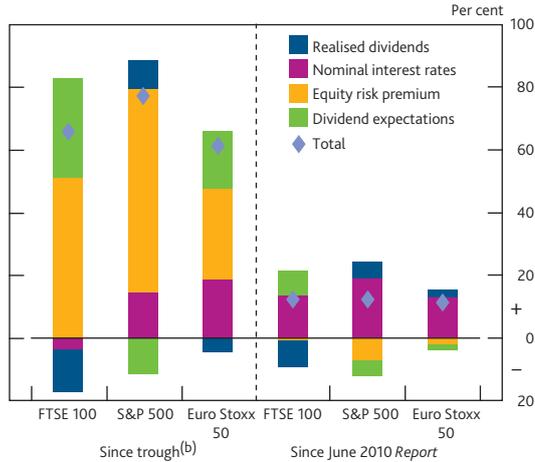
2.1 Capital flows

Equity prices have risen as global bond yields have fallen, reducing the rate at which future profits are discounted... Asset markets have recovered somewhat since the June 2010 Report. Although government bond yields in the major advanced economies have recently increased, they remain at low levels in historical terms (Chart 2.1). Equity prices internationally have largely recovered from the falls they experienced during the period of heightened sovereign risk concerns in April and May. Much of this increase is likely to reflect falls in nominal interest rates (Chart 2.2). Measures of market volatility have also fallen back over the past six months (Chart 2.3). And liquidity has improved across a number of markets.

...but continuing risk aversion in advanced economies...

In July, the EU-wide Committee of European Banking Supervisors stress-test exercise provided some respite from concerns about European banks, in particular their exposure to peripheral European sovereign risk. But in recent months, market concerns about some sovereign and bank risks have re-emerged. Sovereign credit default swap (CDS) premia for Ireland, Portugal and Spain, for example, have risen (Chart 2.4). The implied probability of default for Greece over the next five years remains high. Discussion by euro-area

Chart 2.2 Decomposing changes in international equity indices^(a)

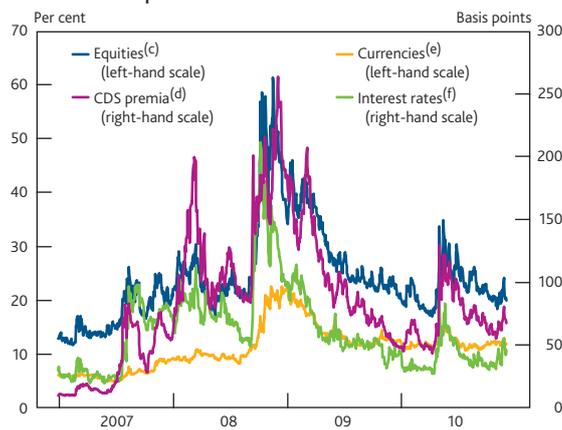


Sources: Bloomberg, Thomson Reuters Datastream and Bank calculations.

(a) Based on 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.

(b) Taken as 9 March 2009.

Chart 2.3 Implied volatilities^{(a)(b)}



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

(a) Three-month option-implied volatilities.

(b) Data to close of business on 7 December 2010.

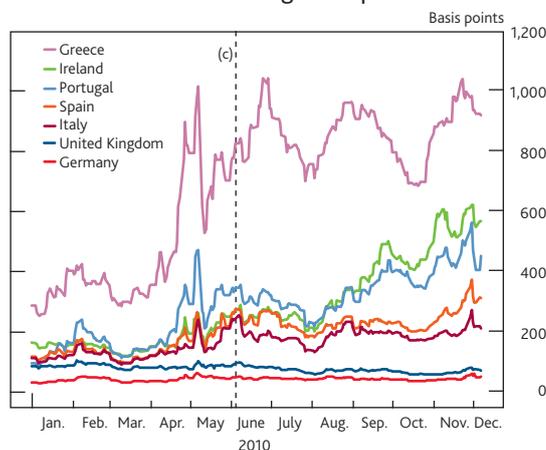
(c) Average of FTSE 100, S&P 500 and Euro Stoxx 50.

(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.

Chart 2.4 Selected sovereign CDS premia^{(a)(b)}



Source: Thomson Reuters Datastream.

(a) Senior five-year sovereign CDS premia.

(b) Data to close of business on 7 December 2010.

(c) June 2010 Report.

governments of private sector burden sharing in the event of default has heightened sovereign risk concerns.

In light of this, there has been a redistribution of capital within advanced economies. Foreign private sector purchases of US Treasuries have been particularly high throughout 2010 (Chart 2.5). Flows into gold, a traditional safe-haven investment, have also been strong (Chart 2.5). And investment-grade bond funds have experienced positive inflows (Chart 2.6), with AAA corporate spreads edging lower. At the same time, there have been significant net outflows from advanced economy equity funds (Chart 2.7). Model-based estimates of equity risk premia remain just below the levels of late 2008 (Chart 2.8),⁽¹⁾ consistent with high aversion towards equity risk in advanced economies.

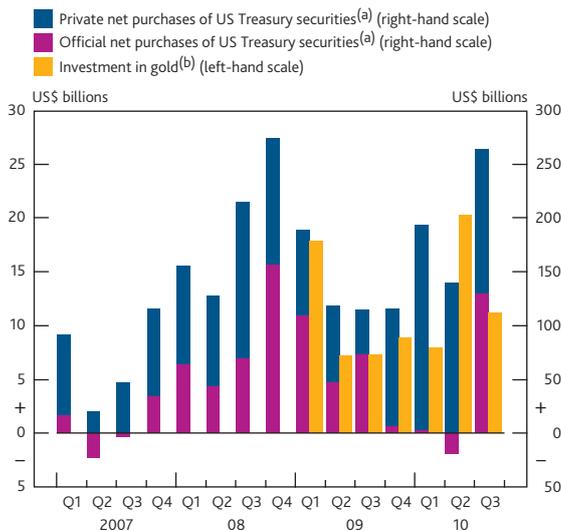
...and a redistribution of risk across the global financial system...

Globally, however, measures of risk appetite show a mixed picture. This appears to reflect a renewed search for yield among participants in some markets. In a low interest rate environment, financial institutions — such as insurance companies and pension funds — might be encouraged to take on higher risk to meet nominal return targets. The adverse impact of low discount rates on the present value of pension and insurance liabilities might also encourage a hunt for yield. And banks may be driven to search for yield in order to maintain a high return on equity (Section 5).

Appetite for risky corporate debt appears to have been particularly strong. For example, capital inflows into US high-yield bond funds have increased markedly (Chart 2.6), leading to a significant narrowing of high-yield spreads relative to investment-grade (Chart 2.9). High-yield spreads in Europe have compressed even further (Chart 2.10). Inflows to EME bond funds have also continued to strengthen (Chart 2.11), with particularly strong inflows to Asian EMEs. But in recent weeks, as sovereign risk concerns have once again resurfaced, increasing risk aversion globally has led to some EME bond funds experiencing outflows.

Among equity investors, net outflows from advanced-economy funds have been more than matched by flows into EME funds (Chart 2.7), especially in Asia and Latin America. The share of EME funds in total equity under management has risen by around 2 percentage points since May, to around 18.5%. This has predominantly reflected activity by unleveraged investors in both advanced and emerging markets, although hedge fund inflows into EME funds have increased further recently. The Institute of International Finance estimates aggregate net private sector

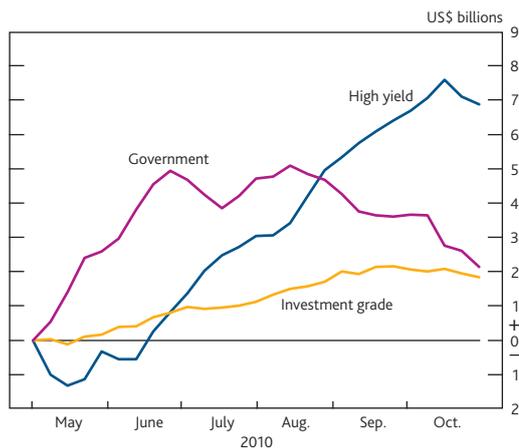
(1) See Inkinen, M, Stringa, M and Voutsinou, K (2010), 'Interpreting equity price movements since the start of the financial crisis', *Bank of England Quarterly Bulletin*, Vol. 50, No. 1, pages 24–33 for a discussion of the dividend discount model.

Chart 2.5 Purchases of safe assets

Sources: GFMS, US Department of the Treasury, WGC and Bank calculations.

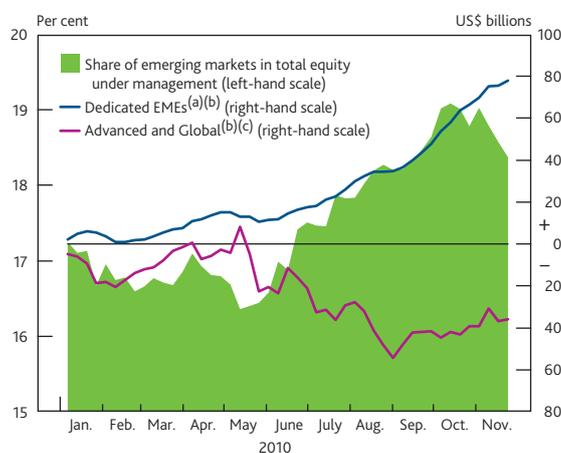
(a) Quarterly flows from non-residents.

(b) Includes net retail investment, ETFs and similar products. Data unavailable pre-2009.

Chart 2.6 Cash flows into dedicated US bond funds^(a)

Sources: Emerging Portfolio Fund Research and Bank calculations.

(a) Cumulative flows since May 2010.

Chart 2.7 Patterns of investments in equity funds, 2010

Sources: Emerging Portfolio Fund Research and Bank calculations.

(a) Includes newly industrialised economies.

(b) Cumulative flows since January 2010.

(c) 'Advanced and Global' includes the following equity funds: Global, Japan, Pacific, United States and Western Europe.

capital inflows into EME assets of US\$825 billion (4% of EME GDP) for 2010 as a whole, compared with US\$581 billion in 2009. In response, a number of EME currencies have appreciated markedly.

...raises potential concerns about overheating...

Investors have chosen to weight their portfolios increasingly towards EMEs due to both 'push' factors — including accommodative monetary policy in major developed countries — as well as 'pull' factors (Table 2.A). On the latter, unlike in many advanced economies, fiscal deficits in many EMEs remain small and the outlook for GDP growth has been strong (Chart 2.12). EME exposures currently account for a relatively low share of major institutional investors' overall portfolios, at around 2%–3%. As this home bias unwinds, strong capital inflows to EMEs may persist for the foreseeable future.

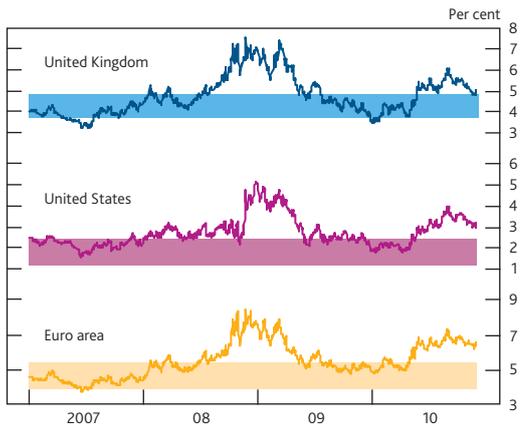
Increases in capital flows into relatively small EME asset markets over a short period risks overheating. Market contacts report particular concerns regarding property prices in Hong Kong and Singapore and bond markets in Indonesia. UK-owned banks have considerable exposures to the region — exposure to Asia (excluding Japan) accounts for around 9% of UK banks' worldwide claims, with particularly large exposures in South Korea and Hong Kong. Authorities in the region have attempted to relieve pressure on asset prices through a variety of monetary and macroprudential policy measures.

...causing global capital markets to become distorted.

From a global perspective, strong capital flows to EMEs are desirable as these economies should offer the highest prospective returns on investment. And if EMEs allow their nominal exchange rates to appreciate, this would help correct large current account surpluses, reducing global imbalances. In practice, central bank intervention to resist currency appreciation has resulted in a further build-up in foreign exchange reserves by EMEs (Chart 2.13).

The recycling of these reserves — including into US Treasuries — has likely placed further downward pressure on government bond yields in major advanced economies. That, in turn, would further amplify search for yield. In other words, EMEs recycling capital back into safe assets in developed markets, whether to the United States or other advanced countries, has the potential to aggravate existing distortions in global capital markets.

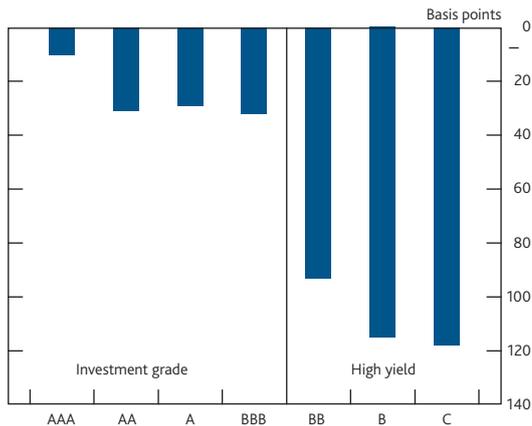
Chart 2.8 International equity risk premia^(a)



Sources: Bloomberg, Thomson Reuters Datastream and Bank calculations.

(a) As implied by multi-stage dividend discount model. Shaded areas show interquartile ranges for implied risk premia since 1998 for United Kingdom, 1991 for United States and 2000 for euro area.

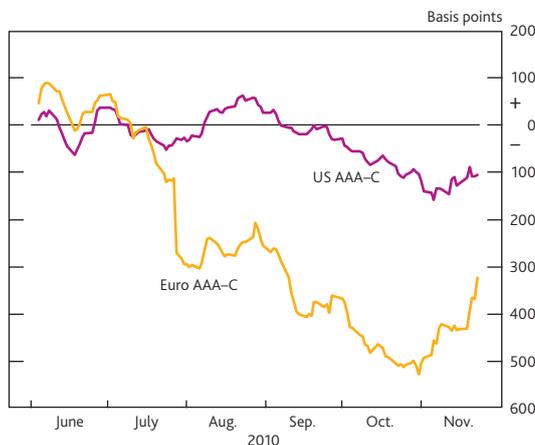
Chart 2.9 Change in US corporate bond spreads by rating^(a)



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

(a) Change since June 2010 Report.

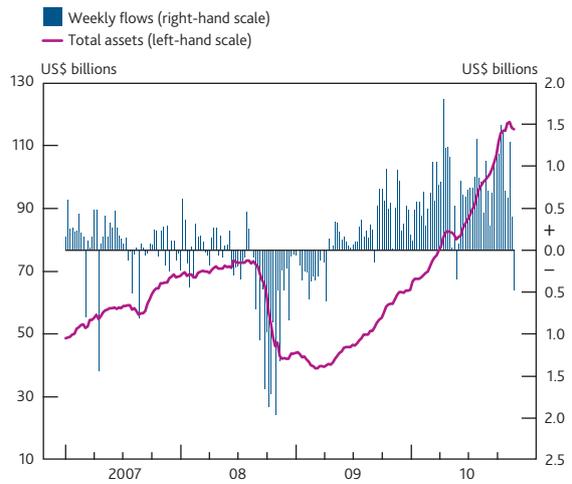
Chart 2.10 Cumulative changes in selected bond spreads^(a)



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

(a) Cumulative sum since June 2010 Report.

Chart 2.11 Net inflows into emerging market bond funds^{(a)(b)}



Source: Emerging Portfolio Fund Research.

(a) Flows into dedicated emerging market funds.
(b) Data to close of business on 26 November 2010.

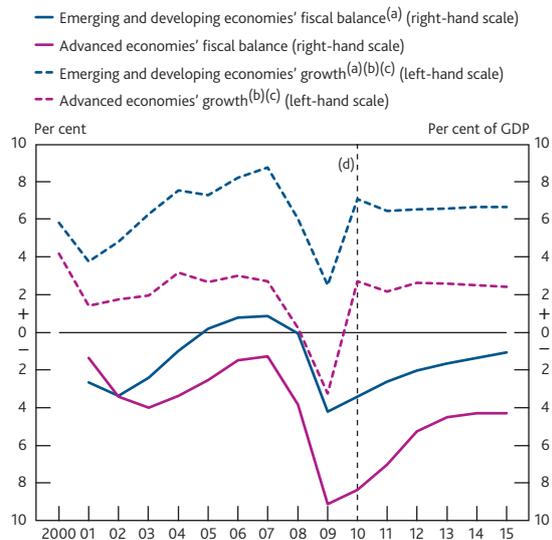
Table 2.A Accounting for changes in EME spreads^(a)

	End-November 2008 to end-December 2009	End-January 2010 to end-October 2010
Pull factors ^(b)	26	-16
Push factors ^(c)	-541	-22
Unexplained	58	-2
Total change in actual bond spreads	-458	-40

Source: Bank calculations.

(a) Changes in Emerging Market Bond Index Global Composite spread.
(b) Pull factors include EME growth forecasts and credit ratings.
(c) Push factors include measures of global risk appetite and market liquidity.

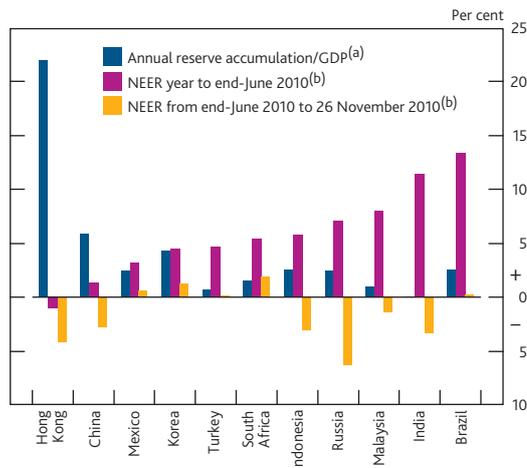
Chart 2.12 Government fiscal balance and growth



Source: IMF World Economic Outlook (October 2010).

(a) Includes newly industrialised Asian economies.
(b) Gross domestic product, constant prices.
(c) Percentage changes on previous calendar year.
(d) Forecasts from 2010 onwards.

Chart 2.13 Reserve accumulation and currency appreciation

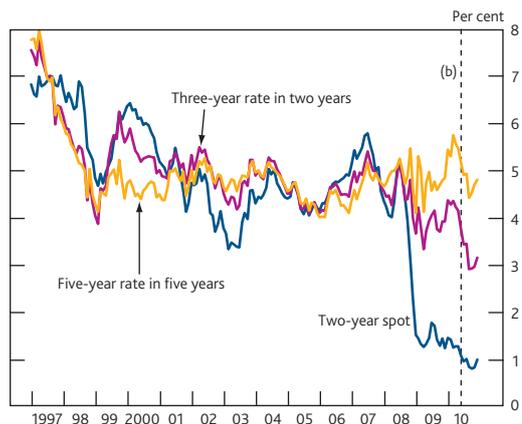


Sources: BIS, IMF *International Financial Statistics*, WEO and Bank calculations.

(a) Percentage change in total reserves minus gold from June 2009 to June 2010 scaled by 2010 GDP.

(b) NEER is the nominal effective exchange rate.

Chart 2.14 Selected UK spot and forward interest rates^(a)

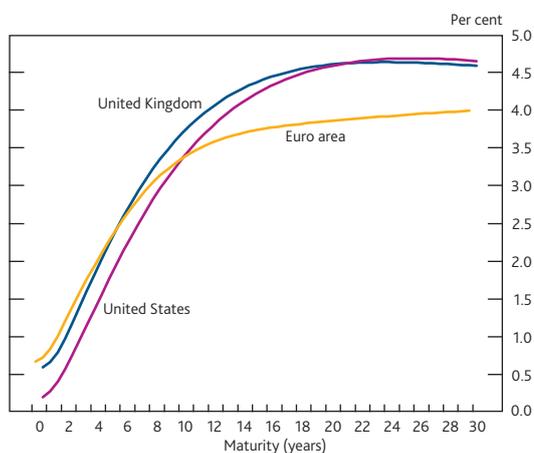


Source: Bank of England.

(a) Data to close of business on 1 December 2010.

(b) June 2010 Report.

Chart 2.15 Selected yield curves^(a)



Source: Bank of England.

(a) Data to close of business on 7 December 2010.

2.2 Sources of risk from the international financial system

Developments in global financial markets have important implications for UK banks, particularly for their trading and investment banking activities and their funding in wholesale markets. Against this backdrop, UK and international banks are at present exposed to three broad classes of global capital market risk:

- market risk from a sudden reversal in low bond yields and a reappraisal of asset valuations;
- sovereign risk concerns in Europe, which could result in a further flight to quality from risky markets; and
- funding liquidity risk, given the uncertainties concerning non-bank behaviour in secured and unsecured money markets.

Low bond yields are susceptible to a reversal...

Low bond yields have been the intended consequence of authorities' actions in a number of major advanced economies over the past two years. The fall in bond yields internationally has been larger at shorter maturities, so that the forward curve has steepened (Chart 2.14). At longer maturities, implied forward rates are within normal historical ranges.

Recently, bond yields in major advanced economies have started to increase — the yield on ten-year US Treasuries is now around 1 percentage point higher than its October low, due to a combination of concerns over the US fiscal position and inflation. But yields remain low compared with long-term trends. And, as recent movements illustrate, at such low levels they are susceptible to a sudden reversal. One trigger could be a broadening of concerns about sovereign risk, undermining appetite for government debt that has previously benefited from a flight to quality. Another trigger could be a further repricing of medium-term inflation risk. As discussed in Box 1, a steepening in yield curves in the United States or other major economies could lead to contagion across asset markets, as happened in 1994. That adjustment in capital markets had adverse consequences for both banks' funding and banking books. The contagion could be even more marked this time, given the closer integration of global capital markets.

...leading to increased risks for banks...

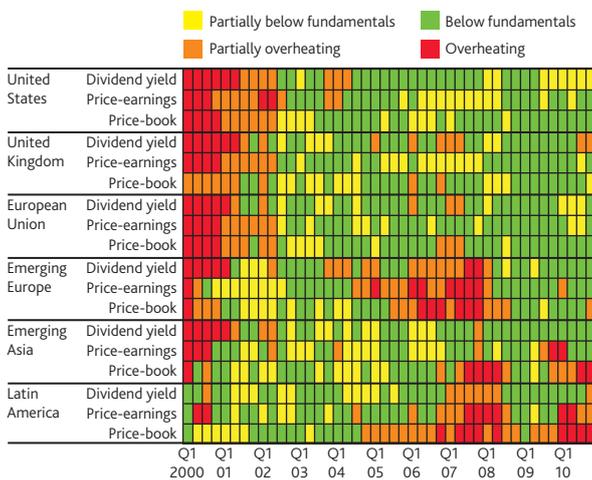
Low interest rates, in combination with historically steep yield curves, have allowed banks to generate substantial interest income, borrowing at low short-term interest rates and investing longer term at higher interest rates (Chart 2.15). Any significant reversal of yield curves would cause banks internationally to incur mark-to-market losses on carry trades in their trading books. There is also a risk from highly correlated trading positions based on persistently low interest

Table 2.B Mark-to-market losses on selected financial assets^(a)

US\$ trillions	Outstanding amounts ^(b)	Mid-March 2009 ^(c)	End-March 2010 ^(c)	June 2010 Report ^(c)	Dec. 2010 Report
Equities	40.2	20.2	4.6	7.7	2.8
Corporate bonds	16.7	2.0	-1.0	-0.8	-1.1
RMBS ^(d)	3.2	1.3	0.5	0.5	0.4
CDOs ^(e) and CLOs	0.6	0.5	0.3	0.3	0.3
CMBS	0.8	0.3	0.1	0.1	0.0
Memo: debt securities	21.3	4.1	-0.1	0.1	-0.3
Total losses	–	24.2	4.5	7.8	2.5

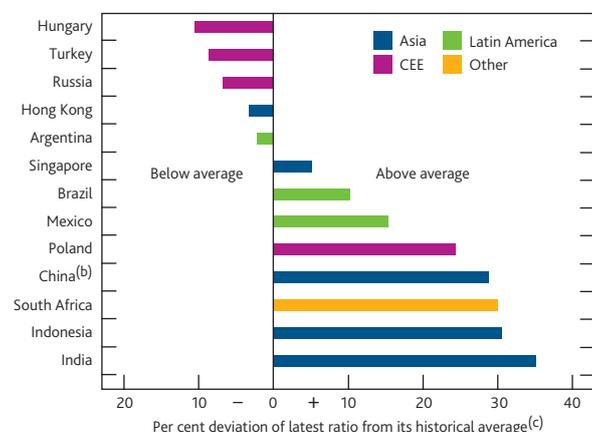
Source: Bank calculations.

- (a) Estimated loss of market values since January 2007, except for US CLOs, which are losses since May 2007. Assets cover the United Kingdom, United States and euro area, except for equities, which are global.
 (b) Outstanding face values, except for equities, which are market values, at 26 November 2010, where possible.
 (c) Updated to reflect new estimates of outstanding amounts since the June 2010 Report.
 (d) Includes prime, non-conforming and buy-to-let mortgages for the United Kingdom; residential mortgages for the euro area; prime, Alt-A and sub-prime mortgages for the United States.
 (e) US high-grade and mezzanine home equity loan ABS CDOs.

Chart 2.16 Equity market valuation measures^(a)

Sources: Thomson Reuters Datastream and Bank calculations.

- (a) Shading is based on a score that reflects the number of standard deviations away from the historical benchmark mean.

Chart 2.17 EME equity price to earnings ratios^(a)

Sources: Thomson Reuters Datastream and Bank calculations.

- (a) Market capitalisation of the index in each country divided by current earnings of all companies in the index.
 (b) The China index is comprised of two classes of shares traded by non-Chinese nationals: class H shares of mainland Chinese companies traded on the Hong Kong exchange, and class B shares traded in China.
 (c) Averages are median values over sample periods that vary by country, the longest starting in 1995 and the shortest in 1999.

rates. If these positions were unwound at speed, illiquidity in derivatives markets might amplify asset price moves. Low short-term interest rates, combined with a steep yield curve, might also reduce incentives for banks to lengthen the term of their funding (Section 4).

At end-2009, financial assets and derivatives accounted for around 40% of UK banks' total assets.⁽¹⁾ Recent rises in risky asset prices have continued to reduce mark-to-market losses on a range of securities (Table 2.B), improving the solvency positions of holders of these assets, including the major UK banks. But these gains are sensitive to upwards adjustments in yields. As the rise in sovereign risk concerns in April and May demonstrated, gains on traded assets can be reversed quickly. Falling asset prices may reveal underlying solvency problems, including latent credit risk among overextended borrowers (Section 3).

...while asset valuations appear mixed...

As yet, search for yield activity appears to have been asset-specific and not generalised. For example, valuation models currently provide little indication that equities are overvalued (Chart 2.16). While there are some signs of overheating in Emerging Asia and Latin America, equities in the United States and the euro area appear to be potentially undervalued. On the basis of country-specific price to earnings ratios, some EME stock markets appear overvalued, but others appear undervalued relative to historical norms (Chart 2.17).

In credit markets, evidence of search for yield is stronger. Spreads for higher-yielding instruments have fallen markedly more than for higher-quality assets (Chart 2.9). Prices in leveraged loan markets have recovered back to early-2008 levels. But primary markets appear to have been largely unaffected, with little indication of any erosion in leverage standards and loan covenants. Investors are avoiding high-yielding peripheral European bonds (Chart 2.18). And, although portfolio flows have increased into EMEs, they remain small in absolute terms. Investors also appear to be differentiating, with inflows concentrated on Asia and Latin America.

