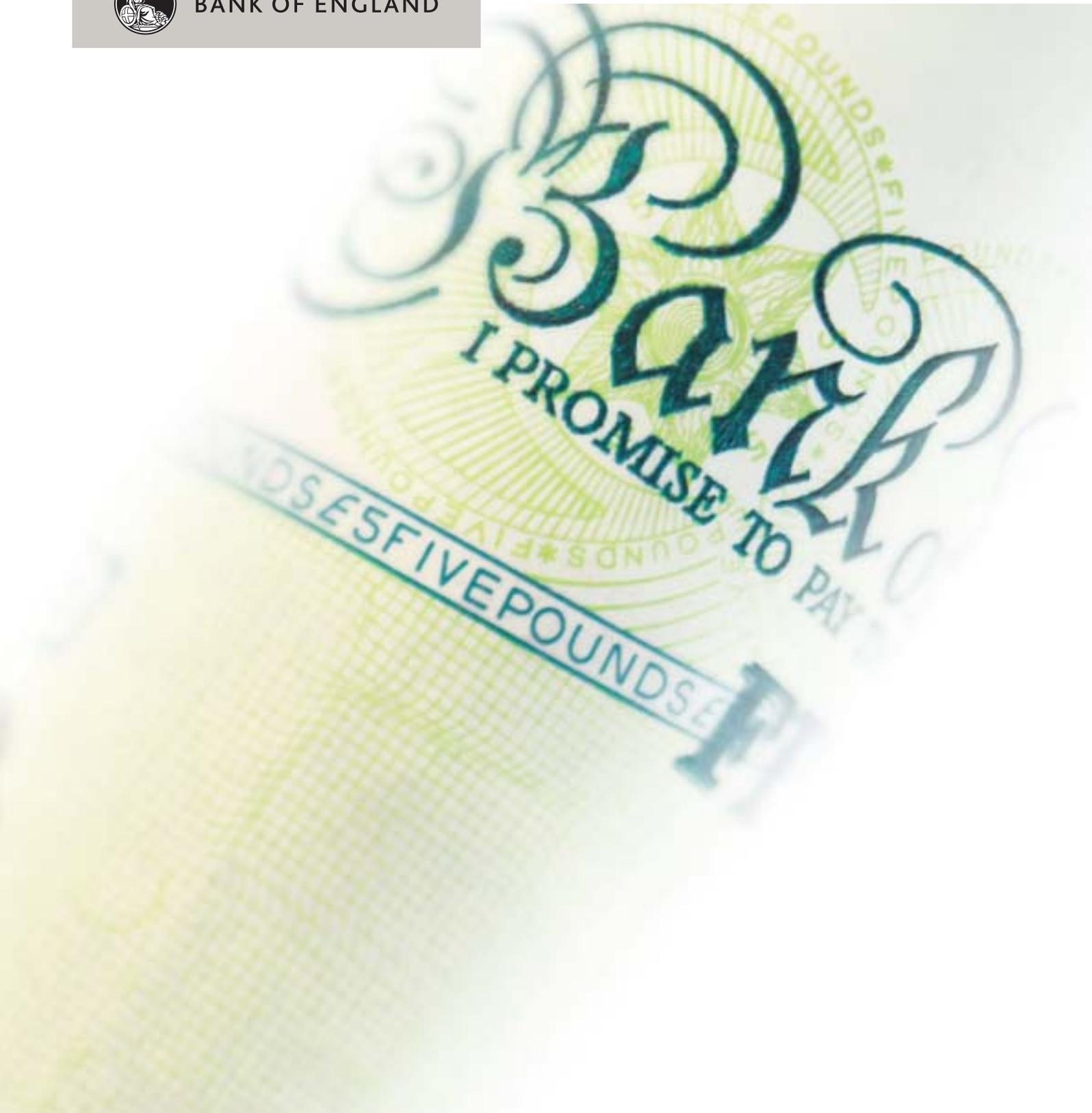


Quarterly Bulletin

2013 Q1 | Volume 53 No. 1



BANK OF ENGLAND





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Executive summary

Recent economic and financial developments (pages 5–18)

Markets and operations. This article reviews developments in financial markets and the Bank's official operations in the period between the previous *Bulletin* and 22 February 2013. Market sentiment improved significantly, reflecting a continued positive response to central bank policy measures adopted by both the European Central Bank and the Federal Reserve during the 2012 Q4 review period. Confidence was buoyed further in the New Year as policymakers in the United States reached an agreement to avert the approaching 'fiscal cliff'. In response to these developments, there was an increase in investors' willingness to bear risk, providing support to a broad range of assets and prompting some significant adjustments in exchange rates. The article also describes a prospective new tool for reducing counterparty credit risk exposures.