At the same time, portfolio inflows into local currency instruments in EMEs, particularly sovereign bonds and equities, appear to be mainly unhedged, with investors seeking to gain on expected nominal appreciation of EME currencies. Market contacts have also expressed concerns about a lack of due diligence on some EME corporate bond issuance, which is at record levels this year. This suggests some potential pockets of overexuberance.

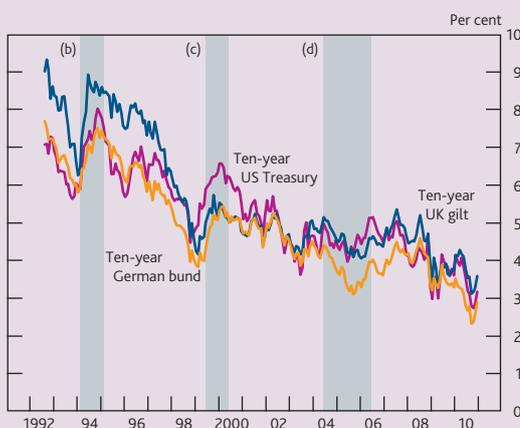
(1) Financial assets include: trading assets, assets held at fair value and available-for-sale financial investments.

Box 1

The 1994 bond market sell-off

Government bond yields are at low levels internationally (**Chart A**). Combined with exceptionally low short-term rates, this may be encouraging greater risk-taking. Absolute return targets and a reduction in volatility create a strong incentive for investors to increase interest rate exposure. But yields are unlikely to stay at such low levels indefinitely. A reversal after an extended period of low rates, particularly an abrupt snap back, could prove to be destabilising for markets, as it was in 1994. This box assesses current risks in light of that experience.

Chart A Ten-year yields^(a)



Source: Bank of England.

- (a) Data to close of business on 1 December 2010.
 (b) US policy tightening February 1994–February 1995.
 (c) US policy tightening June 1999–March 2000.
 (d) US policy tightening June 2004–June 2006.

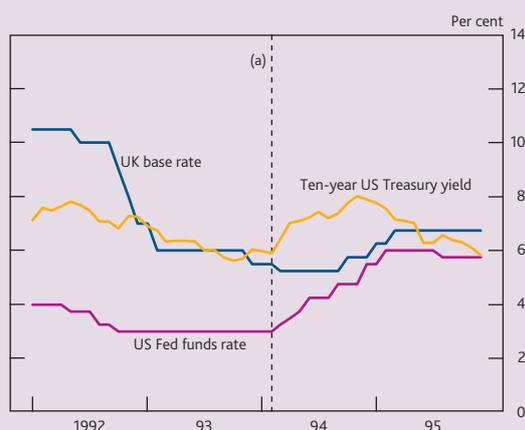
The events of 1994

In February 1994, the prospect of rising inflation led the Federal Open Market Committee (FOMC) to begin tightening monetary policy, following a prolonged period of low and stable rates. The Fed funds rate doubled to 6% in the space of a year. During the first few months of the tightening, the US yield curve steepened sharply. Ten-year yields reached a peak of just over 8% in November 1994 (**Chart B**).

This reflected, in part, an upward revision to market expectations about the speed and extent of policy tightening. Markets had previously expected a gradual rise in interest rates as the economy continued to recover steadily from the 1991 recession. But strong US output data released in March 1994 and a surprise inter-meeting rate rise in April were interpreted as pointing towards higher-than-anticipated future inflation and interest rates.

The structure of the US housing finance market amplified the yield curve steepening as policy tightened. Mortgage-backed

Chart B Policy rates versus bond yields



Sources: Bank of England and Bloomberg.

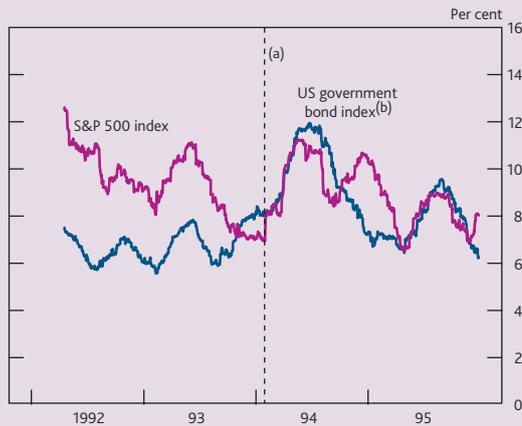
- (a) US policy tightening February 1994.

securities (MBS)⁽¹⁾ were subject to extension risk — the duration of the underlying fixed-rate mortgage pools increased with interest rates because fewer people paid down their mortgages early. Portfolio managers hedged this extension risk by selling US Treasuries further up the maturity spectrum, amplifying the initial increase in long-term yields and encouraging further selling.

Heightened volatility in the US bond market was accompanied by rising uncertainty elsewhere (**Chart C**) and falling asset prices. Developments in US markets also affected government bond yields internationally. In the United Kingdom, ten-year gilt yields had been falling, but this was quickly reversed as the FOMC began to tighten policy. UK yield curves steepened sharply, with base rates eventually increasing in September 1994 after ten-year gilt yields had risen by over 200 basis points. In Europe, heightened volatility led to selling of bond market exposures. Foreign investors liquidated a significant proportion of their holdings of government bonds: DM13 billion of German public debt was sold by investors in March 1994 alone. This contributed to a marked steepening in Germany, where ten-year bund yields increased by 130 basis points between February and September.

The period of stable yields had encouraged investors globally to leverage up their portfolios. Supposedly safe investment vehicles, such as money market funds, had taken advantage of low and stable rates to increase returns through leveraged investments in structured notes and other derivative products. But these investments relied on low interest rates to make positive returns. This led many funds to incur losses, prompting threats of downgrades from US rating agencies.

In the United States, money market fund parent companies faced significant losses. In 1994 alone, 42 US funds received

Chart C Ninety-day historical volatility

Source: Bloomberg.

(a) US policy tightening February 1994.
 (b) Bloomberg/EFFAS bond indices: US government 10+ year total return.

financial support from parents for interest rate related losses. The Community Bankers US Government Fund was the first money market fund to ever 'break the buck' after investing over a quarter of its assets in adjustable-rate derivative securities. Around the same time, Orange County filed for bankruptcy protection after their asset manager used similar products to increase leverage, which resulted in a loss of more than US\$1.5 billion in December 1994. While volatility in long-term rates adversely affected financial markets globally, there were few financial stability consequences in Europe. This may have been because banks and other investors had minimal interest rate exposure.

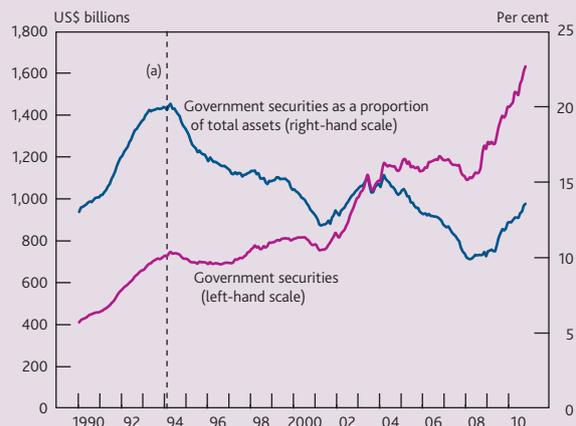
Implications for the current situation

A sudden snap back in longer-term rates internationally on the scale of 1994 is unlikely given inflation expectations are now better anchored. But a rate rise could be triggered by a shift in perceptions of medium-term inflation risks or by broadening concerns about sovereign risk. One reason why volatility increased in 1994 was because of the leveraged positions of investors and the margin calls they faced. But derivatives such as structured notes are better understood today and there is currently weaker appetite for riskier investments. That would be expected to mitigate the impact of any shock to the shape of the yield curve. At the same time, appetite for leveraged investment may increase if rates stay low and a search for yield gathers strength.

Once a steepening in the yield curve is under way it could be amplified, as in 1994, by the dynamics of the US housing market. This channel may be stronger today because of the increased prevalence of residential mortgage securitisations compared with the 1990s (though a significant proportion of these are now owned by the Federal Reserve and are not actively hedged). This amplification effect would be felt in countries with a high proportion of fixed-rate mortgages.

Government bond yields might be affected less directly in the United Kingdom because of the prevalence of floating-rate mortgages and revolving mortgage pools. But asset market volatility from a yield spike internationally could still spill over to UK yields.

Regulatory requirements are encouraging banks to term out their funding and hold a greater share of more liquid securities (Chart D). This increases banks' resilience as it ensures that, in times of stress, assets can be easily liquidated if required to meet funding needs. But a structural shift towards longer-term government debt holdings could increase interest rate exposures. A yield spike may lead to trading losses for banks even if the assets involved are liquid. Any sharp reversal in low rates could therefore be a concern for financial stability as this may lead to a value-at-risk shock for banks, resulting in asset disposals and potentially destabilising markets internationally.

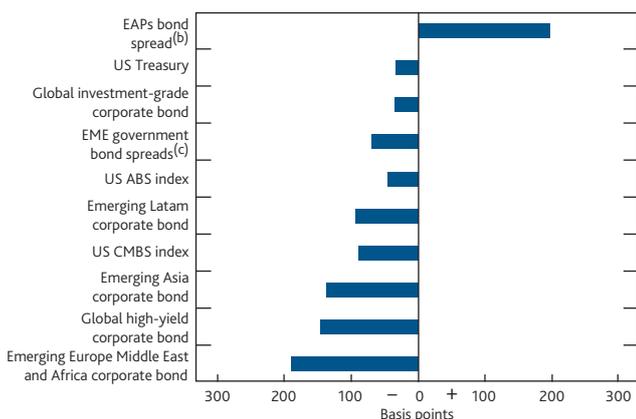
Chart D US government securities at all commercial banks in the United States

Sources: Board of Governors of the Federal Reserve System and FRED (Federal Reserve economic data), Federal Reserve Bank of St. Louis, US: *Government Securities At All Commercial Banks, USGSEC* (from: Board of Governors of the Federal Reserve System — <http://research.stlouisfed.org/fred2/series/USGSEC> (accessed 26 November 2010)).

(a) US policy tightening February 1994.

(1) The dynamics of the MBS market are covered in more detail in Box 1 of the December 2003 *Financial Stability Review*.

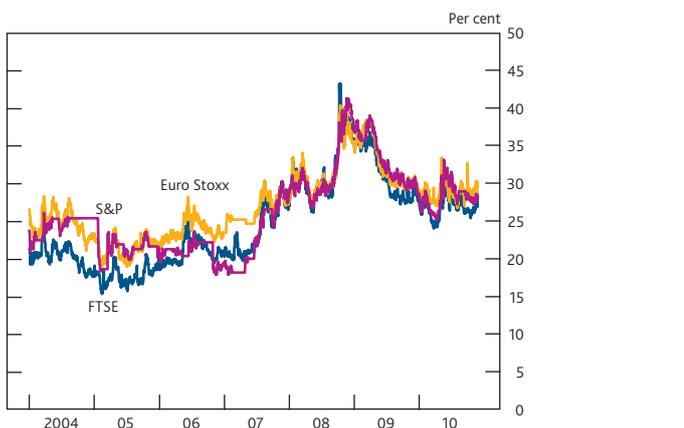
Chart 2.18 Change in yields and spreads of selected assets^(a)



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

- (a) Change in yields (unless otherwise specified) since June 2010 Report.
- (b) Ten-year government bond spreads to bunds. 'EAPs' (euro-area periphery countries) comprises Greece, Ireland, Italy, Portugal and Spain.
- (c) Emerging Market Bond Index Global Composite — yield to maturity over US Treasuries.

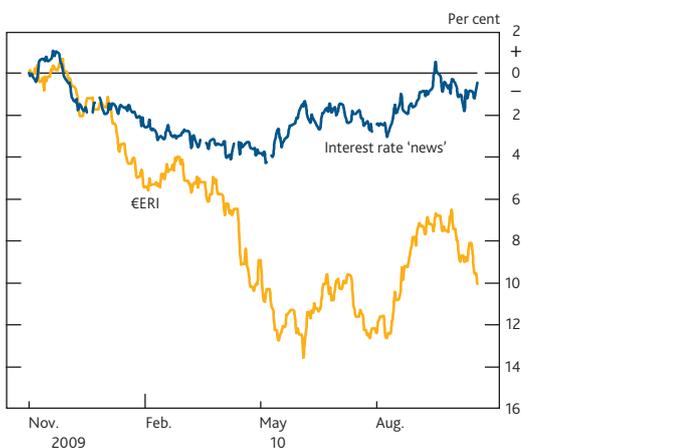
Chart 2.19 Market-implied probability of a 10% fall in international equity indices one year ahead^(a)



Sources: Chicago Mercantile Exchange and Bank calculations.

- (a) One year ahead probability densities calculated using options data and assuming that investors are risk-neutral. For more details see Clews, R, Panigirtzoglou, N and Proudman, J (2000), 'Recent developments in extracting information from options markets', *Bank of England Quarterly Bulletin*, February, pages 50–60.

Chart 2.20 €ERI and interest rate differentials^(a)



Sources: Bloomberg and Bank calculations.

- (a) Interest rate 'news' is calculated from the uncovered interest parity condition. Unanticipated movements in euro-area relative to UK and other international forward interest rate differentials are cumulated from the start point of 4 November 2009. For more information see Bridgen, A, Martin, B and Salmon, C (1997), 'Decomposing exchange rate movements according to the uncovered interest rate parity condition', *Bank of England Quarterly Bulletin*, November, pages 377–89.

The wording of footnote (a) has been adjusted from the printed version.

...and are potentially susceptible to large correlated moves...

Correlations across asset classes are at historically high levels, suggesting that market movements are increasingly dominated by common factors, such as an increase in liquidity arising from monetary policy operations in advanced economies. While most market-based measures of uncertainty have fallen (Chart 2.3), some contacts suggest that tail risk is being pushed further into the future. This could be realised through either higher volatility or a large market move, the perceived likelihood of which remains high (Chart 2.19).

...amid rising sovereign risk concerns...

During the period of elevated sovereign risk concerns in Europe in April and May, US Treasuries recorded increased inflows. The risk premium on euro-denominated assets — as proxied by the differential between the trade-weighted euro exchange rate and changes in relative interest rates — rose (Chart 2.20). Having declined, this risk premium has started to increase again over the past few weeks. This may reflect a renewed reallocation from riskier European to safer assets, including in the United States. This could potentially push some advanced-country government yields lower again. It may also increase flows of capital to EMEs, potentially amplifying existing dislocations in global capital markets.

...which may result in funding market fragilities.

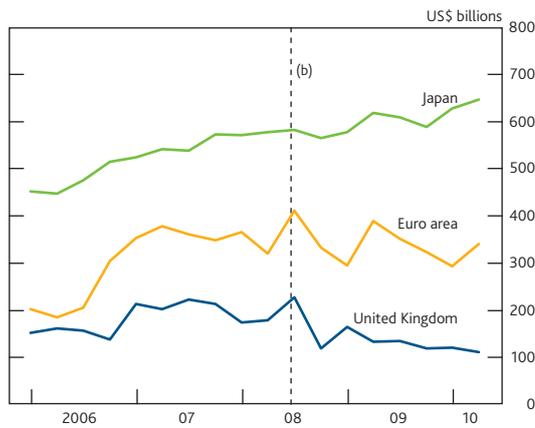
In recent months, funding costs faced by UK and other major European banks appear to have decoupled from those in peripheral Europe (Chart 5 in the Overview). But, as demonstrated in the spring, increasing sovereign risk concerns can quickly lead to deterioration in funding markets. As noted in the June 2010 Report, in April and May Libor rates internationally rose and banks found it increasingly difficult to obtain funding at and beyond three-month maturities. Market contacts are already reporting problems for some banks internationally issuing unsecured senior debt.

European banks have a continued reliance on short-term dollar funding markets. At the end of the first half of 2010, euro-area banks had dollar-denominated net international claims on non-bank borrowers of over US\$300 billion (Chart 2.21). These dollar claims are normally funded by either borrowing dollars directly in the interbank market or by swapping local currency liabilities into dollars. As demonstrated in April and May, the cross-currency basis swap market is particularly susceptible to funding pressures.

Rising sovereign concerns could also affect the behaviour of non-bank financial institutions, which play an important role as investors in bank liabilities. Money market mutual funds (MMMFs) and similar entities⁽¹⁾ are important providers of

(1) Similar entities include enhanced cash funds and cash reinvestment programmes associated with securities lending.

Chart 2.21 Banks' net international claims^(a) on non-banks in US dollars

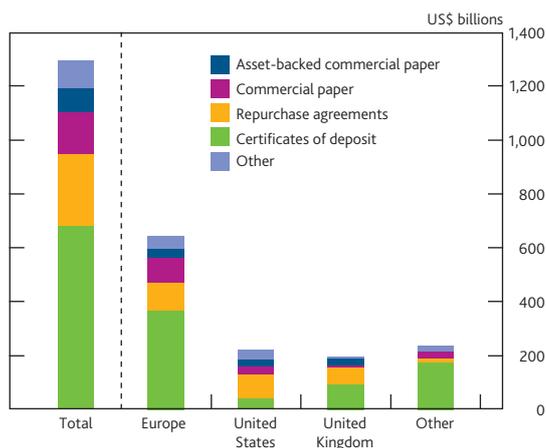


Sources: BIS and Bank calculations.

(a) 'International claims' include cross-border claims and the local claims of banks' foreign affiliates in foreign currency.

(b) Lehman Brothers Holdings files for Chapter 11.

Chart 2.22 Estimates of US prime MMMFs funding to banks — end-October 2010^{(a)(b)}



Sources: Fund holding reports and Bank calculations.

(a) Includes funding to banks and banks' ABCP conduits.

(b) Estimates are based on a sample of US prime MMMFs that represents around 44% of total US prime MMMFs assets.

short-term dollar funding to UK and European banks (**Chart 2.22**). It is difficult to quantify the total amount of funding these entities provide. But Bank estimates suggest that prime US MMMFs provide around US\$1.3 trillion of funding globally, of which US\$600 billion is to continental European banks and US\$200 billion to the major UK banks. In the latter case, this represents an estimated 25% of the major UK banks' short-term dollar debt and repo liabilities. Securities lenders' cash reinvestment programmes provide an estimated US\$1 trillion of funding to banks globally.

As discussed in the previous *Report*, any unexpected deterioration in the outlook for banks in Europe could lead US MMMFs to stop rolling over funding. The emergence of new instruments, such as puttable certificates of deposit, seeks to bridge the gap between MMMFs' need for shorter-term investments and banks' desire to term out funding (Box 3 in Section 4). But it is uncertain whether such innovations would prove durable in the face of sustained market dislocation.

3 Credit risks to the banking system

The global recovery remains uneven. Risks to the downside could place further strains on balance sheets in both the public and private sectors. Sovereign and banking sector risks have re-emerged across parts of Europe and remain closely intertwined.

There are signs of corporate and household sector credit risks attenuating in some countries. But banks remain heavily exposed to further falls in property prices. And survey evidence suggests that the burden of unsecured debt on households in the United Kingdom has increased. Corporate and household defaults have so far been contained by temporary government support, bank forbearance and the exceptionally low level of interest rates. But balance sheets remain overextended in some sectors, so pressures would intensify if these factors were to reverse, crystallising latent credit losses.

Table 3.A UK-owned banks' claims^{(a)(b)}

	Claims on country as a per cent of world total	Claims on sector as a per cent of world total:		
		Banks	Non-bank private sector	Public sector
United Kingdom	50.8	9.2	40.3	1.2
Other Europe	15.6	5.3	6.9	3.3
France	3.7	1.9	1.2	0.6
Germany	2.4	0.9	0.5	1.0
Ireland	1.8	0.4	1.3	0.0
Spain	1.4	0.4	0.9	0.1
Italy	0.9	0.1	0.6	0.2
Portugal	0.3	0.1	0.2	0.0
Greece	0.2	0.0	0.1	0.0
Developing	0.6	0.1	0.4	0.1
United States	15.4	2.0	11.0	2.5
Other developed	4.5	1.5	2.0	1.1
Asia (excluding Japan) ^(c)	9.2	1.3	5.4	2.5
Other developing ^(d)	4.5	0.4	2.8	1.2
World	100	19.8	68.5	11.7

Sources: Bank of England and Bank calculations.

(a) End-June 2010 adjusted for risk transfers. Excludes guarantees and derivatives.

(b) UK-owned banks, including local claims by subsidiaries and branches.

(c) Developing Asia, Hong Kong and Singapore.

(d) Africa, Caribbean, Latin America and Middle East.

This section focuses on credit risks facing UK and other banks internationally. Credit risk is driven ultimately by losses on loans to households, companies and sovereigns, which together account for around 80% of UK banks' worldwide claims (**Table 3.A**). Those losses hinge on the path of global economic recovery. In the Bank of England's October 2010 *Systemic Risk Survey*, the proportion of respondents citing an economic downturn as a key risk to the UK financial system increased to 83%, from 67% in May (**Table 3.B**).

Growth remains uneven.

In the IMF's October *World Economic Outlook*, global output was projected to grow by over 4% in 2010 and 2011, above the average in the decade prior to the financial crisis. But growth remains uneven, with the recovery in emerging markets much stronger than in advanced economies. That growth differential is one factor boosting capital flows to emerging markets and reducing flows of capital to some advanced-economy assets (Section 2).

Against that backdrop, concerns about the ability of some European economies to meet sovereign debt obligations have re-emerged. Direct UK bank exposure to European sovereign debt is relatively low (**Table 3.A**). But perceptions about sovereign and banking sector risk have become closely linked. Weaker growth could expose latent balance sheet vulnerabilities. Any related increase in perceived counterparty credit risk between banks could lead to renewed funding difficulties which, in turn, could threaten the supply of credit.

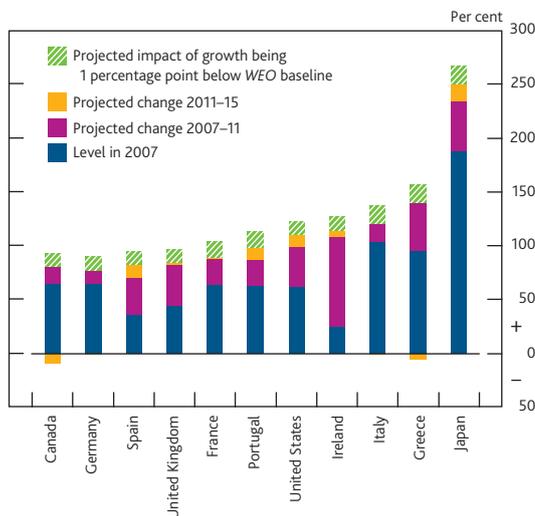
Table 3.B Systemic Risk Survey responses^(a)

Systemic Risk Survey results: key risks to the UK financial system

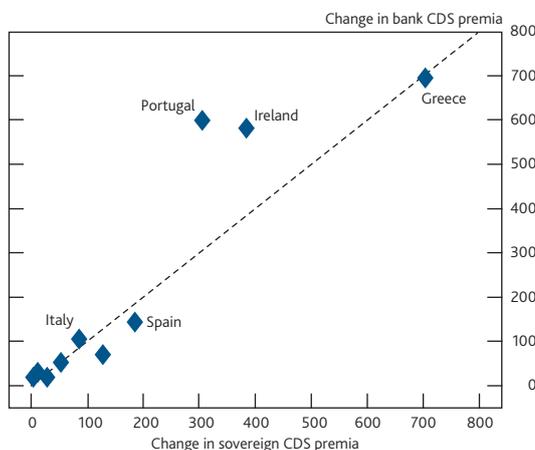
	May 2009	Nov. 09	May 2010	Oct. 10
Economic downturn	58	68	67	83
Funding and liquidity problems	33	35	33	45
Regulation, taxes on banks	24	49	41	45
Property price falls	18	27	28	41
Sovereign risk/public debt	24	24	69	36
Financial market disruption/dislocation	33	30	28	28
Household/corporate defaults	45	49	17	19
Financial institution failure/distress	30	11	15	14

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

(a) Percentage 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. The October survey was carried out between 27 September and 2 November 2010.

Chart 3.1 Evolution of advanced-economy general government gross debt to GDP ratios

Sources: IMF Fiscal Monitor (November 2010), IMF Global Financial Stability Report (October 2010) and Bank calculations.

Chart 3.2 Changes in sovereign and banking sector CDS premia^{(a)(b)}

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

(a) The change is measured from 7 December 2009 to 7 December 2010.

(b) The other countries included are Austria, Belgium, France, Germany and the Netherlands.

3.1 Sovereign risks

Fiscal positions of advanced economies have deteriorated dramatically since 2007. Nearly half of them are now projected by the IMF to have debt ratios above 75% of GDP by end-2011, compared to only a fifth pre-crisis. And despite plans to reduce fiscal deficits, the stock of general government debt in many advanced economies is forecast to rise even further (**Chart 3.1**). There is clearly uncertainty around these projections, particularly if downside risks to growth materialise. In the United States, there has also been concern about state and local government finances, as seen by rising spreads on municipal debt. While market contacts suggest state defaults are unlikely in the near future, increased concerns about local government debt could trigger a sell-off by retail and institutional investors.

As debt stocks rise, the burden of servicing debt becomes more sensitive to changes in interest rates. For a number of countries, that burden has to date been alleviated by unusually low government bond yields (Section 2). But if bond yields rose, high debt stocks would make it harder for governments to rein in borrowing to keep debt on a sustainable path.

Sovereign strains in some European countries have increased...

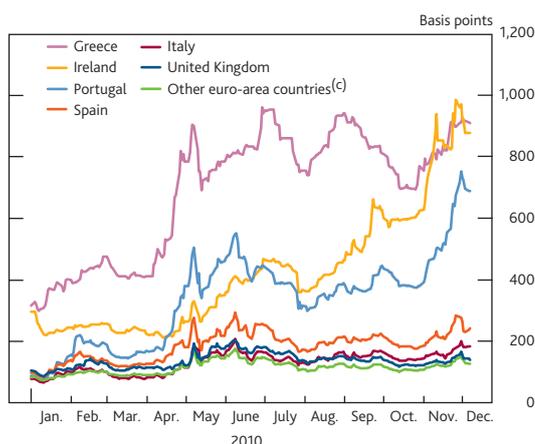
The rising and uncertain path of sovereign debt has raised concerns about the medium-term solvency of some EU governments. The impact on funding depends in part on the proportion of sovereign debt that is held by external investors. Greece, Ireland and Portugal have a relatively high reliance on foreign investors, who hold around 70% of their sovereign debt. By contrast, despite high debt levels, less than 10% of Japan's sovereign debt is held by overseas residents.

In some cases, these concerns stem from the unprecedented public sector support for banking systems during the crisis. That has led to a very rapid accumulation of sovereign debt in countries where the banking system is large relative to the size of the economy, for example in Ireland. As a result, the health of banking systems, sovereign credit risks and economic growth have become highly interdependent. Because of these links, credit risks of sovereigns and banks — as proxied by movements in CDS premia — have been highly correlated in European countries with high government debt levels (**Chart 3.2**).

...with some contagion to other banking systems but so far this has not been widespread...

When sovereign concerns emerged earlier in the year, CDS premia for a wide range of banking systems increased (**Chart 3.3**). Over the past couple of months there has been some spillover from developments in Ireland to other banking systems, most notably to Portuguese, Spanish and, to a lesser extent, Italian banks. That can be seen in strong comovements

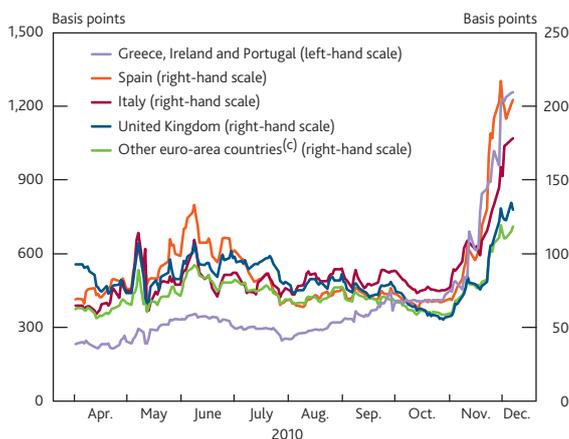
Chart 3.3 CDS premia of banking systems^{(a)(b)}



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

(a) Asset-weighted five-year CDS premia.
 (b) Data to close of business on 7 December 2010.
 (c) Other euro-area countries consist of Austria, Belgium, France, Germany and the Netherlands.

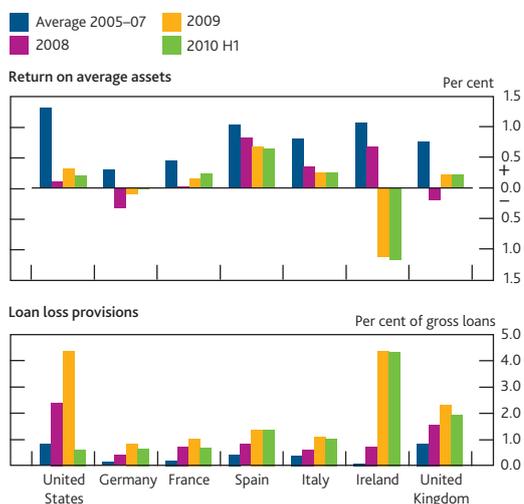
Chart 3.4 Banking system spread of subordinated debt CDS over senior debt CDS^{(a)(b)}



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

(a) Difference between asset-weighted five-year subordinated and senior debt CDS premia.
 (b) Data to close of business on 7 December 2010.
 (c) Other euro-area countries consist of Austria, Belgium, France, Germany and the Netherlands.

Chart 3.5 Banks' return on assets and loan loss provisions



Sources: Capital IQ and SNL.

in the spread between CDS premia on subordinated and senior debt across those banking systems (Chart 3.4). The agreement by some holders of Irish subordinated debt to accept a write-down, and discussions by euro-area governments of private sector burden sharing in sovereign defaults, have heightened the perceived risk of holding subordinated debt. But banking systems in the United Kingdom and other major European countries appear so far to have largely decoupled from these developments, perhaps suggesting any risks had already been priced in.

...helped by banks' improved shock-absorbing capacity. Spillovers may also have been mitigated by improvements in the shock-absorbing capacity of the European banking sector. Most euro-area banking systems were profitable in the first half of 2010 (Chart 3.5), supported by lower loan loss provisions, and capital buffers rose. And, overall, euro-area banks have also reduced their dependence on wholesale funding: their customer funding gap — customer loans less deposits — has fallen to around 6% of customer loans during 2010, compared to a pre-crisis peak of around 15%. But reliance on wholesale funding remains high in the most vulnerable banking systems. Irish, Greek, Portuguese and some Spanish banks have had to switch significantly to ECB funding as private funding has dried up (Chart 3.6). And capital ratios have declined in some weaker banking systems, such as Ireland and Spain, as has profitability.

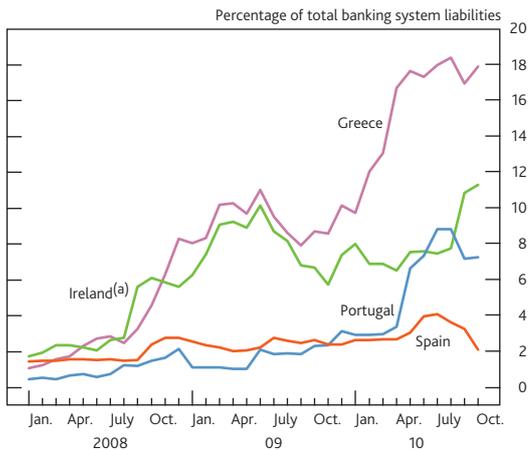
Direct UK bank exposure to European sovereign debt is relatively low (Chart A in Box 2). The main credit risks to UK banks stem from the possibility of losses on lending to euro-area households and companies, should sovereign and banking concerns spillover to weaker-than-expected growth in the euro area. Heightened sovereign risk in Europe could also expose UK banks to funding risks and the UK economy to the withdrawal of lending by foreign banks (Box 2).

The financial support provided by the IMF and EU authorities for Greece, and being put in place for Ireland, has alleviated their near-term financing concerns. But the systemic nature of these risks highlights the importance of developing a comprehensive, rather than country-by-country, solution. Recent events also underline the need for the next EU-wide stress-test exercise to provide greater transparency about banks' resilience to these risks.

3.2 Corporate sector risks

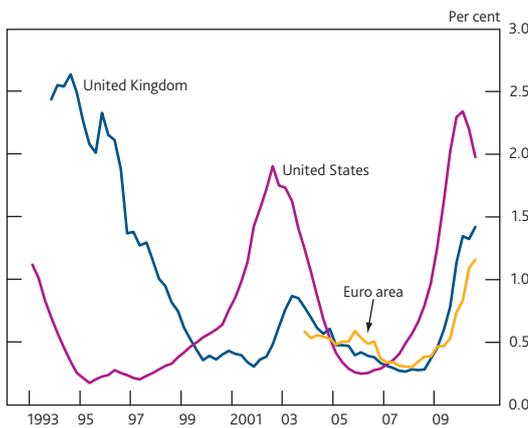
Risks appear to be attenuating in the corporate sector...

There was an improvement in corporate profitability in the first half of 2010 in the euro area and the United States and some signs of a moderation in near-term credit risk. In the United States, corporate write-off rates fell (Chart 3.7), even in the commercial real estate (CRE) sector. And default rates among speculative-grade bond issuers in the United States and

Chart 3.6 Usage of ECB liquidity facilities

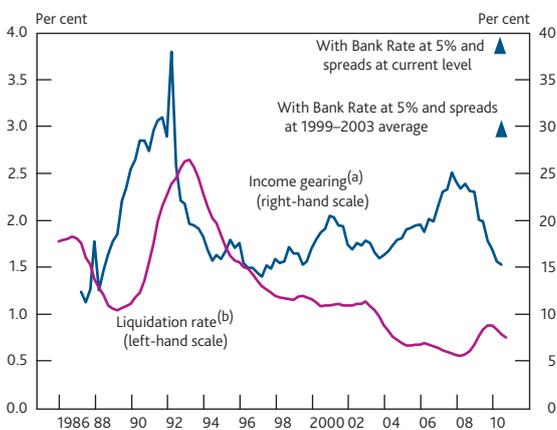
Sources: Banco de España, Banco de Portugal, Bank of Greece, Central Bank of Ireland, ECB, Thomson Reuters Datastream and Bank calculations.

(a) Domestic credit institutions only.

Chart 3.7 Corporate write-off rates^(a)

Sources: Bank of England, ECB, Federal Reserve Board 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 3.8 UK corporate liquidations and income gearing

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

(a) Interest paid divided by gross operating surplus for private non-financial corporations.
 (b) Calculated as the total number of liquidations in the previous four quarters divided by the average number of active registered companies. Since the Enterprise Act 2002 a number of administrations have subsequently converted to creditors' voluntary liquidations. These are not included in the chart.

Europe have fallen since June and are expected to fall further. But in the ECB's October 2010 *Bank Lending Survey*, banks continued to report a worsening in the outlook for companies, and write-off rates on bank lending to euro-area companies continued to increase.

...but corporate balance sheets remain stretched...

Write-off rates on loans to companies also rose further in the United Kingdom in 2010 Q3 (**Chart 3.7**). But the liquidation rate, which tends to lead write-offs, has been falling since 2009 Q4 (**Chart 3.8**). And UK corporate profitability has also improved. In the Bank of England's 2010 Q3 *Credit Conditions Survey*, banks reported that default rates for large and medium-sized companies were expected to fall in 2010 Q4.

Low interest rates have been a key factor enabling companies to avoid default. Contacts have also suggested that bank forbearance has played a role, with banks rolling over debt as long as companies are meeting debt-servicing costs. It is unclear if this situation is sustainable. Capital gearing — debt relative to the market value of the corporate sector — remains high (**Chart 3.9**). So while current debt-servicing costs for many companies are relatively low, they remain exposed to any future increase in interest rates or decline in profits.

...with aggregate measures masking a tail of distressed companies...

For example, **Chart 3.8** illustrates that if Bank Rate were to rise to 5%, corporate income gearing could reach levels last experienced in the early 1990s, even if lending spreads reverted to a pre-crisis average — assuming for illustration that corporate debt and income remained unchanged. In this scenario, companies would need to reduce their debt levels by around a third to restore income gearing to its historical average. Moreover, aggregate measures of income gearing mask a tail of distressed highly indebted companies. Data from companies' accounts suggest that around 30% of companies made insufficient profits to cover their interest payments in 2009 (**Chart 3.10**). The proportion of distressed companies is particularly high in the CRE and hotels and restaurants sectors.

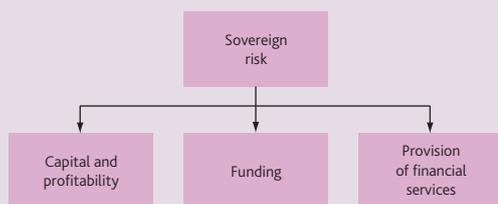
Distress is also more evident among smaller companies. Such companies are likely to have less well diversified sources of revenue and finance and have experienced a greater tightening in bank lending conditions than larger companies (Section 1). In the United Kingdom, a survey of major UK lenders indicated that their lending to SMEs accounts for around a quarter of lending to all UK businesses.⁽¹⁾ In the latest *Credit Conditions Survey*, banks reported that they expected default rates and losses given default for small companies to rise in 2010 Q4.

(1) See October 2010 *Trends in Lending*.

Box 2 European sovereign risk and UK financial stability

Market concerns over sovereign risk in some European economies have reintensified sharply in recent weeks. This box discusses potential spillovers to UK financial stability through UK banks' capital and profitability, funding conditions and the provision of financial services to the UK economy (Figure 1).

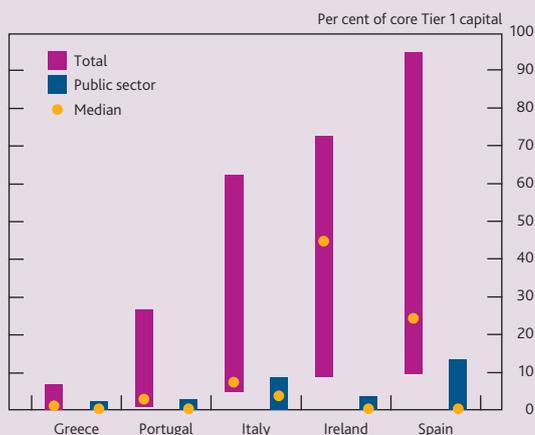
Figure 1 European sovereign risk: transmission channels to UK financial stability



Capital and profitability

An escalation of sovereign concerns could lead to further mark-to-market losses on UK banks' holdings of sovereign debt in their trading books. Between September 2009 and May 2010, the price of long-term sovereign debt issued by some euro-area countries fell, including by around 40% in Greece. But UK banks' total (banking and trading book) holdings of this debt are small relative to capital (Chart A). So any further increases in mark-to-market losses associated with a fall in the value of these holdings are likely to be manageable.

Chart A Range for major UK banks' claims on selected euro-area countries^{(a)(b)(c)}



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

(a) Barclays, HSBC, Lloyds Banking Group, Nationwide Building Society and Royal Bank of Scotland.

(b) Claims data are to end-June 2010, adjusted for risk transfers. Excludes guarantees and derivatives.

(c) Core Tier 1 capital data are to end-June 2010 except for Nationwide Building Society which are to end-April 2010.

However, heightened sovereign concerns are likely to be accompanied by weakening economic conditions (Section 3). So UK banks may also experience higher-than-expected losses on lending to euro-area households and corporates. Major UK banks' total private sector exposures to Greece and Portugal are modest (Chart A). But claims on Ireland and Spain are larger, in combination representing around 75% of core Tier 1 capital for major UK banks. Moreover, these claims are concentrated within a few banks. The largest four UK banks have built up impairment allowances of £71 billion, some of which reflects impairment charges on these exposures (Section 4).

The interconnectedness of the financial system provides a potential amplification mechanism for these credit risks. Some European banking systems have significant exposures to those euro-area countries where sovereign risks have intensified. In particular, French and German banks have large exposures to borrowers in Spain. German banks also have material exposures to Ireland. There is a risk that a sharp deterioration in economic conditions here may have adverse implications for credit conditions in larger European countries and thus the losses UK banks might face. Major UK banks' claims on France and Germany combined are £288 billion, equivalent to around 140% of core Tier 1 capital of these banks. Of this, close to one half reflects claims on banks. Market prices may already reflect to some degree the risks that German and French banks face on exposures to Spain and Ireland.

Some countries could face larger losses on exposures to other euro-area countries under a sovereign debt restructuring.

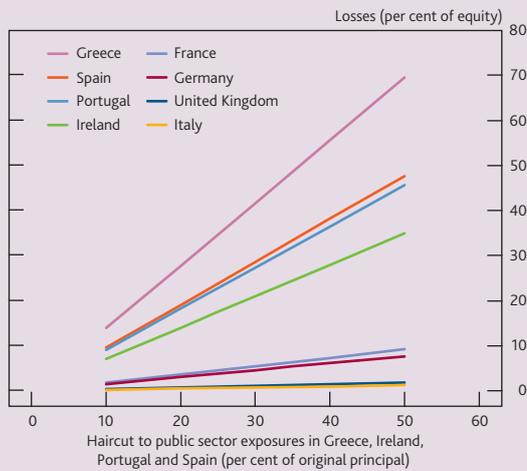
Chart B provides a mechanical illustration of potential losses that European banking systems would face if they had to write down their holdings of Greek, Irish, Portuguese and Spanish public sector debt by various amounts in a hypothetical, simultaneous debt restructuring. The impact on Greek, Irish, Portuguese and Spanish banks would be significant given their large holdings of domestic public sector debt. Moreover, 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.

Funding

Heightened sovereign risk in Europe is likely to lead to a sharp increase globally in the perceived riskiness of European assets, as happened earlier in 2010. This could potentially affect domestic and foreign currency funding conditions for UK and other major European banks.

When sovereign concerns escalated in late April, UK banks' funding costs as proxied by Libor increased and the maturity of

Chart B Hypothetical losses to European banking systems from haircuts to Greek, Irish, Portuguese and Spanish public sector exposures^{(a)(b)(c)(d)(e)}



Sources: BIS, ECB, national central banks and Bank calculations.

- (a) Chart shows indicative losses to banking systems if the sovereign debt (loans and securities) of Greece, Ireland, Portugal and Spain was restructured and haircuts were applied to the original principal.
 (b) Exposures for all countries excluding Germany are adjusted for risk transfers. All exposures exclude guarantees and derivatives.
 (c) Exposures are to end-June 2010. Chart uses data available as at 13 December 2010.
 (d) Exposures for Greek and Portuguese banks only reflect holdings of domestic public sector debt due to data availability.
 (e) Equity data are to end-2009.

their wholesale financing contracted. In recent months UK, along with other major European, banks' funding costs appear to have largely decoupled from those in other European countries which may reflect improvements in bank resilience (Chart 3.3). Nevertheless, UK and many other European banks remain vulnerable to a return of strains in funding markets. This reflects their continued dependence on short-term domestic and foreign currency wholesale funding and the challenge of refinancing or replacing substantial amounts of term loans and public sector support by the end of 2012 (Section 4).

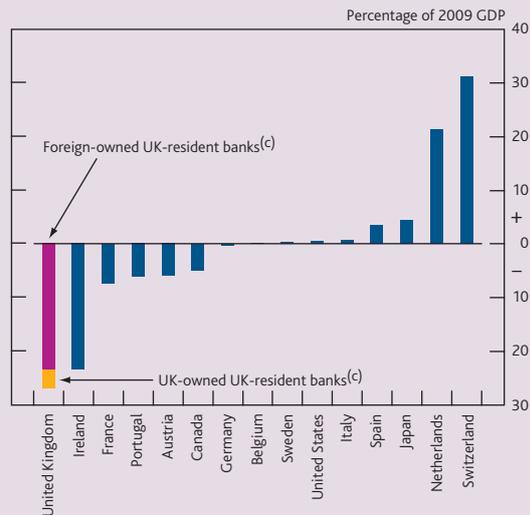
Provision of financial services

Heightened strains in European banking systems could also affect the provision of financial services to the UK economy more generally. Foreign-owned banks play a key role in the provision of banking services to the UK economy.⁽¹⁾ Santander UK accounts for around 15% of lending to the UK household sector, while German banks account for around 6% of lending to the UK non-financial corporate sector.

The presence of foreign lenders should help to diversify the provision of credit to the UK economy, making lending less sensitive to shocks in any one banking system. But there is also a risk that a shock in some euro-area countries could lead to a retrenchment in the provision of UK financial services by foreign lenders. In response to a funding shock, there is evidence that banks look to cut back lending most in non-core foreign markets, particularly if made cross-border rather than

from their local operations abroad.⁽²⁾ Between 2008 Q1 and 2009 Q4, UK-resident banks experienced a large net withdrawal of funding by banks abroad, equivalent to 27% of GDP (Chart C). And during this period, lending to the UK corporate sector by foreign branches fell faster than lending by foreign subsidiaries and UK-owned banks.

Chart C Net cross-border borrowing by selected resident banking systems from non-resident banks,^(a) cumulative flows,^(b) end-2008 Q1 to end-2009 Q4



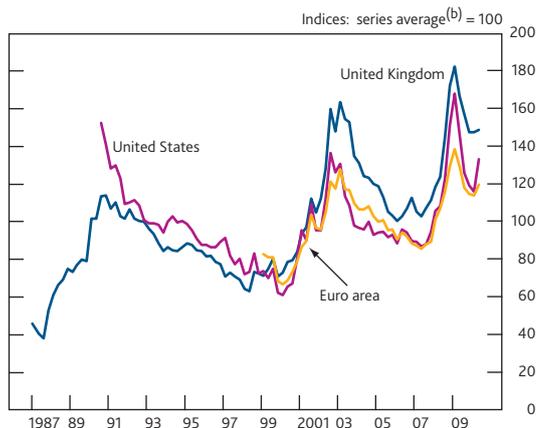
Sources: BIS and IMF *World Economic Outlook* (Spring 2010). BIS locational by residence and Bank of England data.

- (a) The change in the banking system's net liabilities to banks in all other countries.
 (b) Exchange rate adjusted change in stock.
 (c) Split for United Kingdom based on Bank of England data.

Many large European banks also play an important role in the provision of credit through their activity in primary and secondary capital markets. There is a risk that a further escalation in sovereign concerns, and a concomitant withdrawal of external funding to these large banks, might have adverse implications for the provision of these market activities.

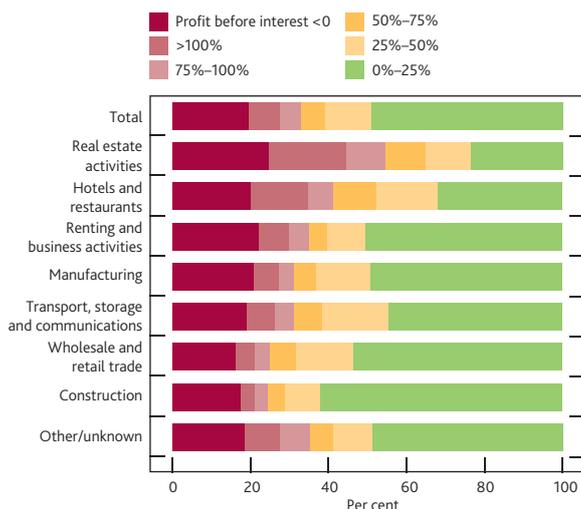
(1) See Box 1 of the June 2010 *Report*, page 16.

(2) See Hoggarth, G, Mahadeva, L and Martin, J (2010), 'Understanding international bank capital flows during the recent financial crisis', *Bank of England Financial Stability Paper* no. 8, September.

Chart 3.9 Corporate capital gearing^(a)

Sources: ECB, Thomson Reuters Datastream and Bank calculations.

- (a) Defined as debt net of liquid assets relative to the market value of capital for the United Kingdom and the United States and gross debt (loans, debt securities and pension fund reserves) relative to the market value of equity for the euro area.
 (b) Series averages are calculated over the period shown on the chart.

Chart 3.10 Distribution of corporate income gearing in 2009^(a)

Sources: Bureau van Dijk Fame database and Bank calculations.

- (a) Interest paid divided by profits before interest and expressed as a percentage. Data include firms reporting turnover in 2009 of more than £1 million and reporting profit and interest paid (a sample of around 14,000 companies). Subsidiaries, as identified from current company structures, are excluded from the data set. Company accounts are assigned to the calendar-year 2009 according to the end of their accounting period. Sectors are based on SIC (2003) codes.

...and vulnerabilities remain in commercial real estate.

Particular vulnerabilities remain in CRE markets in many advanced economies. For the major UK banks, CRE lending accounts for around a third of lending to companies worldwide, with significant overseas exposures to Hong Kong, Ireland, Spain and the United States. But the amount, and likely quality, of CRE lending is uneven across banks. There has been some improvement in commercial property values during 2010 (Chart 3.11), in part supported by the exceptionally low level of interest rates. But there is considerable variation across countries, with values flat in Spain and still declining in Ireland. Property values in most countries are still considerably below pre-crisis levels, when loan to value ratios on new lending were up to 85%. This means a significant proportion of CRE mortgages are in negative equity. In the United States, nearly half of commercial real estate mortgages maturing between 2010 and 2014 are currently in negative equity. Continued losses for banks are likely as loans come up for refinancing or fall delinquent.

There has been little recovery in non-prime values in the United Kingdom...

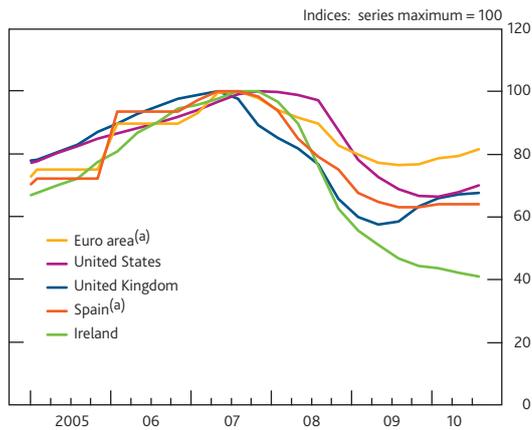
In the United Kingdom, vacancy rates have fallen and capital values have increased for prime properties. But the values of non-prime properties — which market contacts suggest account for the majority of UK banks' exposures — have seen little recovery (Chart 3.12). And derivative contracts continue to signal a further reduction in valuations over the next few years.

UK banks have contained losses on CRE exposures so far by extending maturing loans, provided that the loans are being serviced. This is despite falls in collateral values having pushed LTVs above levels at which banks would usually be willing to lend. The *De Montfort Survey* indicates that around 16% of loans by value are in breach of financial covenants. And that up to 70% of the loans that should have matured in 2009 have been extended for between one and three years, increasing the refinancing challenge in coming years.

...and banks may become less willing to refinance maturing loans.

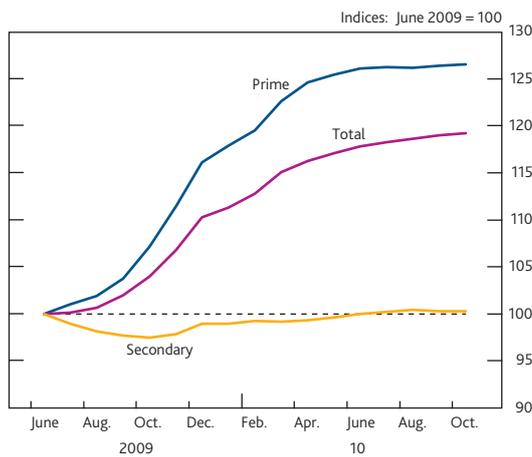
Looking forward, banks may become less willing or able to forbear on these loans. Potential triggers could be the materialisation of downside risks to rental income or increases in market interest rates. Market contacts suggest that the cost of breaking interest rate hedges, contracted when market interest rates were higher, may have contributed to forbearance. That cost could fall were market interest rates to rise. Many of these hedges are in any case scheduled to terminate over the next couple of years.

In the United Kingdom, *DTZ Research* estimates a potential gap of US\$54 billion between the value of CRE loans maturing and the amount of new debt that they believe could be raised

Chart 3.11 International commercial property values

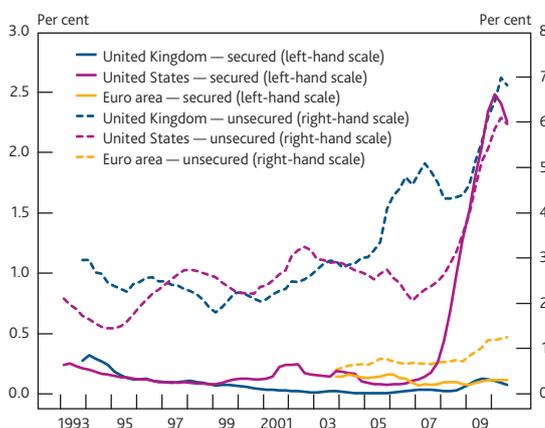
Sources: IMF *World Economic Outlook* (October 2010), IPD, Jones Lang LaSalle, Thomson Reuters Datastream and Bank calculations.

(a) Annual data prior to 2006 Q1.

Chart 3.12 UK commercial real estate values by sector^(a)

Source: CB Richard Ellis Ltd.

(a) The performance of prime and secondary properties is proxied by tracking the performance of a group of the highest and lowest-yielding properties within the CBRE index.

Chart 3.13 Household sector write-off rates^(a)

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.

over the next three years. Relative to their overall market sizes, Ireland and Spain also have large estimated CRE funding gaps. Inadequate funding at maturity could also trigger defaults. Any subsequent rapid disposal of properties by banks could place downward pressure on values at a time when there may be other sources of disposals — for example, by the Irish National Asset Management Agency and from maturing commercial mortgage-backed securities. Lower collateral values would increase banks' losses in the event of default.

3.3 Household sector risks

Household lending accounts for around half of the major UK-owned banks' worldwide lending to the non-financial private sector — with significant overseas exposures to the United States, Ireland and Spain — and three quarters of UK banks' domestic lending. The vast majority of lending to households is secured against property.

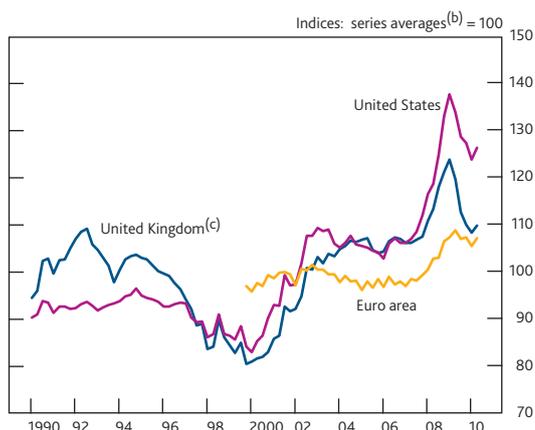
Household sector credit risk remains vulnerable to further house price falls...