Research and analysis (pages 19–77)

Changes to the Bank of England (by Emma Murphy and Stephen Senior). In April 2013, a new regulatory framework for the UK financial sector will come into force, which will result in the Bank of England gaining significant new responsibilities. This article gives an overview of the changes that are happening to the Bank, including the creation of the Prudential Regulation Authority (PRA) and the Financial Policy Committee (FPC), and new responsibilities in relation to financial market infrastructures. The PRA, as part of the Bank, will be responsible for the microprudential regulation of deposit-takers, insurers and major investment firms. It will promote the safety and soundness of these firms, focusing on the adverse effects that they can have on the stability of the financial system; and contribute to ensuring that insurance policyholders are appropriately protected. The FPC, which has operated in interim form since 2011, will be formally charged with identifying, monitoring and taking action to remove or reduce risks to the resilience of the financial system as a whole. The Bank will also become responsible for regulation of certain post-trade market infrastructures, including central counterparties and securities settlement systems. The article also looks at the important revised governance processes that are being put in place to ensure that the Bank carries out its new responsibilities effectively and transparently and is fully accountable to Parliament and the public.

The profile of cash transfers between the Asset Purchase Facility and Her Majesty's Treasury (by Nick McLaren and Tom Smith). The Bank of England Asset Purchase Facility Fund Limited (APF) is a wholly-owned subsidiary of the Bank of England, used to make purchases of public and private sector assets for monetary policy purposes. It is fully indemnified by Her Majesty's Treasury (HMT). Initially, it was envisaged that payments due under the indemnity would be settled when the asset purchase scheme ended. But on 9 November 2012 it was agreed to alter this arrangement and establish a process for ongoing quarterly transfers between the APF and HMT. This article explains how the possible size of the transfers varies depending on a number of uncertain factors, including the future path of Bank Rate, and the price at which the assets held by the APF are ultimately sold. While the initial transfers are from the APF to HMT, it is likely that they will be offset by payments in the opposite direction in the future. But the ultimate net amount that will be transferred is uncertain, and a wide range of outcomes is possible.

Private equity and financial stability (by David Gregory). In the mid-2000s, there was a dramatic increase in acquisitions of UK companies by private equity funds. The leverage on these buyouts, especially the larger ones, was high. The increased indebtedness of such companies could make the

corporate sector more susceptible to default, posing a risk to the stability of the financial system in the United Kingdom. Moreover, this risk is compounded by the need for companies to refinance debt maturing over the next few years in an environment of much tighter credit conditions. Since the crisis began, there has been some evidence of loans to private equity sponsored firms performing poorly but a complete picture will not become clear until more investments have been exited by private equity funds. From a macroprudential policy perspective it will be important to monitor the use of debt in acquisitions in the future. But there is also potentially a role for private equity to play in promoting recovery in a downswing, in particular at the current juncture, by restructuring companies in difficulty.

Commercial property and financial stability (by James Benford and Oliver Burrows). The commercial property market played a key role in the recent financial crisis in the United Kingdom. A rapid build-up of debt tied to commercial property investments pre-crisis supported a boom in prices. The consequent bust led to a sharp rise in non-performing loans. This article documents some of the main developments in the commercial property market and explores the behaviour of its key players: occupiers of property, investors and lenders. It finds that the structure of the market evolved significantly during the boom period and that an increase in the use of leverage and maturity mismatch contributed to both the rise in prices and the subsequent fall. Going forward, it will be important to consider these factors when assessing the risks that the commercial property market can pose to the stability of the financial system. The new Financial Policy Committee will be alert to these risks and deploy tools to counteract them, where necessary, in order to protect financial stability.

The Agents' company visit scores (by Jon Relleen, David Copple, Matthew Corder and Nicholas Fawcett). The Bank's Agents collect economic intelligence from the business community around the United Kingdom. Since 2007, the Bank's Agents have been assigning company visit scores (CVS) based on the 5,500 bilateral meetings that they have with individual UK firms every year. The CVS have three attributes that make them useful for analysis. First, they are very timely. Second, firm-level data allow a consideration of the differences in business conditions across companies and sectors. And third, the scores cover some variables where official data are unavailable. This article introduces the CVS data set. It explains how they are assigned before going on to show some initial examples of how they have been used for internal analysis at the Bank, including analysis of trends in employment and capacity utilisation. The Bank places great importance on the confidential nature of discussions between Agents and company contacts — the analysis using the CVS presented in this article is based on aggregated and anonymised data.