Write-off rates on secured household lending remain low in the United Kingdom and the euro area, and have been falling during 2010 in the United States (Chart 3.13). In some countries, there was a stabilisation or even increase in house prices in the first half of 2010. Increases in asset prices have helped to bring household debt to wealth ratios down a little since their peaks during the crisis (Chart 3.14). But they remain high by historical standards, leaving household balance sheets vulnerable to further wealth shocks. House price to rent ratios in several countries, in particular Ireland, Spain and the United Kingdom, remain well above historical averages (Chart 3.15). Government assistance in some countries and low interest rates have helped to support prices. With the withdrawal of some temporary government support, downside risks to house prices have re-emerged.

...as government support is withdrawn and inventories of foreclosed homes are sold.

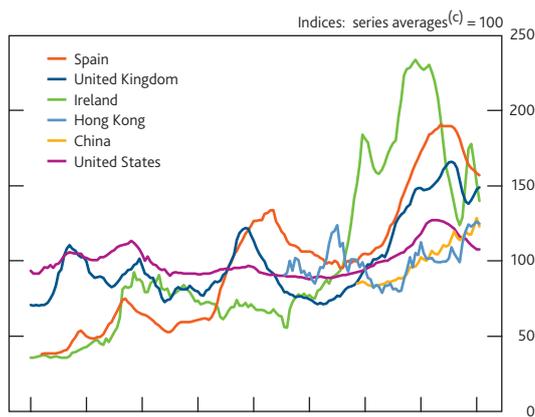
In the United States, prices have fallen following the expiry of tax credits for homebuyers. The IMF estimates that there is a 'shadow inventory' of foreclosed homes potentially amounting to 15% of mortgages. If these properties were to be released onto the market rapidly it could depress prices, prompting a renewed increase in defaults. This could lead to a marked rise in write-offs, as around a quarter of residential mortgages are in negative equity.

'Put-backs' of delinquent loans — where the originator of a mortgage is required to buy back the loan at full value because of inadequate due diligence — could also add to bank losses. Market estimates suggest potential losses of up US\$120 billion, equivalent to around 10% of US banks' Tier 1 capital. The legal complexities associated with this process could inject uncertainty about losses for some time.

Chart 3.14 Household capital gearing^(a)

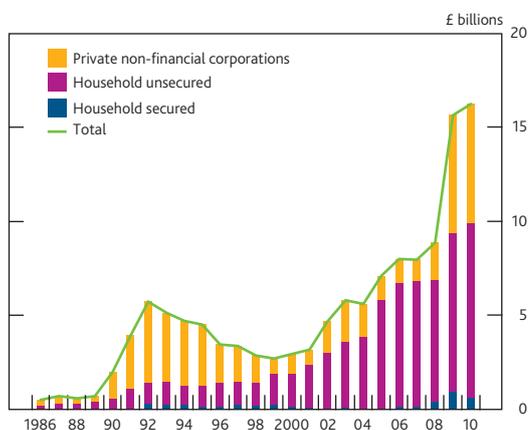
Sources: CLG, ECB, ONS, Thomson Reuters Datastream and Bank calculations.

- (a) Capital gearing is the ratio of households' gross debt to their gross wealth (financial assets and housing wealth).
 (b) Series averages are calculated over the period shown on the chart.
 (c) Housing wealth for the United Kingdom is estimated by the ONS on an annual basis. Quarterly estimates are interpolated by revaluing the previous end-year estimate using the CLG house price index, and adding private sector dwellings investment and council house sales in the quarters since year-end.

Chart 3.15 Residential property price to rent indices^{(a)(b)}

Sources: CEIC, OECD and Bank calculations.

- (a) Data are monthly except for China which is quarterly from June 1999 to December 2009.
 (b) Using residential property indices, except for China which uses a broader property index.
 (c) Series averages are calculated over the period shown on the chart.

Chart 3.16 Write-offs by UK monetary financial institutions^{(a)(b)}

Sources: Bank of England and Bank calculations.

- (a) 2010 is annualised data for the first three quarters of the year.
 (b) Prior to 1992 all write-offs to individuals were allocated to the unsecured debt category, as write-offs on house purchases were assumed to be negligible.

As noted in Section 2, the renewed strength of capital flows to EMEs has helped to inflate property values in some countries. For example, in Hong Kong prices have already increased by around 50% since the beginning of 2009, taking the price to rent ratio up to levels last seen in the late 1990s (Chart 3.15). Authorities in EMEs have implemented macroprudential measures to contain the risks of overheating, with Hong Kong and China restraining lending to the property market.

In the United Kingdom, house prices fell by 1% in 2010 Q3 and are now around 14% below their October 2007 peak. Looking forward, the latest Royal Institution of Chartered Surveyors' survey points to further downward pressure on prices. And in the Bank's October 2010 *Systemic Risk Survey*, the proportion of respondents citing property price falls as a key risk to the UK financial system increased to 41%, from 28% in May (Table 3.B).

Losses on secured lending in the United Kingdom have remained low...

Losses on secured credit have been relatively low in the United Kingdom, accounting for less than 5% of UK banks' total losses in the first three quarters of 2010 (Chart 3.16). Mortgage arrears have been falling since 2009 Q2 and the number of properties taken into possession has declined. Arrears and repossessions have been much lower than in the United States. Greater penalties for defaulting in the United Kingdom mean borrowers may have more of an incentive to reach an arrangement with their bank when repayment difficulties emerge. Since early 2009, around a third of mortgagors in arrears have been in some kind of arrangement with their lender.

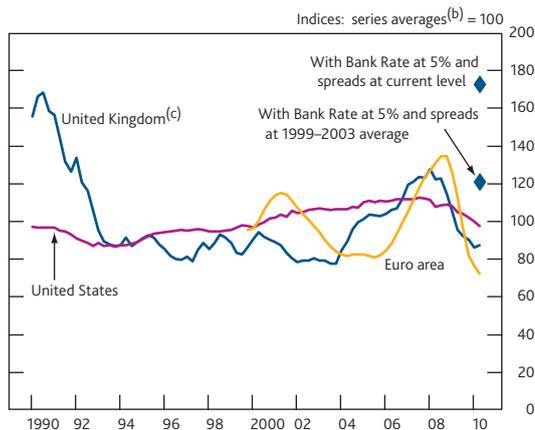
...but concerns about debt levels persist...

A survey conducted for the Bank by NMG Consulting in September indicated that concerns about debt levels had increased among highly leveraged borrowers (with loan to value ratios greater than 75%) over the past two years.⁽¹⁾ One of the main reasons given by households for increasing saving was to try to reduce their debts. However, in aggregate the household saving ratio has fallen since 2009 Q3. Saving rates in the euro area and the United States have also fallen back a little since mid-2009. The persistence of unusually low interest rates may have reduced the incentive for households to reduce their debt levels: aggregate debt-servicing costs relative to income are low in the euro area, the United Kingdom and the United States (Chart 3.17).

...as households remain highly geared...

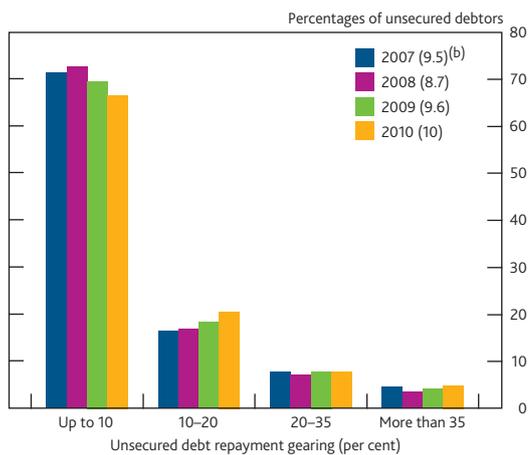
Given current levels of debt, UK banks might face higher defaults if interest rates were to rise rapidly from current levels

(1) See Nielsen, M, Pezzini, S, Reinold, K and Williams, R (2010), 'The financial position of British households: evidence from the 2010 NMG Consulting survey', *Bank of England Quarterly Bulletin*, Vol. 50, No. 4, pages 333–45.

Chart 3.17 Household income gearing^(a)

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

- (a) For the United Kingdom and the euro area income gearing is measured as the ratio of household interest payments to post-tax income. For the United States it is measured as the ratio of total household debt repayments to post-tax income.
 (b) Series averages are calculated over the period shown on the chart.
 (c) Includes FISIM adjustment.

Chart 3.18 Unsecured debt repayment gearing^(a)

Sources: NMG Consulting survey and Bank calculations.

- (a) Unsecured debt repayment gearing is calculated as total unsecured debt repayments (including principal repayments)/gross income. Calculation excludes those whose gearing exceeds 100%.
 (b) Averages across unsecured debtors are shown in parentheses.

or if income and employment were to fall. For example, if Bank Rate were to rise to 5%, even if mortgage spreads reverted to a pre-crisis average, UK household income gearing would be close to its recent peak in 2008 — assuming for illustration that household debt and income remained unchanged (**Chart 3.17**). In this scenario, households would need to reduce aggregate debt by around 15% to restore income gearing to its historical average. The required adjustment would be much larger were spreads to remain at current levels. 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.

Currently, around two thirds of outstanding mortgages in the United Kingdom have floating interest rates, somewhat above the average over the past five years. That proportion is rising as mortgagors move on to standard variable rate products as existing fixed-rate deals expire. This exposes more households to the risk of increases in interest rates.

...and some households are struggling with unsecured debt repayments...

Historically, losses on unsecured credit have been much more significant to UK banks than losses on secured credit. In the first three quarters of 2010, they accounted for around 60% of total UK losses despite accounting for less than 10% of loans (**Chart 3.16**). Spreads over Bank Rate on unsecured lending have risen sharply since the beginning of the financial crisis. As a result, repayments on unsecured debt as a share of household income have increased a little over the past two years, despite the exceptionally low level of Bank Rate (**Chart 3.18**). In the NMG survey, the proportion of unsecured debtors that found unsecured debt a burden increased to 51%, its highest level since the survey began in 2004. And concerns about unsecured debt burdens were most prevalent among households with little or no housing equity that could be used to refinance unsecured debt.

...posing further risks to banks.

The NMG survey suggests that households struggling to keep up with bills and credit commitments account for nearly one third of unsecured debt by value, so unsecured credit risks to banks remain elevated. The write-off rate on consumer credit remained very high in 2010 Q3 and — in contrast to the write-off rate on mortgage lending — is much higher than in the 1990s. Unsecured write-offs also remain elevated in the United States (**Chart 3.13**). Unsecured credit losses are particularly sensitive to labour market prospects. The NMG survey indicated that income and employment shocks had contributed significantly to debt distress.

4 Resilience of the financial system

Improvements to UK banks' resilience have continued. Their aggregate capital position is a little stronger. All of the large UK banks and foreign large complex financial institutions (LCFIs) recorded a profit in 2010 H1. Funding positions have been strengthened by an increase in term issuance and greater diversification of funding sources. And key financial infrastructures have remained robust.

But four key challenges remain. First, the funding challenge next year is larger still and is sensitive to market events. Second, although impairments have fallen markedly, credit quality remains sensitive to the economic outlook. Third, transitioning to new regulatory standards may be more difficult if banks or investors demand higher returns than are warranted by risk. Fourth, initiatives to widen use of central counterparty (CCP) clearing houses need to be accompanied by further risk management enhancements.

The previous two sections discussed the risks facing the UK financial system. This section discusses its resilience to those risks in the context of the transition to the new regulatory standards discussed in Section 5.

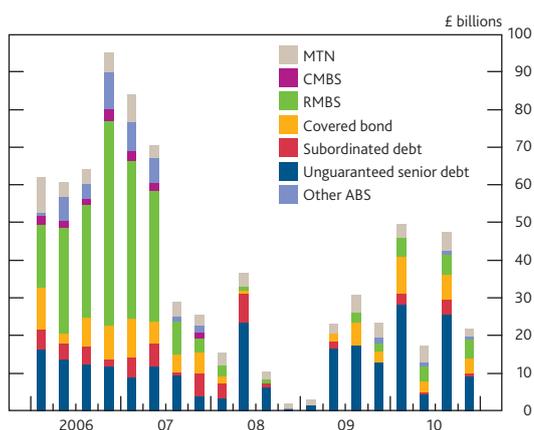
4.1 Developments in UK banks' resilience

Banks' term wholesale funding position has improved...

The June 2010 *Report* outlined the significant refinancing needs of the major UK banks⁽¹⁾ and their international peers over the next two to three years. This includes the repayment of public sector support offered during the crisis.

Over the past six months, UK banks have made good progress towards meeting this funding challenge. By end-November, the major UK banks had issued around £135 billion of term debt in public markets (**Chart 4.1**). This is almost 70% higher than last year, despite difficult market conditions. In addition, private markets have been an important source of funding for UK banks, with around £60 billion raised. By the end of September, many of the major UK banks announced that they had achieved, and in some cases exceeded, their term issuance plans for 2010. In aggregate, their issuance in 2010 accounted for around one quarter of the total refinancing burden over the period 2010–12.

Chart 4.1 Major UK banks' unguaranteed term issuance in public markets^(a)

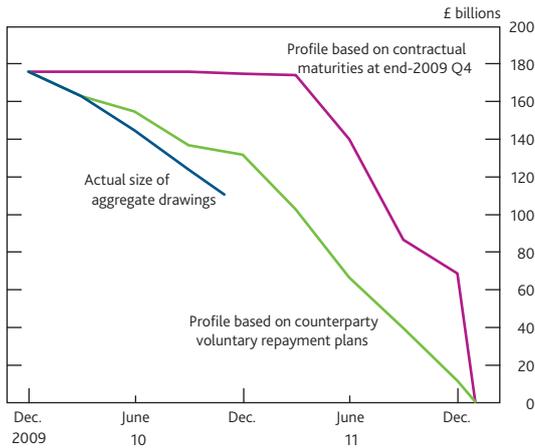


Sources: Bank of England, Dealogic and Bank calculations.

(a) 2010 Q4 is up to and including 26 November 2010. Term issuance refers here to securities with an original contractual maturity or earliest call date of at least 18 months. This excludes debt issued under HM Treasury's Credit Guarantee Scheme. It includes subordinated lower Tier 2 and Tier 3 capital instruments with debt features.

(1) Membership of the major UK banks peer group is based on the provision of customer services in the United Kingdom, regardless of the country of ownership. The following financial groups, in alphabetical order, are currently members: Banco Santander, Bank of Ireland, Barclays, Co-operative Financial Services, HSBC, Lloyds Banking Group (LBG), National Australia Bank, Nationwide, Northern Rock and RBS. The LCFIs include the world's largest banks that carry out a diverse and complex range of activities in major financial centres. The group of LCFIs is identified currently as: Bank of America, Barclays, BNP Paribas, Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs, HSBC, JPMorgan Chase & Co., Morgan Stanley, RBS, Société Générale and UBS.

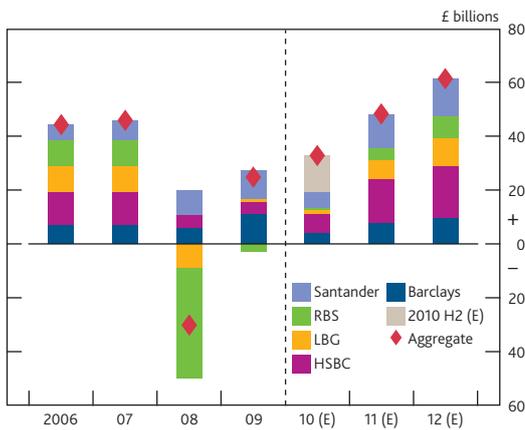
Chart 4.2 Aggregate SLS repayment profiles^(a)



Source: Bank of England.

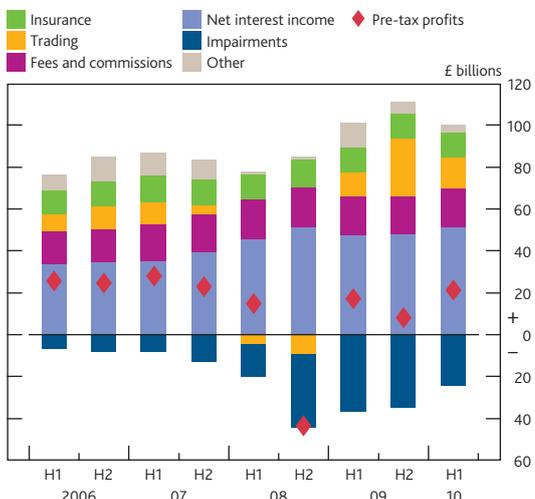
(a) The chart shows repayment profiles aggregated across all SLS users, a group of banks wider than the major UK banks peer group.

Chart 4.3 Major UK banks' pre-tax profits



Sources: Bank of England and Bank calculations. 2006 to 2010 H1 data are from published accounts. 2010 H2 to 2012 are Bloomberg consensus forecasts.

Chart 4.4 Major UK banks' sources of revenue, impairments and pre-tax profits



Sources: Published accounts and Bank calculations.

Major UK banks have also diversified their funding base, including issuing in a wider range of international markets. This diversification also included the use of new instruments (Box 3). Banks have made increasing use of secured funding markets, including through issuance of residential mortgage-backed securities (RMBS) and covered bonds. Market participants suggest, however, that this has drawn on a concentrated, leveraged investor base for around half of recent issuance. Sustainable funding relies on a durable, unleveraged investor base, spread across different types of funding instruments.

The estimated weighted average maturity of the large UK banks' money market and term wholesale funding has increased from around 2 years in September 2008 to around 2½ years in September 2010. This is despite the combination of low short-term interest rates and steep yield curves which, as described in Section 2, might otherwise incentivise banks to issue short-term debt. The Basel III regulatory package emphasises the need for banks to establish longer-term funding to build resilience to funding shocks (Section 5).

...banks are smoothing SLS repayment...

The Bank's Special Liquidity Scheme (SLS) will expire at the end of January 2012. To prevent a refinancing cliff at the end of 2011, the Bank has held bilateral discussions with all users of the SLS to ensure that there were credible funding plans in place to reduce their use of the Scheme in a smooth fashion. Voluntary repayment plans have been agreed (Chart 4.2). In aggregate, banks are slightly ahead of their plans, with £75 billion of the £185 billion of Treasury bills advanced under the Scheme repaid by end-November. The removal of this refinancing cliff is contributing to the easing of pressures in funding markets.

...and liquidity buffers have increased modestly.

Liquid assets provide a buffer against rollover risk in funding markets. Large UK banks more than doubled their holdings of liquid assets during the course of 2009, from around £175 billion to around £425 billion. During 2010, holdings have increased by around a further £50 billion. The FSA announced in November that banks should aim to meet any new international liquidity standards by the proposed implementation date of 1 January 2015, which is when the Basel liquidity coverage ratio is due to be introduced.

Banks' profits are higher...

All of the large UK banks recorded a profit in 2010 H1, for the first time in two years. But there continues to be a wide range of profits across the banks, in contrast to pre-crisis years (Chart 4.3). Aggregate pre-tax profits at the major UK banks were around £21 billion, more than double the figure for 2009 H2. A key driver for this increase was further falls in impairment charges (Chart 4.4), consistent with banks' statements that impairments peaked in 2009.

Box 3

Recent developments in bank funding markets

UK banks, in common with other banks internationally, face a significant funding challenge. Extraordinary public sector support will cease and banks will need to fund themselves independently. They also need to lengthen the maturity and increase the diversity of their funding. Investors are demanding strengthened balance sheets and banks face new regulatory rules. At the same time, some investors in bank debt are looking for yield pickup and reacting to changes in their own regulatory rules.

In response, new wholesale funding instruments have emerged over the past six months. These are designed to help meet these challenges, although they currently represent a small proportion of total liabilities. This box looks at three of these instruments: putable certificates of deposit (CDs), extendible repos and long-dated secured funding. **Table 1** summarises the main characteristics of these instruments.

Funding market innovation

Putable CDs are unsecured short-term debt instruments issued by banks. They are generally issued with a maturity of one year but contain a daily put option that allows the investor to sell the CD back to the issuer, normally after a 95-day 'lock-in' period. This means the actual term of the paper can be shorter than one year. These variants on normal CDs emerged in the second half of this year as banks tried to incentivise investors to place their deposits for longer. Market contacts suggest UK banks have been particularly active issuers, with around US\$10 billion of issuance in the past six months. The main investors thus far have been US money market funds.

Table 1 Typical instrument characteristics

Instrument	Putable CDs	Extendible repos	Long-dated repos
Initial term	12–18 months	15 days–beyond three months	2–7 years
Optionality	Daily put for investor to sell (with a 95-day lock-in period)	Investor and issuer can agree to extend at pre-arranged maturity	None
Collateral rating	Unsecured	Investment grade	Investment grade, but not classified as 'liquid' by regulators
Pricing	Quarterly reset with coupon step-up	Secured rate for that tenor of funding	100–200 basis points above three-month Libor
Main investors	Money market funds	Banks, security lenders	Banks

Source: Market contacts.

UK banks have also been issuing variants of traditional short-dated repos. These 'extendible' (or 'evergreen') repos often have an initial maturity of 90 days that can be reset after

30 days back to the original maturity (at the consent of both parties). The collateral usually used is bonds or asset-backed securities (ABS). While the market is not new, use by UK banks has been increasing of late. Their stock outstanding is now in excess of £10 billion according to market estimates. Investors include banks and security lenders.

The use of long-dated secured funding has also been increasing, both in standard repo form and synthetically using total return swap derivatives. The typical term is two to seven years and transactions are usually backed by investment-grade ABS on which daily market prices are observable. This gives liquidity value to ABS held by UK banks. Again, UK banks have reportedly been active issuers in the past six months, with in excess of £15 billion issued. The main investors have been other banks.

Attractions of new funding

UK banks' increased issuance of these instruments is a response to a reduction in other funding sources. Before the crisis, UK banks were heavy users of unsecured and securitisation markets. For much of the crisis, these markets have been impaired and had to be replaced by public sector funding. As discussed in Section 1, securitisation markets have only partially reopened and banks have consequently issued less residential mortgage-backed securities and ABS compared to pre-crisis (**Chart 4.1**). In addition, new regulatory rules make the use of short-term wholesale funding less attractive.

These new instruments are helping UK banks to meet new FSA rules, which set a quantitative liquidity requirement. This is based around two stress periods — two weeks of severe stress and three months of moderate stress. The structure of one-year putable CDs, with a 95-day lock-in period, means UK banks initially have funding beyond three months and thus beyond the regulatory stress-test periods. But putable CDs are also designed to allow investors to get their money back relatively quickly. This helps US money market fund investors comply with new Securities and Exchange Commission rules on asset maturity. The higher return on offer compared with a normal three-month deposit also makes them attractive. US prime money markets funds are an important source of funding for UK banks, providing around US\$200 billion of funding (as discussed in Section 2).

These new funding instruments could also potentially help UK banks broaden their investor base. For example, there is some interest from asset managers and insurers in long-dated repos, as well as collateral swaps which give banks government bonds (in return for ABS), which can then be used to raise funding.

Both extendible and long-dated secured funding also provide a natural home for some of the collateral that is being freed up

by maturing Special Liquidity Scheme (SLS) collateral swaps. Indeed, the long-dated repo market can be seen in some respects as providing a private sector replacement for the SLS.

Risks

Despite these benefits, there are also risks associated with these instruments that banks and regulatory authorities need to be aware of, especially if these markets continue to grow.

First, it is important that a conservative view on the effective maturity of these instruments is embedded within banks' liquidity stress testing. For example, for the purpose of FSA liquidity calculations, puttable CDs are considered to have a maturity equal to the minimum contractual period (the lock-in period of 95 days if the daily option is exercised). This ensures that the liquidity risk is fully visible. It is important that regulators internationally adopt a similar convention.

Second, some of the instruments have been tailored closely to suit new regulatory rules. There may be risks around this. For example, there could be cliff-edge liquidity risks if funding maturities bunch just beyond regulatory horizons. One-year puttable CDs typically have investor put options that can be exercised on a daily basis and mean that funding must be returned in 95 days. In light of these risks, some banks are imposing limits on their issuance of certain instruments.

Third, there are a number of risks that can arise from collateralised transactions. Under certain conditions funding can be withdrawn, such as following an event of default — there is 'putback' risk. Repo transactions can generate procyclicality, with margin calls for more collateral required if the collateral reduces in value. There is also the risk for unsecured creditors that, in the event of default, they will have recourse to fewer unencumbered assets due to a higher amount of assets being tied up in repos.

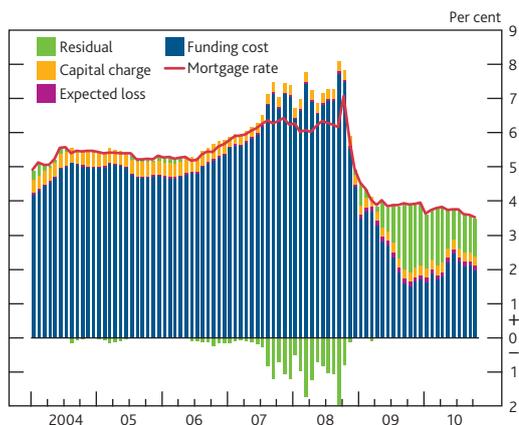
Finally, and most importantly, these instruments have mainly had the effect of redistributing liquidity risk around the banking system, rather than materially attracting unleveraged, non-bank investors into the bank funding market. So from a systemic perspective, it is not clear that these instruments have noticeably reduced aggregate liquidity risk in the banking sector or truly diversified sources of funding across the system.

Conclusion

Overall, the use of innovative instruments is helpful in enabling banks to raise, term out and diversify funding. The incentives to issue such instruments may increase as new regulatory rules are introduced and these markets grow. That might amplify the risks that the banking sector as a whole faces from these instruments. Banks' disclosure of their use of these instruments may help investors understand the risks. Regulators need also to be aware of the potential for these

risks to become systemic if these markets become bigger. The investor base for some of these instruments remains predominantly the banking sector and money market funds. Sourcing longer-dated funding from other investors would help further diversify funding and potentially promote financial stability.

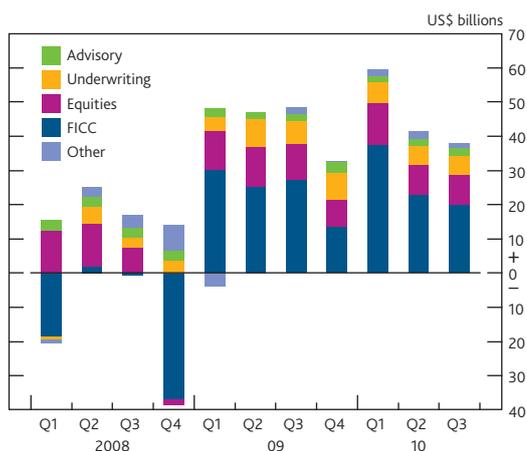
Chart 4.5 Decomposition of new secured lending rate^{(a)(b)}



Sources: Bank of England, Bloomberg, British Bankers' Association (BBA), Council of Mortgage Lenders, Markit Group Limited and Bank calculations.

- (a) 75% LTV Bank Rate tracker mortgage average quoted rate.
 (b) For detailed information on methodology see 'Understanding the price of new lending to households', *Bank of England Quarterly Bulletin*, Vol. 50, No. 3, pages 172–82.