The Bank of England *Bank Liabilities Survey* (by Venetia Bell, Nick Butt and James Talbot). The Bank of England began conducting a survey of banks' liabilities in 2012. Developments in banks' liabilities — retail and wholesale funding and capital — can have a substantial impact on credit conditions. The Bank already uses data and intelligence from discussions with market participants to inform its analysis of such developments. But there are benefits from a regular survey, which provides consistent, comparable data; information on the factors affecting developments in liabilities; as well as the reporting of institutions' expectations of future developments. This new survey will also supplement the data collected on the asset side of bank balance sheets by the Bank of England's *Credit Conditions Survey*, which was launched in 2007. The first results of the *Bank Liabilities Survey* will be published on 26 March 2013. This article explores the reasons for launching this new survey and describes its design and coverage, including details of the questions asked.

Report (pages 79–82)

Monetary Policy Roundtable

This edition also contains a summary of the main points made by participants at the most recent Monetary Policy Roundtable hosted by the Bank of England and the Centre for Economic Policy Research, on 11 December 2012.

Research work published by the Bank is intended to contribute to debate, and does not necessarily reflect the views of the Bank, MPC or FPC members.

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www.bankofengland.co.uk/publications/Pages/quarterlybulletin/default.aspx

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The speeches contained in the *Bulletin* can be found at
www.bankofengland.co.uk/publications/Pages/speeches/default.aspx

Except where otherwise stated, the source of the data used in charts and tables is the Bank of England or the Office for National Statistics (ONS). All data, apart from financial markets data, are seasonally adjusted.

Recent economic and financial developments



Markets and operations

This article reviews developments in financial markets, including the Bank's official operations, between the 2012 Q4 *Quarterly Bulletin* and 22 February 2013. The article also summarises market intelligence on selected topical issues relating to market functioning.

Financial markets

Overview

Market sentiment improved significantly during the Q1 review period. That reflected, in part, a continued positive response to central bank policy measures adopted during the previous review period.⁽¹⁾ These included the European Central Bank's (ECB's) move to backstop euro-area sovereign debt markets through its programme of Outright Monetary Transactions (OMTs), and the Federal Reserve's commitment to continue its open-ended purchases of assets until the labour market showed tangible signs of recovery. Investor confidence was lifted further in the New Year as policymakers in the United States reached an agreement to avert the approaching 'fiscal cliff'.

Against that backdrop, several of the short-term tail risks to the outlook for world growth appeared to diminish. That led to a continuation of many of the trends that began last year, including declining borrowing costs for some of the most vulnerable sovereigns in the euro area. The sense of optimism was underscored in January by surprisingly large initial repayments by banks of funds borrowed under the first of the ECB's longer-term refinancing operations (LTROs).

Growing investor risk appetite was also evident in rising prices across a range of asset classes. And it resulted in significant moves in exchange rates, with depreciations of several currencies traditionally considered to be 'safe havens'. There was a particularly large fall in the pound, with the sterling exchange rate index (ERI) falling by 5% over the review period. Some of that decline may also have been due to the impact of UK-specific factors, including the outlook for growth and the country's sovereign credit rating.

Shortly after the end of the current review period, renewed concerns about the commitment of certain euro-area governments to reduce their debt and deficit positions caused some of the exuberance in financial markets to dissipate. As a result, there was a reversal of some of the earlier increases in asset prices.

Monetary policy and short-term interest rates

The Bank of England's Monetary Policy Committee (MPC) maintained Bank Rate at 0.5% throughout the review period. The Committee also decided to keep the stock of asset purchases financed by the issuance of central bank reserves at £375 billion. At its February meeting, the MPC voted to reinvest the cash flows of £6.6 billion associated with the Asset Purchase Facility's (APF's) holdings of the maturing March 2013 gilt.⁽²⁾

A Reuters poll of economists conducted shortly after the review period indicated that expectations of further asset purchases had risen a little. The median of economists' central expectations was for the final stock of asset purchases to increase to £400 billion, £25 billion higher than reported in the survey at the end of the previous review period. Contacts attributed this to the February MPC minutes, which indicated that three Committee members had voted for further asset purchases.