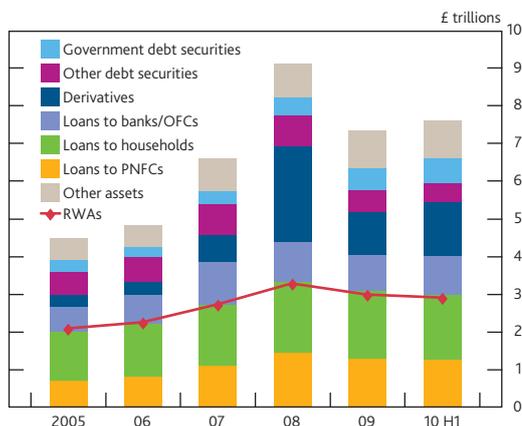
Chart 4.6 US and European LCFIs' investment banking revenue decomposed^(a)



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

- (a) Excludes BNP Paribas and Société Générale.

Chart 4.7 Major UK banks' total assets^(a)



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

- (a) Excludes Northern Rock.

Increased revenues on retail banking also contributed to higher profits. Despite the continued low interest rate environment, major UK banks reported net interest income of £51 billion in 2010 H1, an increase of close to £4 billion from 2009 H2.

Chart 4.5 provides a decomposition of the price charged by banks on new secured lending to households into three main factors: the funding cost, charges to cover credit risk and a residual, covering operating costs and a mark-up as well as other factors. Recent rises in the residual are likely to reflect an increase in the mark-up, which may point to an increase in the profit margin on new lending.

This picture was similar at global LCFIs. For the first time since the start of the crisis all of the LCFIs reported a profit in 2010 H1. Commercial banking business was supported by a fall in impairments. And trading income continued to support profits.

...but investment banking revenues were lower than in 2009.

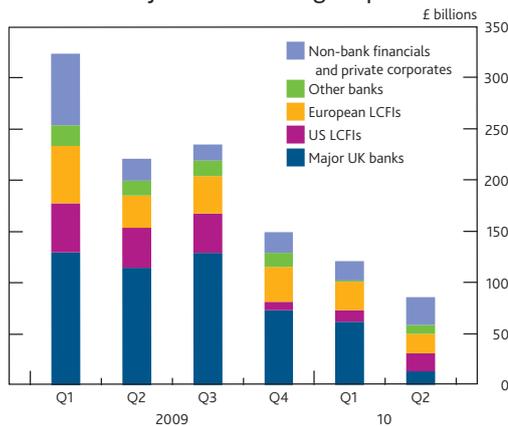
Banks with investment banking businesses benefited from strong trading revenues in 2009 and 2010 Q1 (**Chart 4.6**). This was driven by fixed income, currency and commodity (FICC) sales and trading. FICC accounted for 60% of US LCFIs' total investment banking revenues in 2009, compared to an average of 45% in the three years prior to the crisis. The strength of FICC reflected wider bid-ask spreads, higher volatility and higher volumes, with the reduction in the number of firms participating in the market increasing client flows. FICC revenues have subsequently fallen during 2010, with Q2 and Q3 revenue nearly 20% lower than for the same period in 2009.

Balance sheets grew modestly...

Following declines during 2009, total assets of the major UK banks grew by 4% to £7.6 trillion during 2010 H1 (**Chart 4.7**). This was driven by increased holdings of derivatives and lending to banks and other financial corporations. Together, these increased by £340 billion, or 16%. Of this, the £230 billion increase in derivatives reflected both increases in holdings and volatility-driven valuation effects. Large exposures among banks — those representing more than 10% of eligible capital — fell in 2010 Q2 (**Chart 4.8**). This reduces the potential for large, one-off losses and reinforces the trend towards lower interconnectedness among banks which began in 2009.

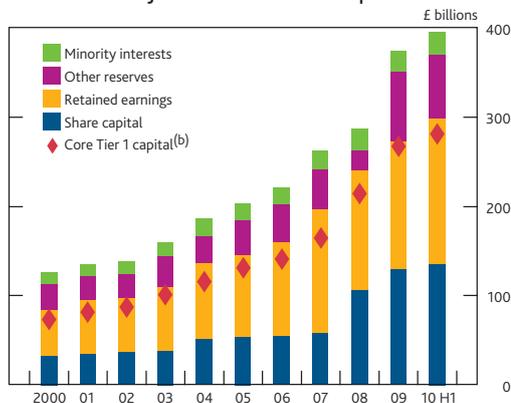
Major UK banks' exposures to households and private non-financial corporations (PNFCs) globally fell by around £120 billion (4%) during 2010 H1. Within this, lending to the UK real economy remained subdued. The stock of lending to UK businesses fell by £16 billion. The stock of secured lending to UK individuals increased by £6 billion and unsecured lending rose very slightly.⁽¹⁾

(1) See July and October 2010 *Trends in Lending*.

Chart 4.8 Major UK banks' large exposures^{(a)(b)(c)}

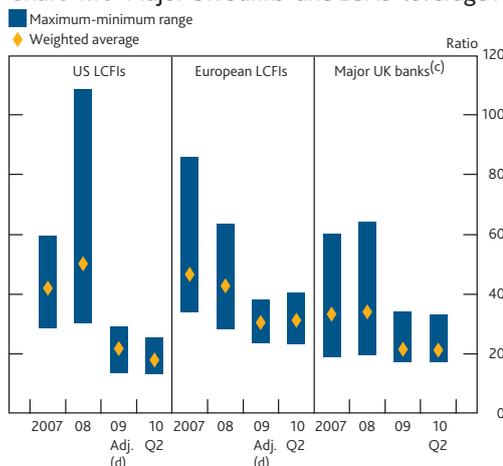
Source: FSA regulatory returns.

- (a) Based on exposures that exceed 10% of eligible capital at the end of the reporting period.
 (b) Excludes Bank of Ireland.
 (c) Excludes exposures to individuals, governments and central banks.

Chart 4.9 Major UK banks' core capital^(a)

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

- (a) Excludes Britannia.
 (b) Diamonds show the level of core Tier 1 capital after regulatory adjustments including available-for-sale reserve, cash-flow hedging reserve, defined benefit pension scheme, adjustments for scope of regulatory consolidation, foreign exchange on reserve capital instruments and upper Tier 2 loan stock, adjustment for own credit, and some other deductions including intangible assets, net excess of expected losses over impairment and securitisation positions.

Chart 4.10 Major UK banks' and LCFIs' leverage ratios^{(a)(b)}

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

- (a) Assets adjusted on a best-efforts basis to achieve comparability between institutions reporting under US GAAP and IFRS. Derivatives netted in line with US GAAP rules. Off balance sheet vehicles included in line with IFRS rules until 31 December 2009. See footnote (d).
 (b) Assets adjusted for cash items, tax assets, goodwill and intangibles. For some firms, changes in exchange rates have impacted foreign currency assets, but this cannot be adjusted for. Capital includes total shareholders' equity adjusted for minority interest, preference shares, goodwill and intangibles.
 (c) Excludes Northern Rock.
 (d) Revision to US GAAP accounting rules on consolidation from 1 January 2010 are applied to end-2009 data giving a clearer measure of leverage.

Total risk-weighted assets fell by 3% in 2010 H1. The average risk weight on assets is now 38%, down from 40% in 2009 and a pre-crisis average of 46%. This suggests continuing derisking by banks. Unlike during 2009, however, this derisking does not appear to be focused on intrafinancial system activity.

...and capital increased slightly...

During 2010 H1, major UK banks increased their holdings of core Tier 1 (CT1) capital modestly to £281 billion (Chart 4.9). Higher profits meant retained earnings increased to their highest half-yearly level since the start of the crisis. Although dividends rose by around £500 million on 2009 H1, the dividend payout ratio of those banks paying dividends fell from 67% to 49%.

The aggregate reported CT1 capital ratio for major UK banks rose from 9.3% at end-2009 to 9.7% in 2010 H1. This is its highest level since the full adoption of the Basel I regulatory regime in 1992.

...with leverage at lower levels.

Leverage at major UK banks in 2010 H1 remained similar to levels at end-2009 (Chart 4.10). The ratio for US LCFIs fell (adjusting for accounting changes), in large part driven by increases in capital. For the European LCFIs, leverage was broadly unchanged on average, though leverage at a number of firms increased as balance sheet expansion more than offset any increase in capital.

Markets have responded favourably, but tiering remains.

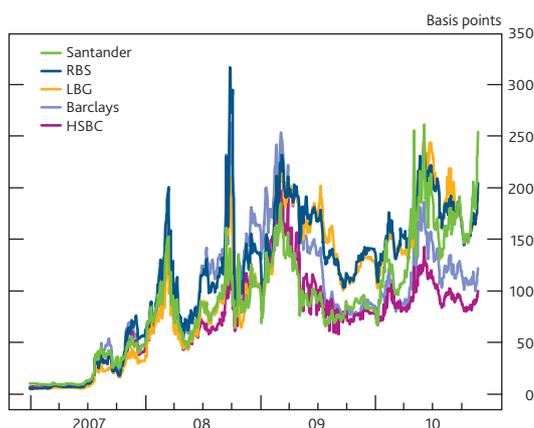
Investor perceptions of the resilience of UK banks, as measured by credit default swap (CDS) premia, have improved since the June 2010 Report, both in absolute terms and relative to some banks in Europe. Investors continue to differentiate among banks (Chart 4.11), with those with higher risk premia accounting for the largest shares of lending to the UK real economy. UK banks' equity prices rose in 2010 Q3 but fell back in October and November leaving prices broadly unchanged over the period as a whole.

4.2 Risks to UK bank resilience

Sections 2 and 3 outlined risks that could affect the resilience of major UK banks. These include shocks to funding markets and any latent problems in credit quality. Crystallisation of these risks could impair banks' ability to retain profits or issue new equity when transitioning to new regulatory standards (Section 5).

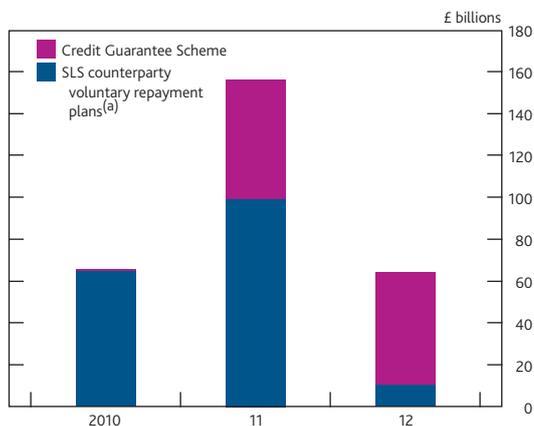
The funding challenge continues into 2011...

Despite progress this year, funding is likely to remain a key challenge for banks in the period ahead. The amount of funding to replace in 2011 is higher than in 2010, with close to half of the 2010 to 2012 refinancing need due in 2011. This

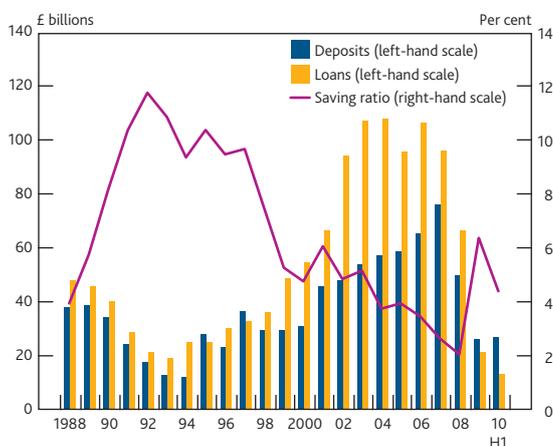
Chart 4.11 Major UK banks' CDS premia^(a)

Source: Markit Group Limited.

(a) Five-year senior CDS premia.

Chart 4.12 SLS and CGS repayment schedules

Sources: Bank of England, Dealogic, Debt Management Office and Bank calculations.

(a) For 2010, this shows actual SLS repayments made by end-November 2010. For 2011 and 2012, data are based on voluntary repayment plans. For all years, data cover all SLS users, a group of banks wider than the *Report's* major UK banks peer group.**Chart 4.13** UK historical household saving ratio, deposits and loans^{(a)(b)}

Sources: Bank of England, ONS and Bank calculations.

(a) Chart shows annual net flow of household sector sterling deposits with UK-resident banks, and sterling loans to the household sector from UK banks.

(b) 2010 H1 data are annualised.

coincides with the expiry of public support schemes (**Chart 4.12**). In total, including funding supported by the SLS and Credit Guarantee Scheme (CGS), around £400 billion to £500 billion of wholesale term debt is due to mature by the end of 2012. A proportion of CGS debt can be rolled over until after 2012, provided that it expires before the final due date of April 2014 and that the total scheme drawdown remains below £83.3 billion.

...and is sensitive to banks' ability to raise retail deposits...

Banks are aiming to reduce their reliance on wholesale funding by increasing retail deposits. Major UK banks increased their customer deposits by 6% during 2010 H1. But competition for deposits has been intense and has resulted in banks paying higher interest rates. While the increase in customer deposits is positive, UK banks' overall reliance on wholesale funding has not reduced materially in 2010 H1 given increases in their balance sheets.

The June 2010 *Report* cautioned that banks collectively may be overestimating their ability to increase retail deposits.

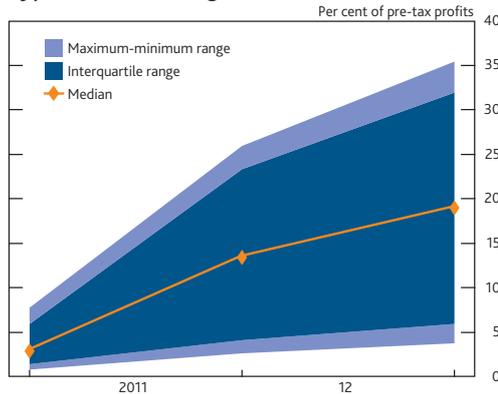
Historically, aggregate household deposit growth has rarely exceeded household loan growth (**Chart 4.13**). And if banks' plans to increase retail deposits turn out to be overoptimistic, reliance on wholesale funding would increase. Against this, over the past year household deposit growth has exceeded loan growth. If continued, banks' wholesale funding needs would be lower.

...and execute asset disposal plans.

Any planned asset disposals would help reduce individual banks' funding needs. RBS and LBG have previously announced material asset reduction plans. Over the period 2008 to 2014, they expect to reduce their non-core assets by around £400 billion. So far, they have achieved just under half of that reduction, which is good progress. But there could be ongoing execution risk and some harder to sell assets are likely to be in the remaining half. And for the sector as a whole, planned asset disposals reduce the aggregate funding need only if the assets are sold outside of the UK banking sector, either to foreign banks or to non-banks.

Capital market shocks have affected banks' wholesale funding plans during 2010. **Chart 4.14** estimates the effect on the profits of the major UK banks of an increase in their long-term wholesale funding costs. As an illustration, it assumes that spreads on long-term unsecured wholesale funding rise by 80 basis points, around 50% higher than current levels, and that this would be sustained until end-2012. It is assumed that none of the increase in cost would be passed on to customers and that banks' profits would otherwise remain at 2010 H1 levels. In this scenario, the increase in funding costs for banks would be equal to around 15% of pre-tax profits in 2011 and 20% in 2012. Within that average, there is considerable dispersion among banks.

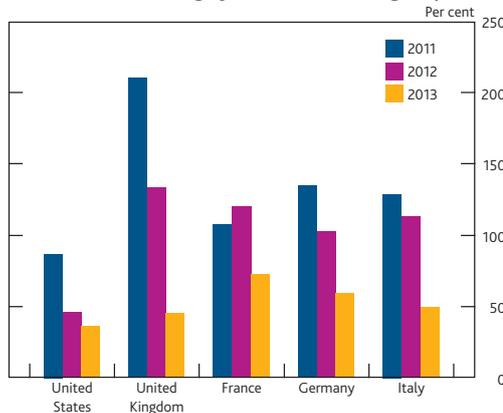
Chart 4.14 Reduction in UK banks' pre-tax profits from a hypothetical funding shock^{(a)(b)}



Sources: Bank of England, Bloomberg, Markit Group Limited and Bank calculations.

- (a) The analysis calculates the impact on 2010 H1 pre-tax profits (annualised for 2011 and 2012). It assumes banks cannot reprice their loan books and that the cost of refinancing sources of funding other than long-term unsecured wholesale funding and repayment of public sector support schemes is unaffected.
- (b) Chart shows data for a subset of the major UK banks peer group — Banco Santander, Barclays, HSBC, Lloyds Banking Group, Nationwide and RBS.

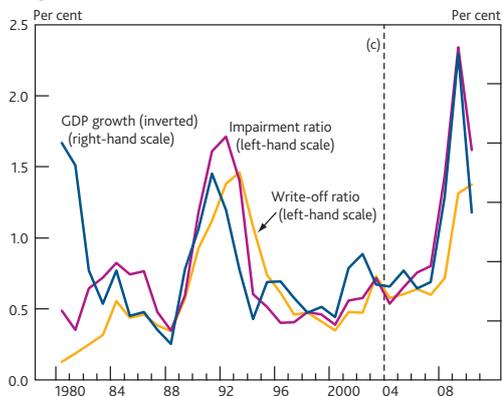
Chart 4.15 Banking system refinancing requirements^{(a)(b)}



Sources: Bank of England, Dealogic, FDIC, Fitch, SoFFin, UK DMO and Bank calculations.

- (a) Calculated as a percentage of average issuance between 2005 and 2007. Only senior unsecured debt, subordinated debt, covered bonds, RMBS (public) and official sector support (government-guaranteed debt issuance and asset swap facilities) have been included in the calculations. RMBS issued in the United States and EU have been assumed to mature, on average, around four and five years respectively, following origination. Only issuance to end-November 2010 is included in calculations.
- (b) Banking systems are defined on an ownership basis.

Chart 4.16 Impairment charges, write-offs and changes in GDP^{(a)(b)}



Sources: Bank of England, BBA statistical abstract, ONS, published accounts and Bank calculations.

- (a) New impairment charge and write-offs less recoveries as a percentage of total loans and advances to customers for the largest four UK banks. The impairment ratio excludes some charges made against problem country debt during 1987-92, as described in the June 2002 FSR. Many of these impairments were released as the exposures were sold or asset quality improved.
- (b) Data before 2000 are drawn from 'Bank provisioning: the UK experience', in the June 2002 FSR. The original sources of these data are banks' published accounts and the BBA statistical abstract. These data have been reconciled to banks' published accounts on a best-endeavours basis.
- (c) From 2004 accounting standards changed. Data from 2004 are on an IFRS basis.

International banks face similar funding challenges to UK banks, which may add to pressures on global funding markets (Chart 4.15). In addition, euro-area banks at some stage will need to refinance funding currently provided by the ECB. US banks are generally better placed with respect to official sector financing facilities, having repaid most of the borrowing extended during the height of the crisis. Their funding position has also been supported by the government-sponsored enterprises' continued backing of residential mortgage markets.

Short-term factors may be supporting credit quality...

A deterioration in credit quality would be a further drain on banks' profits. Banks have taken substantial impairment charges recently, reflecting the severity of the crisis (Chart 4.16). This insulates banks' profits against the cost of writing off impaired loans in the future. But, as Section 3 highlighted, credit quality may have been contained by short-term factors including government support and low interest rates. Balance sheet pressures could reintensify as these factors wear off, leading to an increase in impairments.

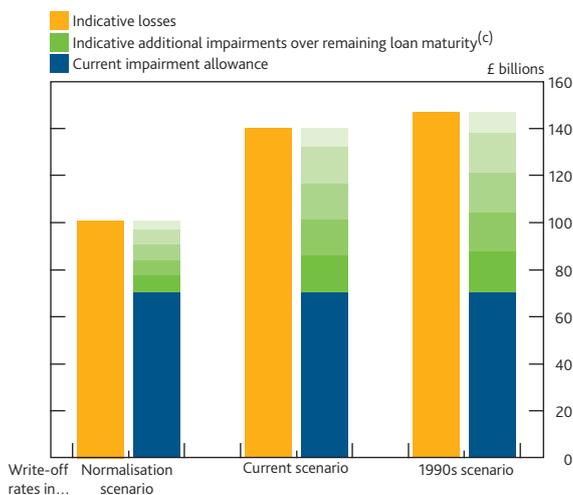
...but may not prove durable, increasing future impairments...

UK banks make impairment charges against current profits if there is objective evidence of future losses — the 'incurred loss' approach. Under this approach, the largest four UK banks have built up impairment allowances of £71 billion. Some of this will reflect impairments made on exposures to European economies (Box 2). But expected losses may be higher than incurred losses because they include future losses on loans that are currently not impaired, but which are at risk of becoming so.

To illustrate possible expected losses, three scenarios are considered: write-off rates returning to their pre-crisis average (1997 to 2007); write-off rates staying at their current level; and write-off rates rising to levels seen in the early 1990s recession. Applying these write-off rates to the largest four UK banks' existing customer loan books would suggest write-offs of around £100 billion, £140 billion and £150 billion respectively over the life of the loans (Chart 4.17). The residual maturity of the largest four UK banks' customer lending is estimated at around 4.5 years.

To plug the gap between the current impairment allowance and potential expected losses in the 1990s scenario, impairment charges would need to be around £17 billion each year for the residual maturity of the loans. This seems manageable when compared to annual impairment charges of £13 billion pre-crisis and around £35 billion currently.

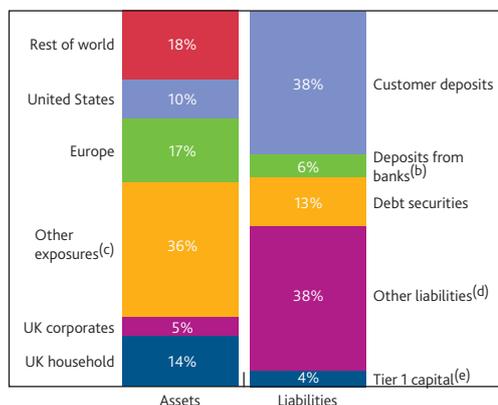
Chart 4.17 UK banks' current impairment allowances compared to potential expected losses in three illustrative scenarios^{(a)(b)}



Sources: Bank of England, BBA statistical abstract, FSA regulatory returns, published accounts and Bank calculations.

- (a) The chart shows potential losses for the largest four UK banks in three scenarios, based on the residual maturities of loan assets and rates of write-offs net of recoveries. The normalisation scenario uses a write-off rate of 1.0% which is based on write-off rates falling from the current rate to the 1997–2007 average rate. The current scenario uses the 2010 H1 annualised write-off rate of 1.4%. The 1990s scenario uses the average write-off rate during 1990–94 of 1.5%.
- (b) See footnote (b) in Chart 4.16.
- (c) Collectively, the green bars show the total additional impairments needed to cover the indicative loss in each scenario. Each shaded segment shows the value of impairments required per year, assuming these can be spread smoothly over the 4.5 year residual maturity of banks' loans. The four initial years in each scenario are therefore equal, while the value of impairments in the final year (the lightest segment) is around half of this.

Chart 4.18 Major UK banks' aggregate balance sheet at 2010 H1^(a)



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

- (a) Excludes Northern Rock.
- (b) Includes borrowing from major UK banks.
- (c) Includes (among other items) loans to UK-resident banks and other financial corporations and holdings of UK government debt.
- (d) Includes Tier 2 capital, short positions, insurance liabilities and derivative contracts with negative marked-to-market value.
- (e) Assets are not risk-weighted. As a percentage of risk-weighted assets, Tier 1 capital is 11.4%.

...and reducing profits.

But banks could face challenges if the level of write-offs were higher, for example because the output shock was more severe, or if impairment charges occurred more quickly, than in the scenarios considered above. And the impact on profits from higher impairments would be greater if profits are already lower because of other shocks, for example from an increase in the cost of funding, adverse fair value adjustments on trading book assets and a fall in investment banking revenues. Major UK banks also have sizable non-UK loan portfolios that could be sensitive to economic conditions in those countries (Chart 4.18). These headwinds would retard banks' ability to retain profits when transitioning to new regulatory standards (Section 5).

Investment banking revenues may continue to weaken.

Declines in FICC revenues in 2010 Q2 and Q3 have driven reductions in investment banking revenues. Banks reported that client activity was affected by uncertain market conditions and bid-ask spreads for FICC assets and equities have reverted to around pre-crisis levels. An exception is bid-ask spreads on government bonds, most of which have remained wider than pre-crisis. Revenues from underwriting and advisory services also fell for most LCFIs in 2010 H1, before rebounding slightly in Q3.

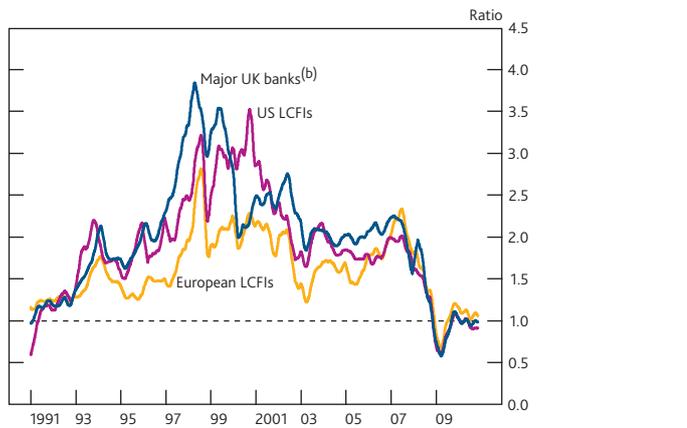
Analysts generally expect FICC to weaken further in 2011. Some expect that underwriting and advisory services will become a more important source of revenue as competition and future regulatory change affect revenues from trading. But views are mixed on the extent to which weaker FICC revenues will be offset by other investment banking activity.

In meeting new regulatory standards, the mix of capital retention and equity issuance is likely to vary across banks...

These factors could serve as a headwind to bank profitability at a time when banks internationally will need gradually to raise capital ratios to meet new regulatory standards. Achieving this without balance sheet shrinkage will require banks to retain a significant proportion of distributable earnings and/or raise new equity.

Price to book ratios suggest raising new equity may be an expensive option. Banks internationally are trading at ratios close to historic lows (Chart 4.19), with almost half having price to book values below one. This could imply that there is pressure on banks to shrink their balance sheets. There is variation in price to book ratios across banks' business models, with UK, US and Swiss LCFIs trading at lower price to book values than banks in those countries focused on retail and commercial lending. This suggests the business models of large universal banks are perceived by investors to be particularly uncertain.

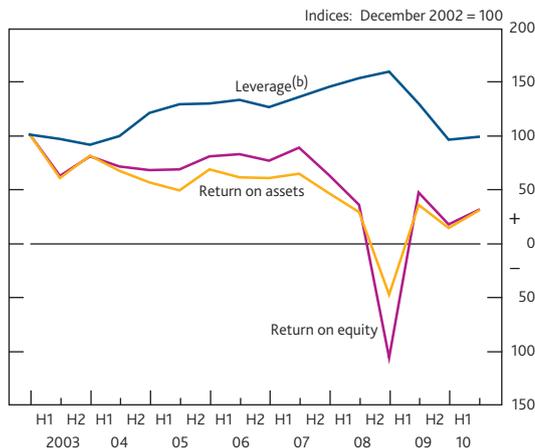
Chart 4.19 Major UK banks' and LCFIs' price to book ratios^(a)



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.

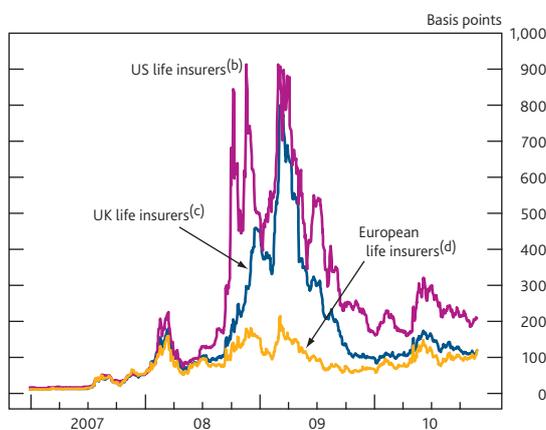
Chart 4.20 Major UK banks' pre-tax return on equity^(a)



Sources: Published accounts and Bank calculations.

- (a) Calculated based on end-period profits attributable to shareholders and shareholders' equity.
 (b) Leverage is defined here as total assets divided by shareholders' equity. This differs from the adjusted leverage measure used and described in Chart 4.10 and used elsewhere in the Report.

Chart 4.21 Life insurance companies' CDS premia^(a)



Sources: Bloomberg, Markit Group Limited and Bank calculations.

- (a) Based on representative sample of large insurers. Each insurer is weighted by total assets as at end-June 2010.
 (b) Includes Aflac, Hartford, MetLife, Principal Financial Group and Prudential US.
 (c) Includes Aviva, Legal & General and Prudential.
 (d) Includes Allianz, AXA, Generali and Munich Re.

...but lower leverage implies a lower return on equity.

Low price to book ratios mean that investors may be uncertain about the ability of some banks to generate a return on equity which meets their required return. This return can be split into two components: the return on assets and leverage. Over the period 1997 to 2007, UK banks' average return on assets declined by half, from 0.8% to 0.4%.⁽¹⁾ In response, banks sought to boost returns by increasing leverage (Chart 4.20). As asset prices rose, this supported returns to bank equity. But it also increased risk. Higher leverage then amplified losses to holders of bank equity during the crisis. This all reflected the effect of the search for yield on asset returns and risk.

Returns on bank assets have increased recently, linked in part to likely increases in the mark-up on new lending. But new regulatory standards mean that the leverage of major UK banks and LCFIs is unlikely to return to pre-crisis levels. So the return on bank equity may be lower. A materially lower headline return than pre-crisis may be consistent with the same risk-adjusted return for investors.

But there is some evidence that banks aim to deliver returns to equity holders which are close to pre-crisis levels. That would bring excessive risk-taking.

4.3 Resilience of other financial institutions and infrastructures

Financial stability depends on a range of other supporting institutions and infrastructures. For example, insurers provide risk transfer services and have also been important funders of banks; payment systems provide payment services; and central counterparty clearing houses and securities settlement systems facilitate trading.

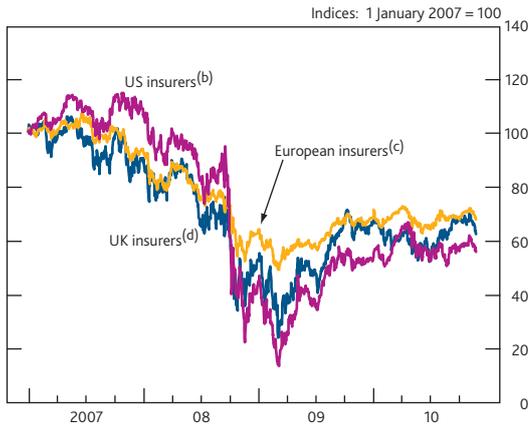
UK insurers have maintained resilience...

Market perceptions of the riskiness of UK insurers continues to recede. CDS premia have fallen sharply since the start of 2009 (Chart 4.21). Since their 2009 lows, equity prices have more than doubled (Chart 4.22). Looking ahead, market contacts suggest that the outlook remains largely positive across insurance sectors.

This helps to enable insurers to maintain funding to banks. Insurers are one of the largest global investors, with around £14 trillion of assets under management. Data on a sample of five large, global insurers suggests that they have invested around £240 billion, or 13% of their invested assets, in banks' and other financial companies' debt securities. Forthcoming regulation ('Solvency II') has the potential to change insurers' appetite for long-term bank debt (Section 5).

(1) Based on a peer group of banks used in Chart 5.10.

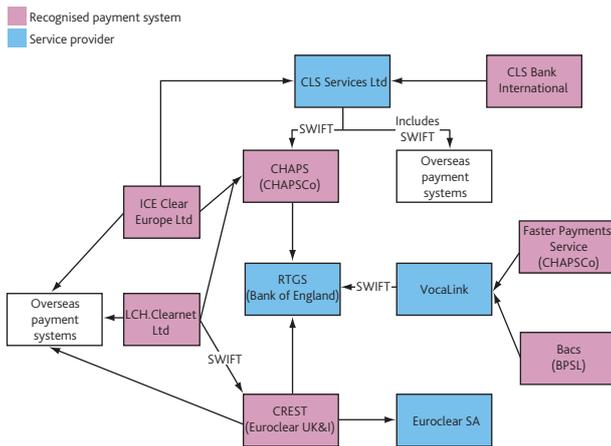
Chart 4.22 Insurers' equity prices^(a)



Sources: Bloomberg, Thomson Reuters Datastream and Bank calculations.

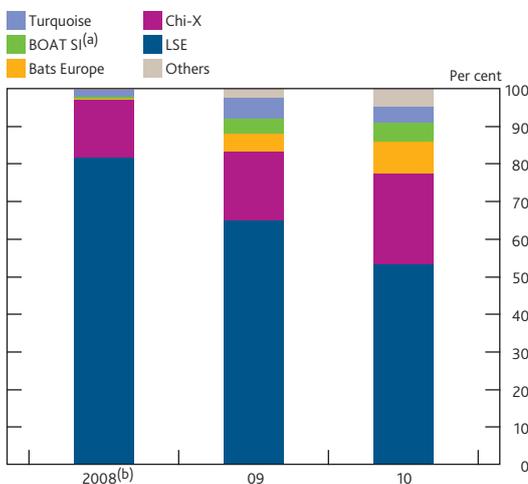
- (a) Based on representative sample of large insurers. Insurers in each index are not asset weighted.
- (b) Includes Aflac, Hartford, MetLife, Principal Financial Group and Prudential US.
- (c) Includes Allianz, AXA, Generali and Munich Re.
- (d) Includes Aviva, Legal & General and Prudential.

Figure A Overview of key payment systems



Source: Bank of England.

Chart 4.23 Venue market share for FTSE 100 trades by value



Sources: Fidessa Fragulator[®] and Bank calculations. Fragulator[®] is a registered trademark of Fidessa group plc.

- (a) BOAT SI comprises trades undertaken through systematic internalisers reported to Markit BOAT.
- (b) Between May and December 2008.

...as have UK payment systems...

Payment systems have exhibited high levels of operational availability since the June 2010 Report. However, the Bank continues to pursue further reductions in risk within these systems. Particular attention is being paid to payment arrangements where commercial bank risk exists, as this can act as a source of contagion through the financial system. There are also risks arising from indirect participation in payment systems (known as 'tiering') and from interdependencies between systems and their members and service providers (Figure A).

...but further action is required to ensure the robustness of post-trade infrastructures...

The G20 called for all standardised over-the-counter derivatives to be cleared through CCP clearing houses by end-2012. That goal is being pursued through legislation, including in the European Union. So in coming years there is likely to be continued growth in the volume and range of transactions that are centrally cleared and a corresponding broadening of the capital markets in which CCPs are systemically significant. In the light of this, Section 5 sets out actions CCPs need to take to strengthen risk management.

The crisis has demonstrated the importance of ensuring that CCPs hold sufficient resources, in the form of collateral and default fund contributions, to protect against the default of their members. Lehman Brothers' failure provides a sense of the scale of these default risks. It required the use of around £700 million of the collateral delivered by Lehman to LCH.Cleernet, and over US\$2 billion of the collateral delivered to Chicago Mercantile Exchange.

...and in equity markets.

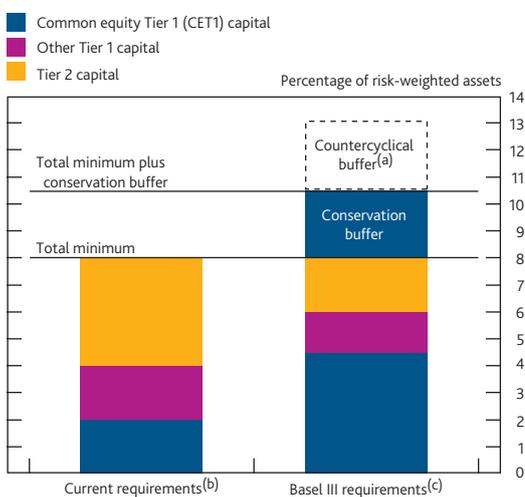
The 'Flash Crash' on 6 May 2010, when liquidity and prices fell sharply in US equity and futures markets, has highlighted questions about equity market microstructure. These events may have been exacerbated by increased use of algorithmic trading and fragmentation of liquidity across multiple trading venues (Chart 4.23). Currently about 50% of total trading volume in US and European equities is algorithmic. This has been accompanied by a significant decline in holding periods for equities and other instruments. Together these changes may mean that liquidity is less resilient in some circumstances. The international authorities are assessing the risks brought by these developments and the suitability of risk controls including cross-market circuit breakers.

5 Preserving financial stability

Policymakers internationally have agreed a package of reforms to capital and liquidity standards for banks, to be introduced over an extended transition period. Risks to the real economy would be reduced by banks adjusting gradually to the new requirements by increasing capital levels rather than restricting lending. Restraint on distribution of profits to equity holders and staff can help to support a smooth transition.

There is broad international consensus that systemically important banks should have greater loss-absorbing capacity, the size and composition of which will be determined during 2011, and be subject to effective resolution regimes. The Bank believes that future priorities for strengthening the resilience of the financial system should include improved risk management at central counterparties and a fundamental review of capital requirements for banks' trading book exposures. Policymakers also need to be alert to the risk of financial activities migrating outside the regulatory perimeter in ways that could threaten financial stability.

Chart 5.1 Comparison of current and Basel III capital requirements



Sources: BIS and Bank calculations.

- (a) Common equity or other fully loss-absorbing capital.
 (b) There is no explicit Basel II standard mandating a 2% minimum CET1 requirement, but it is generally understood that CET1 should form the predominant part of Tier 1 capital.
 (c) The definition of capital will be strengthened under Basel III through new deductions from CET1 capital.

This section identifies the main challenges currently facing the UK financial system as it transitions to new internationally agreed regulatory requirements. It also reviews progress on policy initiatives to strengthen the structural resilience of the financial system.

5.1 The prudential policy conjuncture

The current conjuncture presents a number of risks for UK banks. These risks underline the importance of the new strengthened prudential requirements — the Basel III package — announced by policymakers internationally in September.⁽¹⁾

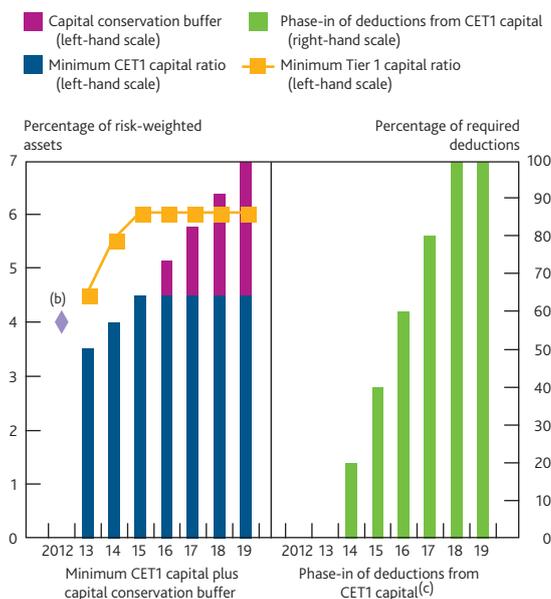
New capital requirements have been agreed internationally...

Basel III will substantially increase both the quality and quantity of capital and liquidity in the banking system. Banks will in future be required to hold larger amounts of capital, comprised principally of common equity that can absorb losses on a 'going concern' basis without the intervention of the resolution authority (Chart 5.1). The definition of common equity capital is also being tightened, for example by deducting intangible assets such as goodwill.⁽²⁾

(1) See Basel Committee on Banking Supervision, *Group of Governors and Heads of Supervision announces higher global minimum capital standards*.

(2) There will be limited exemptions for other deductions such as deferred tax assets and investments in other financial institutions.

Chart 5.2 Phase-in arrangements for Basel III changes to regulatory capital requirements^(a)



(a) Phase-in arrangements will be effective from 1 January each year.
 (b) Diamond represents current 4% FSA regulatory core Tier 1 capital requirement.
 (c) The definition of capital will be strengthened under Basel III through new deductions from CET1 capital.

In addition, banks will need to hold two capital buffers above the regulatory minimum:

- a capital conservation buffer intended to absorb losses in times of stress; and
- a countercyclical buffer intended to rise during periods of excessive credit growth so that the financial system remains resilient to the subsequent downturn.

The capital conservation buffer will be set at 2.5% of risk-weighted assets and will consist entirely of common equity. The same principle should apply to the countercyclical buffer in order to guarantee sufficient loss-absorbency in the downswing. It has been agreed internationally that the countercyclical buffer will vary between zero and 2.5% of risk-weighted assets depending on the position of the domestic credit cycle. The Bank believes it is important for national authorities to retain discretion to impose larger countercyclical buffers on domestically regulated banks.

The introduction of these buffers ensures that the minimum proportion of banks' balance sheets that must be financed by common equity will increase to 7% of risk-weighted assets at a neutral point in the credit cycle, rising to 9.5% at the peak. This constitutes a significant strengthening relative to Basel II, under which the minimum common equity requirement was in effect below 2% on a like-for-like basis.⁽¹⁾ The transition period for these policies will begin in 2013 and last for six years (Chart 5.2).

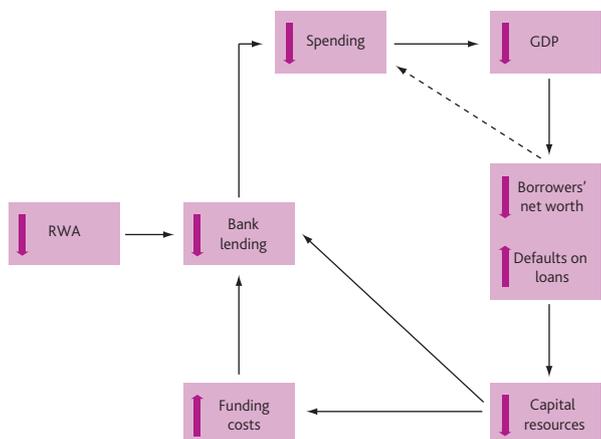
...to which banks should adjust by raising capital levels rather than restricting lending...

All Basel III capital requirements are specified in terms of ratios. This means that banks can adjust to the new standards either by increasing common equity (raising the numerator in regulatory capital ratios) or by reducing risk-weighted assets (lowering the denominator).

The purpose of the extended transition period is to allow banks internationally to adjust gradually to the new requirements. Ideally, they would do so organically through retained earnings or by issuing new equity. If banks internationally had to adjust quickly, they might do so by cutting risk-weighted assets. The resulting restriction in domestic and cross-border credit could stifle economic recovery and further weaken the resilience of the financial system (Figure A).

A gradual transition is not without precedent. Bank capital ratios across G10 countries rose gradually following the introduction of the original Basel Accord in the late 1980s

Figure A The vicious cycle of reducing risk-weighted assets (RWAs)^(a)

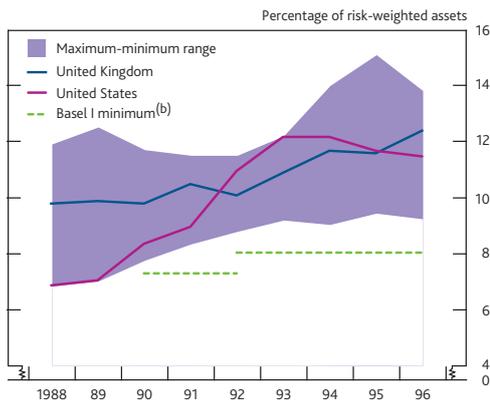


Source: Bank of England.

(a) This figure assumes that banks reduce RWAs by reducing lending.

(1) Owing to changes in the definition of capital, 2% common equity under Basel III represents greater loss-absorbing capacity than the same amount of common equity under Basel II.

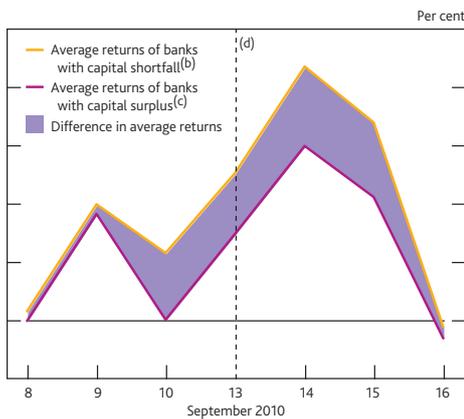
Chart 5.3 Total capital ratios in G10 countries^(a)



Sources: Jackson, P, Furfine, C, Groeneveld, H, Hancock, D, Jones, D, Perraudin, W, Radecki, L and Yoneyama, M (1999), 'Capital requirements and bank behaviour: the impact of the Basle Accord', Basle Committee on Banking Supervision Working Paper No. 1 and Bank calculations.

- (a) Purple band represents the maximum-minimum range within G10 countries.
- (b) The Basel I transition period started in 1988. By end-1990, the minimum total capital ratio was 7.25%. From end-1992, the minimum requirement became 8%.

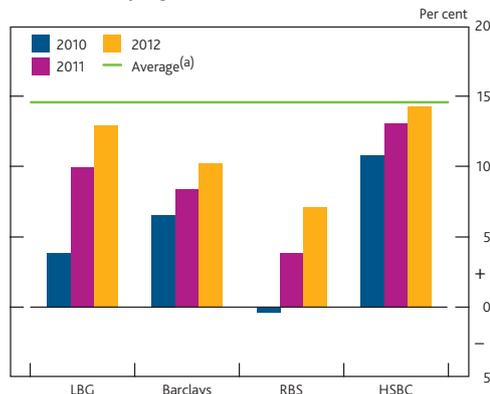
Chart 5.4 Market reaction to September Governors and Heads of Supervision (GHOS) announcement on Basel III^(a)



Sources: Autonomous broker reports, Bank of America Merrill Lynch, Capital IQ and Bank calculations.

- (a) GHOS announcement was made on 12 September 2010.
- (b) Average five-day return for the ten banks with the largest shortfall according to Bank of America Merrill Lynch and Autonomous broker reports (out of a sample of 37 major European and US banks) between end-2009 CET1 capital ratios on Basel III definitions and the new 7% Basel III target ratio.
- (c) Average five-day return for the ten banks with the largest surplus according to Bank of America Merrill Lynch and Autonomous broker reports (out of a sample of 37 major European and US banks) between end-2009 CET1 capital ratios on Basel III definitions and the new 7% Basel III target ratio.
- (d) Vertical line shows the first trading day after the GHOS announcement.

Chart 5.5 Analyst forecasts for selected major UK banks' return on equity



Sources: Bloomberg and Bank calculations.

- (a) Average return on equity between 2002 and 2006 for a sample of the largest UK banks and building societies or their UK banking operations where disclosed separately.

(Chart 5.3). And initial market reaction to the September Basel III announcement suggested that the market expected banks to take advantage of the extended transition period agreed by policymakers: the equity prices of banks perceived by some market participants to face greater challenges in complying with Basel III standards outperformed other banks (Chart 5.4).

There may be factors that constrain the availability of external equity for banks, at least in the short term. For example, potential investors may be uncertain over the effects of future regulation and structural reform of the financial system. The release of the final Basel III 'rules text' should help to overcome some of this uncertainty.

Market analysts may also at present be anticipating too high a return on equity — for example by basing their expected returns on periods when the banking system was more highly leveraged (Section 4). These analysts are forecasting that some major UK banks will generate returns on equity by 2012 not far below those achieved in the pre-crisis period (Chart 5.5). But the tighter regulatory requirements introduced by Basel III will reduce leverage in the banking system and should, in principle, decrease the nominal (risk-unadjusted) return on equity demanded by investors.

...and the Bank is content for banks to use the agreed transition period.

Market estimates of banks' end-2009 Basel III capital ratios and future profitability suggest that, by maintaining historical retention rates, the major UK banks could meet the new capital requirements by the end of the transition period, while still increasing risk-weighted assets by around 7% per annum — roughly comparable to the average for these banks between 1998 and 2003. Adjusting more quickly would require slower balance sheet growth unless retention rates were increased (Chart 5.6).

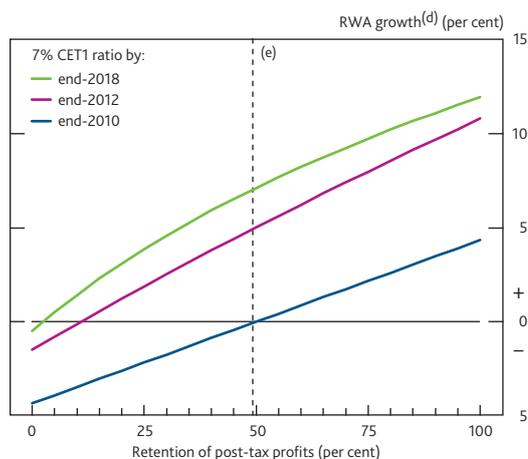
Prudent distribution of profits to equity holders and staff would allow banks to raise capital internally. For example, if discretionary payments to staff took the form of equity or other loss-absorbing capital, this would help boost banks' capital. There are also risk-sharing and incentive benefits to paying staff and shareholders in these instruments, perhaps especially through contingent capital or subordinated debt.⁽¹⁾

UK banks are tackling their ongoing funding challenge...

UK banks have made good progress on their funding challenge during 2010 and have repaid around 40% of total borrowings under the Bank's Special Liquidity Scheme. But their refinancing needs step up next year (Section 4). As with the

(1) See, for example, remarks by Andrew Haldane (*Central Banking* magazine interview, August 2010) and Paul Tucker ('Values and trust' Mansion House Conference, October 2010).

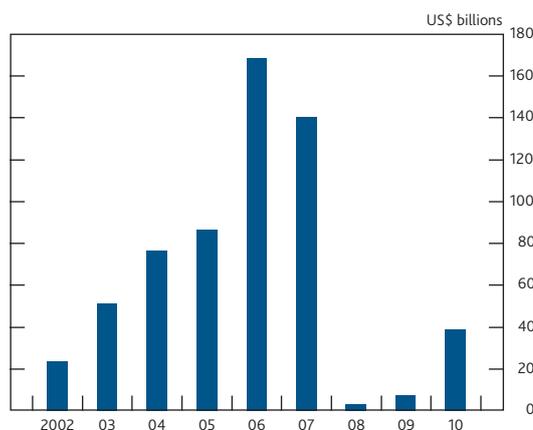
Chart 5.6 RWA growth consistent with transition to 7% common equity ratio^{(a)(b)(c)}



Sources: Bloomberg, Citibank, Deutsche Bank, Thomson Reuters Datastream, UBS and Bank calculations.

- (a) Banks in sample: Barclays, HSBC, LBG and RBS.
 (b) Uses an average of broker estimates (Citi, Deutsche Bank and UBS) for end-2009 Basel III capital ratios. All three brokers estimate 2009 Basel III capital ratios for the four banks in the sample. Deutsche Bank estimates for nominal capital levels are used to construct a weighted average Basel III ratio across the four banks in the sample.
 (c) Uses Bloomberg consensus forecasts for pre-tax profit and HMT-announced corporation tax rates for 2010–13. After 2013, assumes 6.5% annual growth in post-tax profit (historical average for UK banks over the period 1965–2008).
 (d) Annualised growth relative to the level of risk-weighted assets at end-2009.
 (e) Mean retention rate for UK banks over the period 1965–2008 (49%).

Chart 5.7 UK RMBS issuance^{(a)(b)}



Sources: Dealogic and Bank calculations.

- (a) Non-retained issuance.
 (b) 2010 data are to end-November 2010.

Table 5.A Characteristics of housing finance in selected economies

	Prevalence of long-term fixed-rate mortgages (>10 years)	Government support	
		Guarantees for RMBS	Purchases of RMBS
United Kingdom	Low	✗	✗
Australia	Low	✗	✓ ^(a)
Canada	Low	✓	✓
Netherlands	Medium	✗	✗
Denmark	Medium	✗	✗
United States	High	✓	✓

Sources: Bank of England, Canadian Mortgage and Housing Corporation, Council of Mortgage Lenders, European Mortgage Market Federation, Federal Housing Finance Agency and Lea, M (2010), 'Alternative forms of mortgage finance: what can we learn from other countries?', paper prepared for Harvard Joint Center for Housing Studies National Symposium on 'Moving Forward: the future of consumer credit and mortgage finance', April.

- (a) In 2008 the Australian Office of Financial Management launched a temporary program to invest in RMBS to support competition in mortgage lending and lending to small business.

transition to higher capital requirements, banks may try to meet their funding challenge by reducing lending to the real economy. A better path for the system as a whole would be for banks to pre-fund maturing debt and extend its maturity. This would also create a buffer against future stress in funding markets.

The funding challenge could be eased by initiatives to deepen the market for long-term bank debt. For example, primary residential mortgage-backed securities (RMBS) issuance in the United Kingdom essentially ceased during the crisis and has since recovered only slowly (Chart 5.7). Improved transparency and disclosure standards in these markets could help to stimulate investor demand, as discussed in a recent paper by the Government.⁽¹⁾

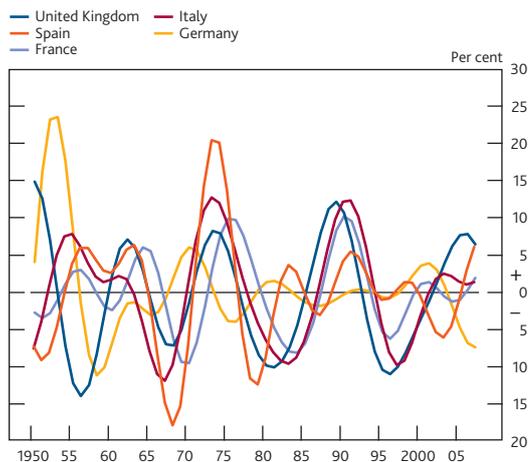
...and initiatives to increase investor appetite for longer-term bank debt would also help.

Only a very small proportion of UK mortgages are issued with rates fixed for longer than ten years. This means that RMBS issued by UK banks are typically backed by a revolving pool of mortgage assets, often governed by a Master Trust.⁽²⁾ But RMBS structured in this way tend to be relatively opaque and less attractive to unleveraged investors. They can also generate perverse incentives for banks to extend new mortgages to avoid early repayment of outstanding RMBS issued under a Master Trust.

If UK banks were to extend more long-term fixed-rate mortgages, these could be used to issue RMBS backed by a static pool. These instruments would match the requirements of natural long-term unleveraged investors — such as insurance and pension funds — with banks' need to lengthen the maturity of their funding. This model currently exists in other countries, although in some cases government support is provided (Table 5.A). The Bank believes that this type of support can lead to financial stability risks.