Also, sterling forward overnight index swap (OIS) rates fell following the release of the February MPC minutes (**Chart 1**). According to contacts, this reflected a perceived increase in the probability that market participants placed on a future cut in Bank Rate. Sterling overnight market interest rates continued to trade below Bank Rate throughout the review period (**Chart 2**).⁽³⁾

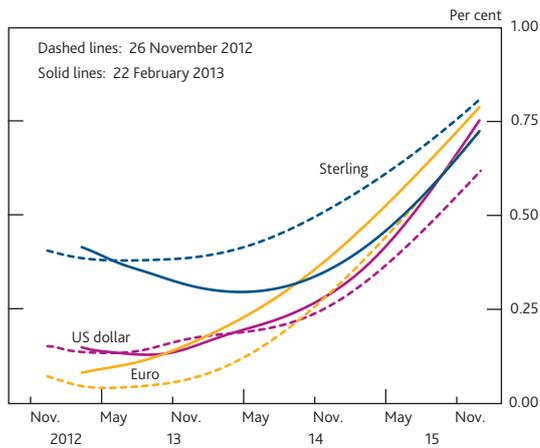
Elsewhere, the ECB kept its main policy rates unchanged. But, in contrast to the United Kingdom, forward overnight interest rates implied by OIS rates rose over the course of the review period (**Chart 1**). Contacts attributed this to the larger-than-expected repayments of funds borrowed under the first of the ECB's LTROs, although most of them believed that the associated reduction in excess reserves was not yet

(1) The data cut-off for the previous *Bulletin* was 26 November 2012.

(2) The APF is fully indemnified by Her Majesty's Treasury (HMT). On 9 November 2012 it was agreed to establish a process for regular quarterly cash transfers between the APF and HMT. The article on pages 29–37 of this *Bulletin* explains how the expected size of the transfers varies depending on a number of uncertain factors, including the path of future Bank Rate, and the price at which the assets held by the APF are ultimately sold.

(3) For further details on factors causing the overnight rate to be below Bank Rate, see 'Markets and operations', *Bank of England Quarterly Bulletin*, Vol. 52, No. 4, pages 290–303.

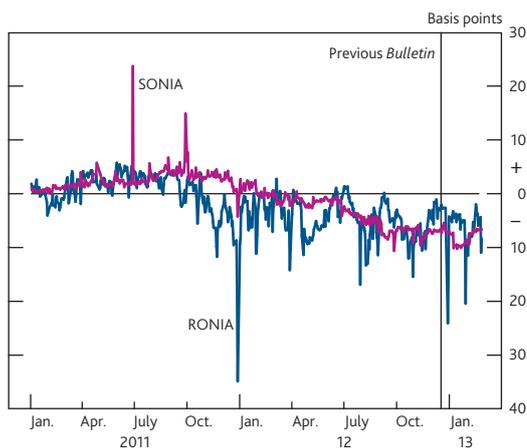
Chart 1 Instantaneous forward interest rates derived from OIS contracts^(a)



Sources: Bloomberg and Bank calculations.

(a) Instantaneous forward rates derived from the Bank's OIS curves.

Chart 2 Spread to Bank Rate of weighted average sterling overnight interest rates^(a)



Sources: Bloomberg and Bank calculations.

(a) The unsecured overnight interest rate is measured by the sterling overnight index average (SONIA). The secured overnight interest rate is measured by the repurchase overnight index average (RONIA). Both indices are provided by the Wholesale Markets Brokers' Association. For further details, see www.wmba.org.uk.

sufficient to have caused overnight rates to increase. Instead, they argued that the moves in forward OIS rates had been exaggerated by the unwinding of investors' hedging positions. And some market participants were thought to be placing less weight on the likelihood of a future cut in policy rates.

Following the end of the review period, repayments of funds allotted at the second of the ECB's LTROs were lower than expected, causing a reversal of some of the initial upward shift in forward overnight rates. The smaller-than-expected repayments were attributed, at least in part, to some banks' precautionary retention of liquidity in the light of uncertainty surrounding the outcome of the Italian parliamentary elections.

Meanwhile, in the United States, the Federal Open Market Committee (FOMC) continued its policy of open-ended asset purchases. And, in December, the FOMC announced that it judged the current low range of the federal funds rate to be appropriate for as long as unemployment remained above 6.5%, near-term inflation was no more than 2.5% and longer-term inflation expectations continued to be well anchored.⁽¹⁾ But contacts' views were mixed about whether or not this represented looser policy, given conditions in the US labour market. Later in the review period, statements by Federal Reserve officials regarding the financial stability implications of ultra-loose monetary policy were perceived to have weakened its commitment to open-ended measures. And although subsequent comments on policy allayed concerns that withdrawal of monetary stimulus might come sooner than had been anticipated by markets, over the review period as a whole there was a small rise in the US forward overnight rate curve a couple of years ahead (**Chart 1**).