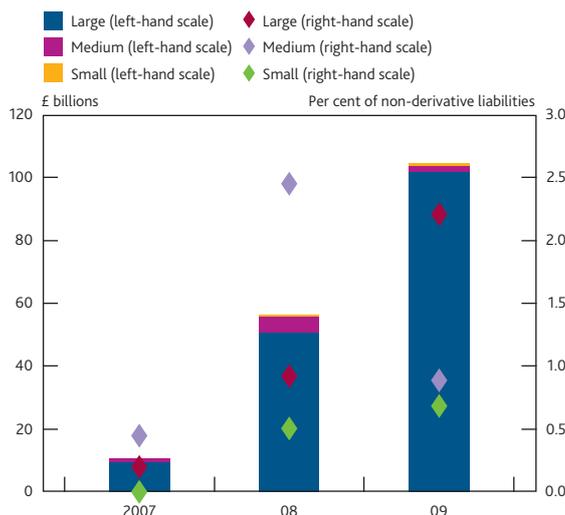
Investor demand for bank debt may also be affected by changes to regulatory rules for non-bank financial institutions. New capital requirements for insurers operating in the European Union (Solvency II) are currently being finalised. Some market participants have raised concerns that Solvency II may reduce insurers' incentives to invest in longer-term bank debt. Given that insurers are also required to hold capital against duration mismatch, there will be strong incentives not to adjust asset duration too far. The net effect on insurers' demand for term bank debt is unclear. But it may be appropriate to factor the potential impact into the transition arrangements for Solvency II.

- (1) See HM Treasury and the Department for Business, Innovation and Skills, *Financing business growth: the Government's response to financing a private sector recovery*.
 (2) See Box 1 in the December 2009 Report.

Chart 5.8 Credit cycles across European economies^(a)

Sources: Schularick, M and Taylor, A (2009), 'Credit booms gone bust: monetary policy, leverage cycles and financial crises, 1870–2008', *National Bureau of Economic Research Working Paper no. 15512* and Bank calculations.

(a) Cyclical fluctuations around trend real loan growth. A band-pass filter has been applied to these series. For more detail see Nelson, B, Aikman, D and Haldane, A (2010), 'Curbing the credit cycle', speech at the Columbia University Center on Capitalism and Society Annual Conference, November.

Chart 5.9 Estimated size of total implicit funding subsidy to UK banks and building societies split by size^{(a)(b)(c)}

Sources: Bank of America Merrill Lynch, Bankscope published by Bureau van Dijk Electronic Publishing, Moody's and Bank calculations.

- (a) The implicit subsidy is calculated by comparing the difference in funding costs calculated at end of year for individual UK banks and building societies, based on the difference in the average funding cost of UK financial institutions rated at the support rating and the average funding cost for UK financial institutions rated at the standalone rating. This difference is then multiplied by the rating-sensitive liabilities of the bank or building society.
- (b) Rating-sensitive liabilities are defined as deposits from banks and other financials, financial liabilities designated at fair value, debt securities in issue (excluding securitisations) and subordinated liabilities.
- (c) The 'large' category includes Barclays, HSBC, Lloyds TSB and RBS. The 'medium' category includes Nationwide and Northern Rock (until 2008). The 'small' category includes Chelsea, Coventry, Leeds, Principality, Skipton, West Bromwich and Yorkshire Building Societies.

5.2 Strengthening financial system structural resilience

A number of important financial sector reforms have been announced over the past six months, in line with the priorities identified in previous *Reports*. But there remains more to do in several areas.

Financial regulation should adopt a more macroprudential perspective...

Experience during the crisis underlines the importance of managing risks to the financial system as a whole — a macroprudential approach to financial regulation. In July, the Government published legislative proposals that would establish a Financial Policy Committee (FPC) within the Bank, with responsibility for macroprudential policy.⁽¹⁾ The FPC will liaise closely with a number of similar bodies internationally, including the European Systemic Risk Board and the Federal Reserve (as well as the Financial System Oversight Council) in the United States.

The European Union is beginning to implement Basel III through revisions to the Capital Requirements Directive (CRD4). It is important that CRD4 provides sufficient flexibility for national policymakers (such as the FPC) to adjust regulatory requirements to achieve macroprudential objectives. Maximum harmonisation of Basel III standards across the European Union would limit policymakers' ability to vary regulatory requirements countercyclically to reduce the build-up of risk. Cycles in credit are currently not closely synchronised across European countries (**Chart 5.8**) and experience from previous financial crises reveals significant differences in the magnitude of losses incurred by banks when a period of exuberance unwinds.⁽²⁾ This suggests national discretionary tools are necessary to curb exuberance.

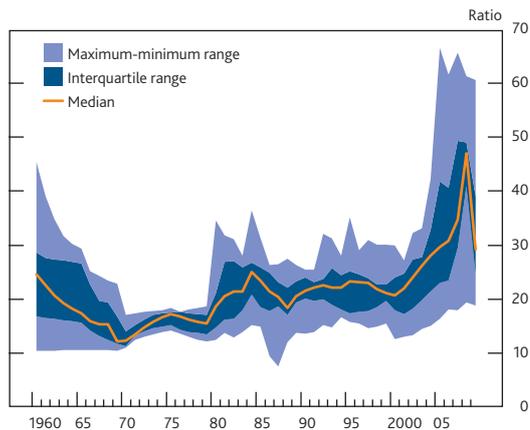
...and tackle risks stemming from systemically important financial institutions...

The distress or failure of a systemically important financial institution (SIFI) is likely to entail large-scale economic costs. These costs engender expectations of government support and so allow SIFIs to benefit from an implicit funding subsidy from taxpayers (**Chart 5.9**). This subsidy encourages SIFIs to rely more heavily on debt finance (**Chart 5.10**) and to take on additional risk to maximise the value of the subsidy.

Breaking this self-reinforcing cycle is a key priority for policymakers internationally. In November, the G20 endorsed a policy framework developed by the Financial Stability Board (FSB) for mitigating the systemic risks associated with SIFIs, in

(1) See HM Treasury, *A new approach to financial regulation: judgement, focus and stability*.

(2) See Basel Committee on Banking Supervision, *Calibrating regulatory minimum capital requirements and capital buffers: a top-down approach*.

Chart 5.10 UK banks' leverage^{(a)(b)}

Sources: Published accounts and Bank calculations.

(a) Ratio of total assets to shareholders' claims.

(b) The data are a backwardly consistent sample of institutions providing banking services in the United Kingdom in 2009. The sample includes the following financial groups: Barclays, Bradford & Bingley, HSBC, Lloyds Banking Group, National Australia Bank, Nationwide, Northern Rock, RBS and Santander UK. Where data are consistently available for the UK component of the banking group, these have been used.

particular those with a global reach (G-SIFIs).⁽¹⁾ The FSB and relevant national authorities will identify these institutions over the course of 2011.

The FSB framework comprises two key requirements:

- G-SIFIs should have greater capacity to absorb losses than the minimum standards established by Basel III; and
- all G20 jurisdictions should ensure that all financial institutions can be resolved safely and without government solvency support.

...by increasing their capacity to absorb losses and ensuring that resolution is a credible last resort option...

The Basel Committee on Banking Supervision (BCBS) is currently developing a proposal for measuring the systemic importance of banks to inform calibration of the greater loss-absorbency requirement (Box 4). The capital held by a G-SIFI should be in the form of common equity or other loss-absorbing instruments, the design of which will be explored by the FSB and the BCBS in 2011. This requirement will also encourage G-SIFIs to adjust their balance sheets or business models to reduce the economic consequences of their distress or failure.

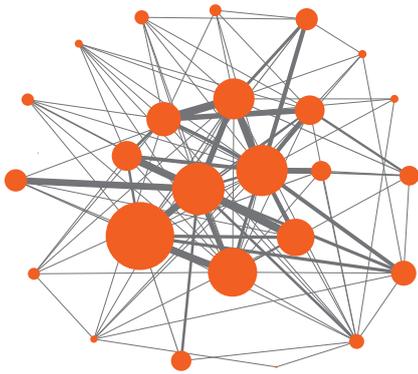
The FSB will also establish criteria for assessing the resolvability of SIFIs. A key consideration is the ease with which banks' essential 'utility' services (such as payment services and credit intermediation) could be maintained in the event of significant financial distress. For that reason, alongside the tools for resolution in the US Dodd-Frank legislation, the Bank supports the planned work by the FSB on how best to introduce statutory powers that would allow resolution authorities to 'bail-in' certain uninsured (unsecured) creditors of a failed bank. The capital required to maintain continuity of essential financial services would then be provided by existing creditors rather than the taxpayer.

The Bank believes that special resolution tools should extend to other potentially systemic institutions, including investment banks and at least some market infrastructures (including CCPs), in order to ensure continuity of service in the event of significant financial distress. The Bank also supports further international work on whether contractual clauses in capital instruments could deliver write-down or conversion into common equity in ways that strengthen resilience (Box 5).⁽²⁾

(1) See Financial Stability Board, *Reducing the moral hazard posed by systemically important financial institutions*.

(2) The Basel Committee has agreed the broad elements of a proposal to require the inclusion of contractual clauses of this kind in capital instruments (other than common equity), following an earlier public consultation.

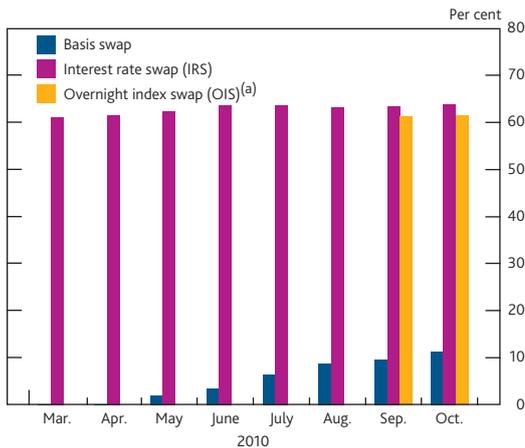
Chart 5.11 Network of large exposures between UK banks^{(a)(b)(c)}



Source: FSA regulatory returns.

- (a) A large exposure is one that exceeds 10% of a lending bank's eligible capital at the end of a period. Eligible capital is defined as Tier 1 plus Tier 2 capital, minus regulatory deductions.
- (b) Each node represents a bank in the United Kingdom. The size of each node is scaled in proportion to the sum of (1) the total value of exposures to a bank, and (2) the total value of exposures of the bank to others in the network. The thickness of the line is proportional to the value of a single bilateral exposure.
- (c) Based on 2009 Q2 data.

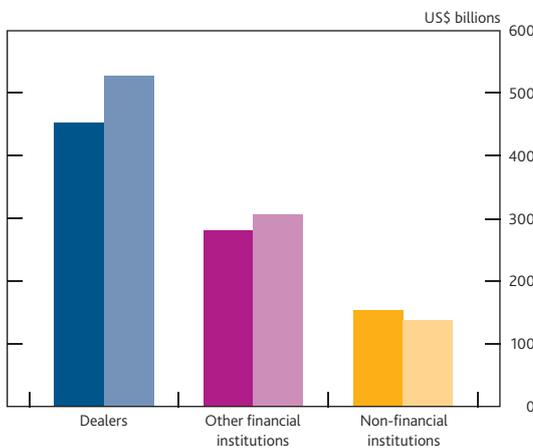
Chart 5.12 Share of total market notional value of interest rate swaps cleared via CCP



Sources: TriOptima and Bank calculations.

- (a) Prior to September 2010 OIS data were reported with IRS data.

Chart 5.13 Gross market values of FX forwards and swaps^{(a)(b)(c)}



Source: BIS.

- (a) Data are to end-June 2010.
- (b) Darker bars illustrate a positive value. Lighter bars illustrate a negative value.
- (c) Counterparty breakdown partially estimated.

...which will sharpen market discipline and reduce implicit taxpayer subsidies.

These measures would strengthen market discipline by ensuring that investors in banks' debt liabilities expect to incur losses in the event of failure. The implicit subsidy enjoyed by SIFIs could thus be reduced, increasing banks' costs of funding for any given quantum of risk. In addition, to overcome the 'too big to fail' problem, the following policy actions could be considered:

- further improvements to market infrastructure that reduce network complexity and limit contagion risk through counterparty exposures;
- institutional reforms that separate banks' activities on a functional basis; and
- restrictions on large exposures between financial institutions to reduce the level of connectivity within the financial system (Chart 5.11).

In the United Kingdom, these and other reforms to the structure of banks and markets are currently being considered by the Independent Commission on Banking established by the Government earlier in the year.⁽¹⁾

Clearing longer-dated FX forwards and swaps through central counterparties should be evaluated...

Since the crisis, central counterparties (CCPs) have broadened the range of contracts they clear, notably for interest rate and commodity derivatives (Chart 5.12). The proportion of over-the-counter (OTC) trades centrally cleared has continued to rise, albeit from a low base in some markets. These trends are consistent with the G20 commitment to clear standardised OTC derivatives through CCPs.

There is less international consensus on whether foreign exchange (FX) forwards and swaps should be cleared through CCPs. This should depend on the amount of risk potentially reduced by central clearing. One measure of the risk in derivatives transactions is the replacement cost — the difference between the current value of a contract and its value at inception. According to the BIS, the total gross replacement cost for FX forwards and swaps amounted to US\$900 billion in June 2010 (Chart 5.13).

To reduce risk, replacement cost exposures for FX forwards and swaps are typically netted — along with those for other derivatives — on a bilateral basis between market counterparties under master legal agreements. This reduces the size of exposures substantially: the BIS estimates that netting reduced total replacement costs across all derivatives

(1) See Independent Commission on Banking, *Issues paper: call for evidence*.

Box 4 Assessing the systemic importance of banks

Assessing and regulating banks according to their importance to overall financial stability and the wider economy is a key objective for policymakers. This box describes how the systemic importance of banks could be characterised and assessed.

Assessing systemic importance

The IMF, BIS and FSB (2009) identify three characteristics that can serve as a basis of a framework for assessing a bank's systemic importance: size; interconnectedness; and (lack of) substitutability.⁽¹⁾ There are two general approaches to informing assessments of banks' systemic importance: model-based and indicator-based.

Model-based approaches

There is a small but growing literature of models constructed to measure banks' contributions to systemic risk.

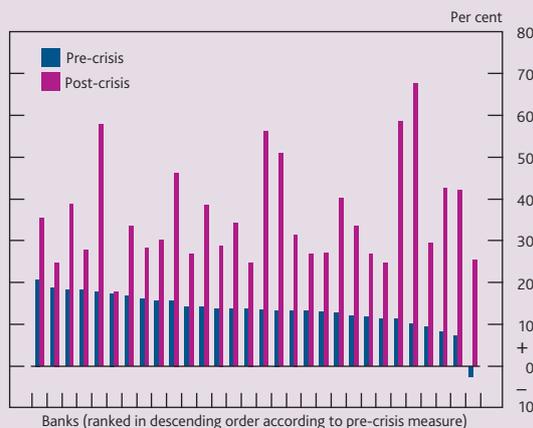
Some models use comovements in bank equity prices or credit default swap (CDS) premia to estimate measures of systemic importance, such as Conditional Value at Risk (CoVaR).⁽²⁾

Chart A shows a measure of systemic importance, based on CoVaR, estimated for a set of large global banks' CDS premia. A higher value indicates greater systemic importance.⁽³⁾ On the horizontal axis, banks are ranked in descending order using the measure estimated before the crisis. The magenta bars show the same measures for the banks but estimated after the start of the crisis. As expected, the measures are much higher if estimated after the start of the crisis, reflecting the greater volatility of CDS premia. But the relative values of the measure are also different — some banks that appear relatively less systemically important estimated pre-crisis appear relatively more so after the start of the crisis, on this measure.

The chart illustrates some of the key shortcomings in such market-based approaches. Market prices might not capture well the systemic importance of banks. One reason for this may be the collective tendency to underestimate risk in an upswing and be overly risk-averse in a downswing. Investors may also factor in the prospect of a bank receiving government support if it was to suffer problems. Comovements in market prices also do not reveal *why* precisely a bank is systemically important, which is useful in deciding what policy tools could be used to reduce it.

Other approaches use more structural models to generate measures of systemic importance. These models do not necessarily use information from market prices and are designed to capture more explicitly the size, interconnectedness and lack of substitutability aspects of

Chart A Banks' contributions to tail risk in the banking system^(a)



Sources: Thomson Reuters Datastream and Bank calculations.

(a) The blue bars show the average effect that a bank has on other banks' 95% VaRs estimated for a sample of global banks' CDS premia from January 2005 to April 2007, ranked in descending order. The magenta bars show the same measures for banks estimated using CDS premia from May 2007 to September 2010.

systemic importance. For example, Gauthier, Lehar and Souissi (2010) use a macro stress-testing model to estimate a range of measures of systemic importance for a set of banks.⁽⁴⁾ To capture interconnectedness, their model uses data on bilateral exposures between banks. These data are not currently available at an international level (see below).

Indicator-based approaches

Another approach is to build up a set of indicators of the characteristics that make a bank systemically important. These could include the value of total assets (size), the value of intrafinancial system assets and liabilities, holdings of illiquid financial securities (both interconnectedness), the share of OTC derivatives market and assets held under custody (both substitutability). Some central banks have used such an approach to identify systemically important financial institutions for risk assessment purposes.⁽⁵⁾

Indicator-based measures of systemic importance can be used as a rule of thumb for calibrating the risks associated with systemically important banks. Banks' capital buffers could be adjusted in line with systemic importance. A bank with a weighted sum of indicator scores exceeding a threshold level of systemic importance would hold a higher systemic capital buffer. This would be set such that the 'expected systemic importance' (the probability of failure multiplied by an indicator score) equalled an expected threshold level of systemic risk.⁽⁶⁾ This calibration approach is relatively simple and links greater loss-absorbency requirements to characteristics that banks can control themselves to reduce their systemic importance.

Given the relatively early stage of development of modelling approaches, an indicator-based approach is likely to be the

most practical way to carry out an assessment of systemic importance and to determine loss-absorbency requirements. This approach will need to be combined with judgements by policymakers, as the FSB recommendations for systemically important financial institutions sets out.

What data are needed to more accurately assess systemic importance?

Assessing systemic importance, like many other areas of systemic risk analysis, is constrained by gaps in the availability of data for some relevant indicators. Two of the most important gaps are:

- (i) **Bilateral exposures:** data on the network of bilateral exposures between individual banks are not currently available for a wide range of banks at a global level. This gap hinders policymakers' ability to identify banks that might be critical hubs in the international financial system and that might pose greatest contagion risk if they fail. It also limits the practical use of structural macro stress-testing approaches to identify globally systemically important financial institutions.
- (ii) **Common exposures:** consistent and granular data on individual banks' exposures to particular asset classes and sectors constitute another data gap. These data could be used to assess concentration risk and gauge the likelihood that banks incur losses simultaneously.

In October 2009, the FSB and the IMF submitted a report to the G20 setting out 20 recommendations to tackle data gaps exposed by the financial crisis.⁽⁷⁾ Several international initiatives are now under way in response. The FSB is co-ordinating work to develop a common template for the collection of data on systemic interlinkages between financial institutions. Depending on both the data coverage of such a template and its institutional scope, data on bilateral exposures and common exposures could become available in time to assist policymakers in assessing the systemic importance of individual banks.

-
- (1) 'Guidance to assess the systemic importance of financial institutions, markets and instruments: initial considerations', Report to G20 Finance Ministers and Governors, October 2009.
 - (2) Acharya, V V, Pedersen, L, Philippon, T and Richardson, M (2010), 'Measuring systemic risk', *mimeo*. Adrian, T and Brunnermeier, M K (2009), 'CoVaR', *mimeo*.
 - (3) This measure is the difference between the value of the 95th percentile of the conditional distribution of bank *j*'s CDS premium (conditional on bank *i*'s CDS premium being equal to the 95th percentile of the distribution of its CDS premium) and the unconditional value of the 95th percentile of the distribution of bank *j*'s CDS premium as a percentage of the unconditional value.
 - (4) Gauthier, C, Lehar, A and Souissi, M (2010), 'Macroprudential regulation and systemic capital requirements', *Bank of Canada Working Paper no. 2010-4*.
 - (5) 'Identifying large and complex banking groups for financial system stability assessment: an update', *European Central Bank Financial Stability Review*, December 2007.
 - (6) This type of approach to calibrating systemic buffers is discussed in 'The role of macroprudential policy', *Bank of England Discussion Paper*, November 2009.
 - (7) 'The financial crisis and information gaps', Report to G20 Finance Ministers and Governors, October 2009.

Box 5 Contingent capital

Policymakers internationally have agreed that systemically important financial institutions (SIFIs) should be subject to higher loss-absorbency standards.⁽¹⁾ One way of achieving this objective is to require SIFIs to issue additional common equity. Alternatively, they could be required to include in their debt instruments contractual clauses that would mandate write-down or conversion into common equity, contingent on a 'trigger' event. This, too, results in greater loss-absorbing capacity.

Policymakers and market participants are currently considering how 'contingent capital' instruments of this kind could be designed. This box discusses two types of contingent capital:

- 'precautionary' contingent capital, designed to absorb losses in the relatively early stages of financial distress; and
- 'non-viability' contingent capital, designed to absorb losses when a bank is on the verge of failure.

Although similar in many respects, these two types of contingent capital instruments have different objectives. Precautionary contingent capital aims to enhance loss-absorbency before a bank encounters serious financial distress — a contractual form of prompt corrective action. Non-viability contingent capital, by contrast, aims to avoid bankruptcy costs and otherwise ensure that losses incurred by a failed bank fall on its (uninsured) investors.

Precautionary contingent capital

Financial distress at a SIFI could entail substantial economic costs. These costs stem partly from the behavioural response of a distressed SIFI, including asset sales into illiquid markets, reduced lending to the real economy and reduced participation in key money and capital markets. They would be significantly greater if a SIFI were to reach the point where it is no longer viable as an independent business. Precautionary contingent capital instruments aim to head-off this outcome by enhancing the ability of SIFIs to absorb losses well before they approach the point of non-viability.

The design of the trigger event is crucial in this respect. It could, for example, specify that write-down or conversion would occur when the regulatory capital ratio of the issuing bank (or a market measure of its financial condition) drops below a certain threshold. The threshold would be transparent to investors, would not rely on regulatory discretion, and should be set at a level that ensures write-down or conversion into common equity occurs sufficiently early to absorb losses while the issuing bank remains relatively healthy.

Non-viability contingent capital

By contrast, non-viability contingent capital instruments would be structured to absorb losses at a much later stage. The trigger event would be a determination by the relevant authorities that the issuing bank is no longer viable.

Once a bank is declared non-viable, the priority for the authorities is to preserve continuity of essential financial services while ensuring that losses fall on uninsured investors rather than taxpayers. For small and medium-sized banks with relatively simple internal structures, this can be achieved using statutory tools such as the United Kingdom's Special Resolution Regime. Further improvements to these tools should, over time, help to ensure that SIFIs can also be resolved in an orderly fashion, without placing taxpayer funds at risk.

Non-viability contingent capital instruments help to ensure that losses fall on uninsured investors, irrespective of whether a failed bank is placed in a statutory resolution regime. As such, contractual clauses requiring debt to write down or convert into common equity at the point of non-viability can perform a valuable role in enhancing market discipline and avoiding bankruptcy costs.

Investor demand for contingent capital

Investor appetite for both types of contingent capital instrument remains untested, with limited issuance by international banks to date. This partly reflects uncertainty over the future regulatory treatment of these instruments. The Financial Stability Board (FSB) intends to consider their role in reducing the systemic risks stemming from SIFIs during the first half of 2011.

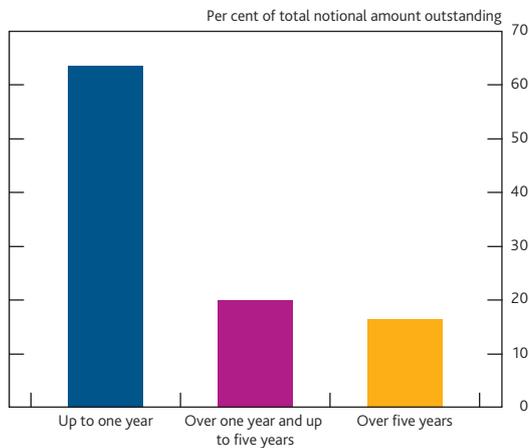
Market participants have expressed concern that contingent capital could distort the hierarchy of investor claims on banks. This concern is particularly acute for non-viability contingent capital — losses would be shared between shareholders and investors in the contingent instruments. One possible solution may be to structure these instruments such that they convert into common equity on terms that ensure existing shareholders are heavily diluted. The contractual terms of non-viability contingent capital instruments will be explored as part of the FSB review.

(1) This agreement is reflected in the September 2010 press release by the Group of Governors and Heads of Supervision (GHOS) and in the FSB recommendations on policy measures for reducing the systemic and moral hazard risks associated with SIFIs.

by over 80% at end-June 2010. Bilateral agreements may also require collateral to be posted against these net exposures.

But the crisis demonstrated weaknesses in these arrangements. For example, valuation following a counterparty default can be problematic in turbulent markets and may be subject to dispute.⁽¹⁾ And bilateral arrangements do not readily allow for the exchange of initial margin, especially between dealers, which increases the risk that an uncollateralised exposure will exist at the point of default. Market initiatives are under way to help to mitigate these shortcomings, but there are probably limits to what can be achieved bilaterally.

Chart 5.14 Maturities of outstanding FX forwards and swaps^{(a)(b)}



Sources: BIS and Bank calculations.

(a) Data are as at end-June 2010.

(b) Includes cross-currency interest rate swaps.

Counterparty risk increases with maturity. A substantial segment of the FX market is longer-dated: by notional value, over one third of outstanding FX forwards and swaps have a maturity of over one year (**Chart 5.14**).⁽²⁾ The Bank believes that the pros and cons of clearing longer-dated FX forwards and swaps through CCPs should be considered by policymakers and market participants, while at the same time ensuring that settlement risk continues to be managed through the Continuous Linked Settlement system.

...and must be supported by robust risk management by CCPs.

Increased central clearing underlines the importance of robust risk management by CCPs. Central banks and securities regulators are currently revising global standards for CCP risk management. The proposed European Market Infrastructure Regulation and the Dodd-Frank legislation in the United States also aim to establish higher standards.

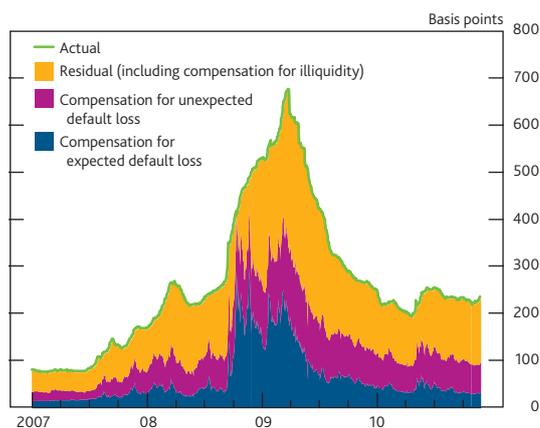
Resilience of CCPs will rely on appropriate loss-sharing and incentive arrangements, allied with effective ownership and governance. From a risk perspective, not-for-profit, user-owned CCPs provide strong incentives for effective risk management. They closely align the interests of CCPs and providers of risk capital. These incentives are weaker among CCPs operating on a for-profit basis and/or those which are not user-owned. The Bank believes governance reform of CCPs might be needed over time given their increasing systemic importance.