US secured overnight interest rates were affected by the expiry at the end of 2012 of insurance offered by the Federal Deposit Insurance Corporation on US non interest bearing deposits of over US\$250,000. This insurance had attracted a significant amount of cash into non interest bearing transaction accounts. But following the expiry of this insurance there was a reallocation of cash out of such accounts and into money market funds. Contacts thought this switch had caused a rise in the supply of secured short-term lending, contributing to a subsequent fall in US overnight repo rates.

In January, the Bank of Japan announced that it would adopt an explicit 2% CPI inflation target, in contrast to its previous 1% inflation 'goal'. It also announced that it would pursue 'open-ended' asset purchases from January 2014, once its current asset purchase programme came to an end. The rate of purchases under the 2014 programme was to be ¥2 trillion of Japanese government bonds and ¥10 trillion of Treasury bills per month.

Long-term interest rates

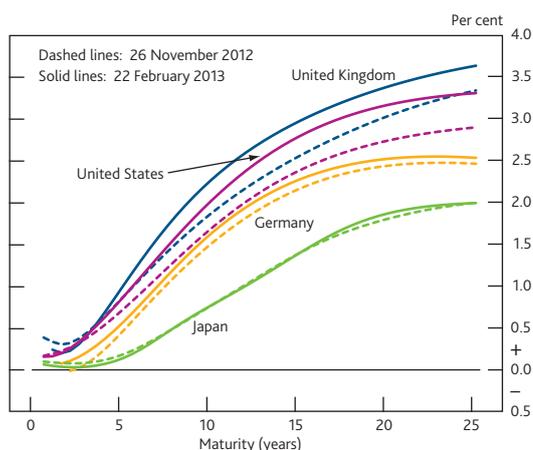
Financial market sentiment improved further during the review period. In part, that represented growing confidence following the announcement by the ECB of its OMT programme last September.

This sense of optimism was compounded in the New Year, as US policymakers agreed a deal to avoid certain key components of the 'fiscal cliff' and to delay the deadline for negotiations on the debt ceiling until May 2013, and as contacts' concerns about downside risks to Chinese growth diminished. These developments taken together were seen to have reduced some of the major near-term risks to the outlook for growth.

(1) See Federal Reserve 'Minutes of the meeting of December 11–12, 2012', page 9.

As a result of the general improvement in market sentiment over the review period, lower safe-haven demand caused a rise in yields on government bonds perceived to carry the least credit risk, including those of the United States and the United Kingdom (Chart 3). Yields on US sovereign bonds were also reported to have risen because of the improving outlook for the labour market, given the Federal Reserve's decision to tie its guidance on interest rates to certain thresholds for unemployment and inflation.

Chart 3 International nominal government bond spot yield curves^(a)



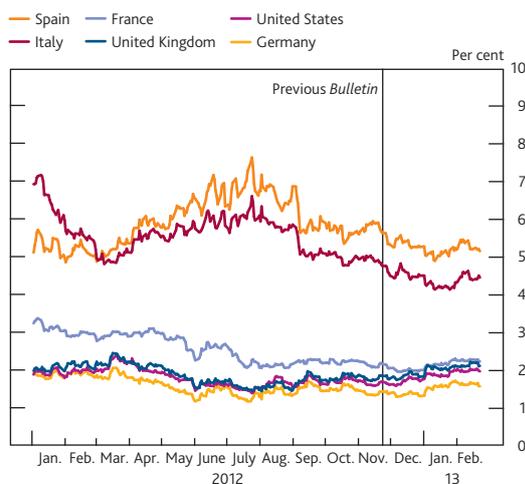
Sources: Bloomberg and Bank calculations.

(a) Spot interest rates derived from the Bank's government liability curves.

In the United Kingdom, as well as a fall in safe-haven demand, contacts suggested that some of the rise in government bond yields was due to country-specific factors. In particular, contacts suggested that some of the rise in UK yields reflected growing expectations of a sovereign credit rating downgrade. And, indeed, a one-notch downgrade by Moody's on 22 February elicited little further market reaction. Later in the review period, UK government bond yields and breakeven inflation rates increased a little following the release of the February *Inflation Report*, which some contacts attributed to a slight rise in short-term inflation expectations.