In light of the crisis, it is clear that CCPs should increase the resources they hold to manage a counterparty default. In particular, there is a strong case for moving beyond the current requirement to cover the default of their largest member — for example, by holding resources against the failure of two or more members. CCPs should also ensure they have sufficient information regarding risks arising from their members' clients.

(1) Some of the valuation difficulties encountered after the default of Lehman Brothers were discussed in the October 2008 *Report*.

(2) BIS data include cross-currency interest rates swaps, which are likely to have longer average maturities than FX forwards and swaps.

Chart 5.15 Decomposition of sterling investment-grade corporate bond spreads^{(a)(b)}



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

(a) Webber, L and Churm, R (2007), 'Decomposing corporate bond spreads', *Bank of England Quarterly Bulletin*, Vol. 47, No. 4, pages 533–41.

(b) Option-adjusted spreads over government bond yields.

Large or concentrated client positions can have implications for a CCP's ability to manage risks and meet its obligations and should be closely monitored.

It is important that CCPs accept collateral, or invest it where it is provided as cash, in the form of highly liquid assets. The treasury areas of CCPs should not act as profit centres and should invest in safe and liquid assets. Remuneration to members on margin assets should be conservative and flexible. Any excess collateral posted by members should be subject to limits on withdrawal.

CCPs also need resilient capital positions. A CCP's default management resources are usually provided by members in the form of margin and other collateral. These are designed to ensure that a CCP can meet its obligations following a member's default. However, a CCP also faces payment, treasury, operational and business risks, against which it should hold capital. This is an area where existing risk standards need to be strengthened.

Important elements of the regulatory reform agenda remain outstanding...

The June 2010 *Report* highlighted the importance of the current BCBS review of the capital treatment of banks' trading exposures.⁽¹⁾ As well as removing the regulatory arbitrage opportunities inherent in the current framework, this review should aim to ensure that banks hold sufficient capital against the risk of sharp movements in liquidity premia, at least for assets that are held at 'fair value' for accounting purposes. For example, the spread on investment-grade corporate bonds increased threefold between late 2007 and early 2009, largely due to higher liquidity premia (**Chart 5.15**).

This is related to the ongoing work by the International Accounting Standards Board and the Financial Accounting Standards Board to review which assets should be measured at fair value rather than amortised cost. This is part of a wider initiative to harmonise international accounting standards, due for completion in June 2011. In valuing an asset at amortised cost, accountants would typically not consider whether banks have sufficient sources of stable funding to weather spikes in liquidity premia. But if amortised cost assets were funded through short-term borrowing, banks could be forced to sell them in a crisis and absorb losses due to high liquidity premia.

...including final calibration of the liquidity elements of Basel III.

The Basel III package includes a net stable funding ratio (NSFR) with this risk in mind. Each balance sheet item is attributed a 'risk weight' that reflects the liquidity of assets and stability of liabilities. These weights determine banks' required stable funding (RSF) and available stable funding (ASF) (**Table 5.B**). The NSFR requires that ASF exceeds RSF.

Table 5.B Net stable funding ratio (NSFR) definitions of 'available stable funding' and 'required stable funding'^{(a)(b)}

	Liabilities	Factor	Assets	Factor
More stable funding	Capital and long-term debt.	100%	Long-term assets (other than those in 65% bucket).	100%
	'Stable' short-term retail deposits.	90%	Short-term loans to retail clients.	85%
	'Less stable' short-term retail deposits.	80%	Long-term loans with Basel II standardised risk weights of 35% or below.	65%
	Unsecured short-term funding from non-financial corporates.	50%	Listed equity securities, single A-rated corporate and covered bonds.	50%
			Short-term loans to non-financial corporate clients.	
	All other liabilities and equity categories.	0%	Highly rated corporate and covered bonds.	20%
Sovereign debt.			5%	
Off balance sheet exposures: undrawn amount of committed credit and liquidity facilities.			5%	
Cash and short-term securities.			0%	
			More liquid assets	

Source: Bank of England.

(a) Some detail of the NSFR proposals has been omitted for simplicity. Full details can be found in the BCBS December 2009 consultative document on a new international framework for liquidity risk and the press release summarising revisions to that framework published in July 2009.

(b) Short and long term is defined as less and more than one year respectively.

(1) The FSA published a discussion paper on possible reforms to the prudential regime for trading activities in August 2010.

The NSFR complements the Basel III liquidity coverage ratio — a measure which aims to ensure banks hold sufficient buffers of reliably liquid assets that can be used to cover unexpected outflows. Both ratios will be subject to observation periods. These periods should be used to evaluate any unintended consequences of the proposed standards. For example, the NSFR observation period can be used to assess whether the ratio should be adapted to soften the ‘cliff-edge’ that currently exists at one-year maturity. Box 3 in Section 4 discusses innovative funding instruments that might be associated with these cliff-edge effects.

An observation period will also apply to the Basel III leverage ratio, under which banks must fund at least 3% of total assets with Tier 1 capital. Some market participants have argued that the impact of the leverage ratio on the cost and availability of trade finance will be larger given that these exposures attract relatively low risk-weighted capital requirements. But this effect should apply only to the extent that the leverage ratio is binding. This is unlikely to be the case for most UK banks by the time of its formal introduction as a Pillar 1 requirement in 2018. Indeed, the ratio is intended to serve as a backstop measure that would bind only in the upswing of the credit cycle.

5.3 Systemic risks outside the microprudential regulatory perimeter

Regulatory and structural reform is likely to engender powerful incentives for banks and other intermediaries to identify ways to arbitrage new rules. Some activities may shift from banks to other less tightly regulated parts of the financial system, including so-called ‘shadow banks’. It is important that policymakers are alert to risks that may arise from disintermediation of this kind.

Shadow banks can be a source of systemic risk...

There is no single, widely accepted definition of a shadow bank. From a risk perspective, the term might most usefully be used to refer to non-bank institutions that perform banking functions (particularly liquidity and credit provision) using leverage and/or maturity mismatch. Examples of shadow banks defined in this way would include asset-backed commercial paper (ABCP) conduits, structured investment vehicles (SIVs) and constant net asset value money market mutual funds (Table 5.C).

As well as giving rise to systemic risk, the gradual migration of banking activities beyond the regulatory perimeter could reduce the effectiveness of macroprudential tools. For example, increasing the Basel III countercyclical buffer would have only a limited impact on the overall resilience of the financial system (and the credit cycle) if credit intermediation took place outside the reach of macroprudential policy makers such as the FPC.

Table 5.C Examples of the functions and risks of shadow-banking entities

Institution	Function	Risk
ABCP conduit	Credit	Maturity mismatch
Structured investment vehicle	Credit	Maturity mismatch, leverage
Unleveraged asset manager	Credit	Asset-liability liquidity mismatch
Constant net asset value money market mutual fund (no bank sponsor)	Credit, liquidity	Maturity mismatch
Securities lending reinvestment	Liquidity	Maturity mismatch
Prime brokerage	Liquidity	Maturity mismatch
Constant net asset value money market mutual fund (bank sponsored)	Liquidity	Maturity mismatch
Leveraged asset manager	Liquidity	Maturity mismatch, leverage

Source: Bank of England.

Table 5.D Recent financial innovations

	Description	Function
Puttable CD	Certificates of deposit with a daily put option which allows investor to sell CDs back to issuer after a notice period.	Alternative source of term funding to traditional money market instruments.
Extendible repo	Repurchase agreements with extendible date of repayment.	
Committed collateral swap facilities ^(a)	Committed contingent line for banks to obtain liquid assets against illiquid collateral (at the banks' initiation).	Insurance against liquidity risk.
Collateralised CP ^(a)	Short-term commercial paper collateralised by securities.	Source of short-term funding from money market mutual funds.
Re-REMICs	Resecuritisation of existing REMIC (Real estate mortgage investment conduit) securities.	Restructure downgraded securities.

Source: Bank of England.

(a) To date there has been no issuance of collateralised CP or provision of committed collateral swap facilities. The information contained in this table describes some banks' issuance plans.

...and their activities should be monitored closely, which will require improved data.

Given this dynamic, it is important that policymakers closely monitor financial activity undertaken outside the regulatory perimeter and respond to systemic risks as they emerge. These risks have an important international dimension and the Bank welcomes FSB proposals to explore them further in 2011.

Policymakers should also be alert to behaviour that could weaken the overall effectiveness of prudential regulation, such as widespread arbitrage of the boundaries between different regulatory frameworks. For example, prior to the crisis, banks classified many illiquid assets as tradable in order to benefit from lower capital charges in the regulatory trading book relative to the banking book. Some recent financial market innovations appear partly driven by the planned introduction of new liquidity requirements for banks and higher capital charges for securitisation exposures (**Table 5.D**; see also Box 3 in Section 4). But there is currently little evidence to suggest that instruments such as extendible repos constitute a material threat to financial stability.

Systematically identifying financial stability risks at the margins of the regulatory perimeter will require improvements in data and market intelligence. This should include more information on the flow of funds through the financial system and the real economy. It will also require a greater willingness to adapt regulatory rules than in the past, if problems of arbitrage or leakage emerge. The proposed remit of the FPC includes making recommendations to the Government on possible changes to the microprudential regulatory boundary.

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Other financial stability publications

This section provides a short summary of other financial stability related publications and speeches released by the Bank of England since the June 2010 *Report*.

Regular publications

Markets and operations article, *Bank of England Quarterly Bulletin*, 2010 Q3.

This article reviews developments in sterling financial markets, including the Bank's official operations, since the 2010 Q2 *Quarterly Bulletin* up to 27 August 2010. The article also summarises market intelligence on selected topical issues relating to market functioning.

www.bankofengland.co.uk/publications/quarterlybulletin/qb1003.pdf

Markets and operations article, *Bank of England Quarterly Bulletin*, 2010 Q4.

This article reviews developments in sterling financial markets, including the Bank's official operations, since the 2010 Q3 *Quarterly Bulletin* up to 19 November 2010. The article also summarises market intelligence on selected topical issues relating to market functioning.

www.bankofengland.co.uk/publications/quarterlybulletin/qb1004.pdf

Speeches

The financial crisis reform agenda.

Andrew Bailey, Executive Director for Banking Services and Chief Cashier, July 2010.

www.bankofengland.co.uk/publications/speeches/2010/speech441.pdf

In this speech, Andrew Bailey discussed the recently announced proposals to change the arrangements for financial regulation in the United Kingdom, and the future resolution of problems in large banks.

Andrew reviewed the role of the Bank as prudential supervisor of banks pre-1997. Andrew emphasised that in its new role as a prudential regulator the Bank will focus in judging and dealing with the build-up of excessive risk in the financial system. This approach will require the exercise of skilled judgement and the ability to use that judgement to influence management and boards.

On resolution, Andrew emphasised that banks should not operate on the basis of a dependency on public money if they get into trouble. Moreover, it was a mistake to allow capital instruments for banks that do not absorb losses unless the bank enters an insolvency process. An alternative worth exploring, drawing on the tools used to restructure non-banks, is creditor recapitalisation or 'bail-in'. Such an approach could incentivise banks to hold larger loss-bearing capital buffers to insulate creditors.

The contribution of the financial sector — miracle or mirage?

Andrew Haldane, Executive Director for Financial Stability, July 2010.

www.bankofengland.co.uk/publications/speeches/2010/speech442.pdf

In this speech, Andrew Haldane discussed the importance of understanding and measuring the contribution made by the financial sector to economic well-being. The contribution of the financial sector over time can be gauged from the national accounts. But the measures do not adjust for risk, which is key for a sector such as banking. Adjusting for risk would better capture the contribution of the financial sector to the economy. But even then, this would still provide no assessment of the ability of the financial system to price risk correctly. Strategies such as leveraging up of the underlying equity in the business and increasing assets held at fair value may have disguised the risks that banks assumed in their hunt for yield ahead of the crisis. Better aggregate statistics and bank-specific performance measures could help mitigate such risk illusion and distinguish productivity miracles and mirages.

Monetary policy and financial stability.

David Miles, Monetary Policy Committee member, July 2010.

www.bankofengland.co.uk/publications/speeches/2010/speech443.pdf

In this speech, Professor David Miles discussed recent developments in monetary policy and argued that there are better tools than interest rates to achieve financial stability. Given that the rapid expansion in banks' balance sheets coincided with a period of historically low levels of interest rates, some have argued that monetary policy should be used to reduce the chances of banking crises in the future. Professor Miles suggested that higher capital requirements bring great economic benefit via a reduction in the probability of financial crises. Meanwhile, he found little theoretical or empirical evidence suggesting that higher capital requirements would be associated with a significant loss of output. He argued that the fragility of the banking system can be significantly reduced without incurring a large cost. Using capital requirements to help maintain financial stability and

monetary policy to help maintain price stability is an efficient allocation of instruments to goals.

Patience and finance.

Andrew Haldane, Executive Director for Financial Stability, September 2010.

www.bankofengland.co.uk/publications/speeches/2010/speech445.pdf

Andrew Haldane discussed the roles of patience and impatience in financial decision-making, drawing on lessons from economics, history, psychology and neurology. Andrew considered how these two traits have evolved and influenced the financial system. There is ample evidence of self-improving financial cycles, with China being one example. But the United States and United Kingdom have shown increasing excess volatility and misalignment in asset markets, consistent with a self-destructive cycle of increasing impatience. Falling average holding periods of assets, high dividend payout ratios and high implied discount rates for assets are also consistent with increasing impatience. In terms of potential public policy implications, countries embarking on financial liberalisation need to walk a fine line between increased saving, investment and growth, and increased volatility and consumption, which calls for careful sequencing of financial reform. Providing incentives for longer duration of asset holdings and promoting financial pre-commitment devices such as trust and pension funds may also help curb impatience.

Remarks by Andrew Bailey on financial reform.

Andrew Bailey, Executive Director for Banking Services and Chief Cashier, September 2010.

www.bankofengland.co.uk/publications/speeches/2010/speech447.pdf

In this speech, Andrew Bailey spoke about why the stability of the financial system is in the public interest; why the public should expect the authorities to act in their interest; and why it is important that the case for financial stability is understood.

Andrew made the comparison to the public's understanding of monetary policy tools; and what the public would want from financial stability. He spoke about the tools that would be required to meet the public's expectations that taxpayer money should not be put at risk to save a failing financial institution and noted that at present, there is not a sufficient resolution tool to solve the too big to fail issue.

Andrew went on to discuss how judgement should be at the centre of the new Prudential Regulation Authority. It should be used by regulators to mount a robust challenge to stop

dangerous and risky business models. He went on to explain how recovery and resolution plans should be integrated within supervision.

Banking: from Bagehot to Basel, and back again.

Mervyn King, Governor, October 2010.

www.bankofengland.co.uk/publications/speeches/2010/speech455.pdf

In this speech, the Governor started by explaining how the size, concentration and riskiness of banks had grown markedly in recent decades. The fundamental fragility of banks reflects their use of short-term debt to fund long-term, risky illiquid investments. Therefore to treat banks as if they were riskless was akin to financial alchemy. To work, this requires the implicit support of the taxpayer, which incentivised banks to take on yet more risk.

The Governor then considered a number of proposals designed to offer a solution to this incentive problem. The first proposal was a permanent tax on the activity of maturity transformation. But, the Governor noted that given crises occurred infrequently, it would be almost impossible to calibrate the appropriate size of any levy. Second, the Governor felt that limits on leverage, which were embodied within the capital standards set by the Basel framework, had much to commend them — although, Basel III on its own was unlikely to prevent another crisis.

Other, more radical, reforms could include moving to capital requirements several orders of magnitude higher, ensuring large amounts of contingent capital in a bank's liability structure, introducing 'limited purpose banking' or having some form of functional separation. A key challenge with these more fundamental proposals was to ensure that maturity transformation did not simply migrate outside of the regulated perimeter and end up benefiting from an implicit public subsidy.

In concluding, the Governor stressed that he was not offering a blueprint for reform, which in the United Kingdom was the job of the Independent Commission on Banking. Going forward, the challenge was to think a way through to a better outcome before the next generation was damaged by a future and bigger crisis.

Developing an EU cross-border crisis management framework.

Paul Tucker, Deputy Governor, November 2010.

www.bankofengland.co.uk/publications/speeches/2010/speech458.pdf

In this speech, Paul Tucker put forward a number of propositions for developing an EU cross-border crisis

management framework. First, it is essential that each Member State, and indeed all countries around the world, have a national US-style resolution regime for conventional commercial banks. That would allow the authorities to take a distressed medium-sized commercial bank and transfer the deposits to another viable bank, transfer or sell the good assets, and put the bad assets into receivership or run-off. Second, tools must be developed that enable the resolution of the largest, most complex financial institutions without the use of taxpayer solvency support and without severe disruption to the flow of essential financial services to the economy. Such tools could include the ability to run down a group from a bridge company and sell off the most attractive parts of the business, as is being pursued in the United States. Another is to be able to write down, or haircut, claims of unsecured, uninsured creditors and impose partial conversion from debt to equity in conditions of distress, in what would be a going concern if the underlying franchise was viable. Third, tools need to be developed to cope with the cross-border element of a financial firm failure within the European Union. Fourth, the largest banks in Europe are global, and so there needs to be arrangements for dealing with global resolution, not least by removing legal obstacles to global co-operation. And fifth, there needs to be improved planning by the regulatory and resolution authorities through the development of firm-specific recovery and resolution plans or 'living wills'.

Institute of International Bankers Annual Breakfast Regulatory Dialogue, Washington DC.

Paul Tucker, Deputy Governor, November 2010.

www.bankofengland.co.uk/publications/speeches/2010/speech459.pdf

In this speech, Paul Tucker noted that a big contributor to the financial crisis was the failure of official regimes for regulating and overseeing the financial system to keep up with the evolution of global capital markets. As such, the international programme of regulatory reform is both formidable and transformational. He outlined three key areas of work in the international arena over the past twelve months and two areas for future work.

First, the new Basel Capital Accord, while not quite as rigorous in some respects as the Bank of England would have liked, significantly stiffens the prevailing regime and remedies a number of problems in earlier Accords. However, there is more work to be done on capital, with a fundamental review of the capital requirement for the trading book due in 2011. Similarly, the new Liquidity Accord requires further work, but will for the first time put requirements on holding resiliently liquid assets and funding of illiquid assets. Second, the G20 Financial Stability Board (FSB) has delivered a package of recommendations to address the problem of 'too big to fail'. Those include greater loss-absorbing capacity for the largest

and most complex firms, and improved resolution regimes that are equipped with the necessary tools to resolve the large, complex cross-border banks. Third, the FSB work programme on the interconnectedness of global capital markets has recommended the use of central counterparties in over-the-counter derivative markets. It has also led and sponsored further work on reducing the reliance on credit rating agency ratings.

Looking ahead, as regulation of the banking sector is reformed, it will be necessary to watch out for new forms of regulatory arbitrage. That could manifest itself in the 'shadow banking' sector, which will require having a capability to adapt the regulatory regime when threats to financial stability arise outside the regulatory perimeter. Finally, macroprudential regulation — taking a system-wide perspective to micro regulation — will mean equipping the authorities with a range of tools, including the ability to adjust the regulatory boundary, to increase resilience of the financial infrastructure and leaning against the credit cycle to make the system more resilient when it would otherwise threaten financial stability.

Financial crisis and G20 financial regulatory reform: an overview.

Paul Tucker, Deputy Governor, November 2010.

www.bankofengland.co.uk/publications/speeches/2010/speech460.pdf

In this speech, Paul Tucker provided an overview of the contribution of the Financial Stability Board (FSB) to the G20 financial regulatory reform agenda. He highlighted five areas. On surveillance of the financial system, the FSB has been encouraging new machinery to survey and head off risks, as well as establishing its own vulnerabilities group. In the supervision of individual firms, the FSB has sponsored an exercise on effective supervision of Systemically Important Financial Institutions (SIFIs). It has examined the various styles of banking supervision around the world, producing an evaluation of what is needed to supervise SIFIs. On capital and liquidity, the Basel Committee has agreed tougher standards for the definition, deductions from and quantity of capital. Minimum standards will also be introduced for holding resiliently liquid assets and the funding of illiquid assets. And the Basel Committee will undertake a fundamental review of capital requirements for the trading book in 2011 to address the regulatory arbitrage that has existed between the 'banking book' and 'trading book'.

Central to the FSB work has been to address the 'too big to fail' issue. Reforms in this area aim to reintroduce market discipline back into the financial system and ensure that governments do not have to provide fiscal support if a large financial institution gets into trouble. The acid test will be whether, for every financial institution in the world, it could be

resolved if it faced distress in a way that does not disrupt the flow of essential financial services and without state solvency support. This could include ideas being developed for putting losses in the largest firms not just onto shareholders but onto their unsecured, uninsured creditors. Beyond the changes to bank regulatory requirements, there has also been work, under the FSB umbrella, to reform capital markets. In particular, the use of central counterparties (CCPs) to clear over-the-counter derivatives and increased transparency around, and much reduced reliance on, credit rating agency ratings. On the latter, too many investors and banks have given up on reaching their own view on borrowers and on instruments, but have effectively subordinated their own judgement to that of the credit rating agencies. The FSB has sponsored and led work to reduce the extent to which credit rating agency ratings are embedded in the regulatory fabric of capital markets.

Curbing the credit cycle.

Andrew Haldane, Executive Director for Financial Stability, November 2010.

www.bankofengland.co.uk/publications/speeches/2010/speech463.pdf

In this speech, Andrew Haldane examined the causes and consequences of credit cycles, drawing implications for the design of macroprudential policy. Sketching a model of the credit cycle, Andrew demonstrated that a credit cycle arises from a collective action failure among banks. Using a long time series, Andrew showed that empirical evidence is consistent with this result, suggesting a case for state intervention to help co-ordinate lending expectations and actions by banks. Macroprudential policy may provide the answer by helping increase the long-term cost of credit extension to banks during booms and lower costs during busts, hence smoothing credit supply over the cycle. Key factors in the design of such a policy are the need for simplicity and clarity of objectives, particularly given the importance of the expectations channel. Added considerations include the international dimension and the need to police the regulatory boundary to prevent regulatory arbitrage.

2010: a progress report.

Spencer Dale, Executive Director and Chief Economist, December 2010.

www.bankofengland.co.uk/publications/speeches/2010/speech465.pdf

In this speech, Spencer Dale provided a progress report for 2010. The pace of recovery to date compared favourably with previous episodes, but economic recovery had to be judged in terms of the level of output. The recovery would be hampered by reduced public sector spending and the position of banks. But the highly accommodative stance of monetary policy and

the level of sterling would support economic activity. Another development of 2010 was the announcement of the Bank's planned new responsibilities for macroprudential policy. This was likely to be a major advance in responding to the missing instrument problem. But it was not the solution to all problems associated with financial markets and the international monetary system. He concluded by explaining why, in the face of persistently high inflation, the MPC had not tightened policy. The MPC remained as hard-nosed as ever in their determination to hit the inflation target.

Financial Stability Papers

Understanding international bank capital flows during the recent financial crisis.

Glenn Hoggarth, Lavan Mahadeva and Jeremy Martin, September 2010.

www.bankofengland.co.uk/publications/fsr/fs_paper08.pdf

Cross-country bank lending mushroomed over the past decade. This helped to spread risks but also meant that international banks were more vulnerable than previously to shocks from abroad including from each other. Following the outbreak of the US sub-prime crisis, and especially after the collapse of Lehman Brothers, cross-border bank flows reversed dramatically. This paper is aimed at better understanding how the recent crisis propagated through the international banking system. It describes the pattern of deleveraging by international banks in reaction to their funding and capital pressures, the international spillovers and the vulnerability of the UK banking system to shocks from abroad given its global role.

Working papers

The sterling unsecured loan market during 2006–08: insights from network theory.

Anne Wetherilt, Peter Zimmerman and Kimmo Soramäki, July 2010.

www.bankofengland.co.uk/publications/workingpapers/wp398.pdf

Liquidity costs and tiering in large-value payment systems.

Mark Adams, Marco Galbiati and Simone Giansante, July 2010.

www.bankofengland.co.uk/publications/workingpapers/wp399.pdf

Liquidity-saving mechanisms and bank behaviour.

Marco Galbiati and Kimmo Soramäki, July 2010.

www.bankofengland.co.uk/publications/workingpapers/wp400.pdf

The impact of payment splitting on liquidity requirements in RTGS.

Edward Denbee and Ben Norman, October 2010.

www.bankofengland.co.uk/publications/workingpapers/wp404.pdf

Extracting information from structured credit markets.

Joseph Noss, December 2010.

www.bankofengland.co.uk/publications/workingpapers/wp407.pdf

Glossary and other information

Glossary of selected data and instruments

ABCP – asset-backed commercial paper.
ABS – asset-backed security.
Alt-A – a classification of mortgages where the risk profile falls between prime and sub-prime.
CD – certificate of deposit.
CDO – collateralised debt obligation.
CDS – credit default swap.
CLO – collateralised loan obligation.
CMBS – commercial mortgage-backed security.
CP – commercial paper.
ERI – exchange rate index.
Euribor – euro interbank offered rate.
FICC – fixed income, currency and commodities.
GDP – gross domestic product.
IRS – interest rate swap.
Libor – London interbank offered rate.
MBS – mortgage-backed security.
MTN – medium-term note.
NEER – nominal effective exchange rate.
OIS – overnight index swap.
REMIC – real estate mortgage investment conduit.
RMBS – residential mortgage-backed security.
SIV – structured investment vehicle.

Abbreviations

ASF – available stable funding.
BBA – British Bankers' Association.
BCBS – Basel Committee on Banking Supervision.
BIS – Bank for International Settlements.
BPSL – Bacs Payment Schemes Ltd.
CBI – Confederation of British Industry.
CCP – central counterparty.
CEE – Central and Eastern Europe.
CEIC – CEIC Data Company Ltd.
CET1 – common equity Tier 1.
CFO – chief financial officer.
CGS – Credit Guarantee Scheme.
CHAPS – Clearing House Automated Payment System.
CHAPSCo – CHAPS Clearing Company Ltd.
CLG – Communities and Local Government.
CLS – Continuous Linked Settlement.
CoVaR – conditional Value at Risk.
CRD – Capital Requirements Directive.
CRE – commercial real estate.
CT1 – core Tier 1.
DMO – Debt Management Office.
EAP – euro-area periphery country.
ECB – European Central Bank.
EFFAS – European Federation of Financial Analysts Societies.
EME – emerging market economy.
ETF – exchange-traded fund.

EU – European Union.
Euroclear UK&I – Euroclear UK & Ireland Ltd.
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.
G10 – Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom and the United States.
G20 – The Group of Twenty Finance Ministers and Central Bank Governors.
GAAP – generally accepted accounting principles.
GHOS – Governors and Heads of Supervision.
G-SIFI – global systemically important financial institution.
HMT – Her Majesty's Treasury.
ICB – Independent Commission on Banking.
IFRS – International Financial Reporting Standard.
IMF – International Monetary Fund.
IPD – Investment Property Databank.
LBG – Lloyds Banking Group.
LCFI – large complex financial institution.
LSE – London Stock Exchange.
LTV – loan to value.
MMMF – money market mutual funds.
MoU – Memorandum of Understanding.
MPC – Monetary Policy Committee.
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.
RBS – Royal Bank of Scotland.
RSF – required stable funding.
RTGS – real-time gross settlement.
RWA – risk-weighted asset.
SIFI – systemically important financial institution.
SLS – Special Liquidity Scheme.
SME – small and medium-sized enterprise.
SWIFT – Society for Worldwide Interbank Financial Telecommunication.
S&P – Standard & Poor's.
VaR – Value-at-Risk.
WEO – IMF *World Economic Outlook*.
WGC – World Gold Council.

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