Growing confidence pushed down the yields of some euro-area periphery countries a little further (Chart 4). The Spanish and Italian governments took advantage of improved funding conditions in sovereign bond markets, extending the maturity and size of some of their auctions. For example, the Italian government issued a 30-year bond during the review period — the first in nearly two years. And the Spanish government issued a bond of a maturity close to 30 years (Chart 5). Portugal and Ireland also moved a step closer to demonstrating full access to government bond markets — a necessary criterion for eligibility for the ECB's OMTs — by issuing syndicated five-year bonds.

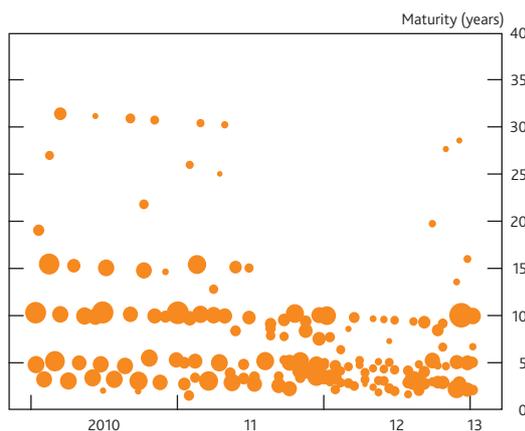
Chart 4 Selected euro-area ten-year government bond yields^(a)



Source: Bloomberg.

(a) Yields to maturity on ten-year benchmark government bond.

Chart 5 Maturity of Spanish government bond issuance^(a)



Sources: Dealogic and Bank calculations.

(a) Bubbles scaled according to gross proceeds of issuance.

But towards the end of the review period, the growing prospect of an inconclusive result in the Italian parliamentary elections led to an increase in uncertainty around debt reduction there, and in the prospects for the resolution of fiscal difficulties within the currency block more generally. This prompted a reversal of some of the earlier reductions in euro-area periphery sovereign spreads over bunds.

Bank funding markets

Conditions in bank funding markets continued to improve. Contacts reported that 'real money' investors, such as pension funds and insurers, had increased their allocation of funds towards bank debt, having tended to favour non-financial corporates' liabilities for much of 2011 and 2012. But, despite the rise in demand for bank debt, UK lenders issued relatively little over the review period (Chart 6). Contacts attributed

Recent volatility in sterling breakeven inflation rates

Market-implied measures of UK inflation expectations have been materially affected in recent months by speculation surrounding a potential change to the formula used to calculate the retail prices index (RPI).

Index-linked gilts and inflation swaps both reference RPI inflation, while the Monetary Policy Committee targets inflation as measured by the consumer prices index (CPI). Historically, there has been a gap between RPI and CPI inflation because of differences in the calculation of the two measures and in the composition of the respective baskets of goods underlying them. As a result, breakeven inflation rates implied by inflation-linked gilts and swaps are comprised of market participants' expectations of both CPI inflation and the wedge between RPI and CPI inflation measures.

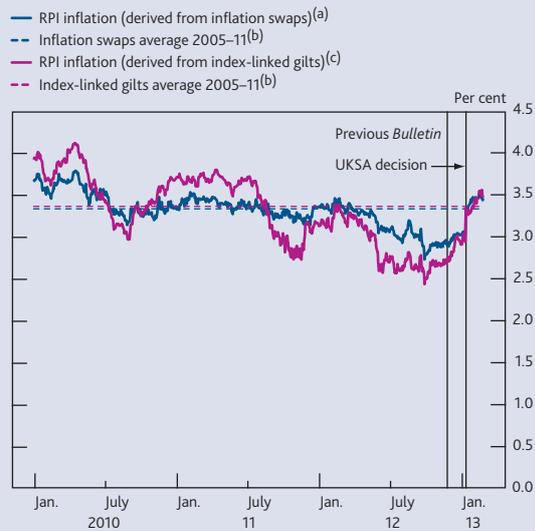
In April 2012, the minutes of the Consumer Prices Advisory Committee — a body which provides advice to the UK Statistics Authority (UKSA) on RPI methodological issues — noted that the 'ONS is working to identify, understand and eliminate unjustified causes of the formula effect gap between CPI and RPI'.⁽¹⁾ As a result, market participants had expected the UKSA to recommend that statistical improvements be made to the calculation of RPI that would have had the effect of reducing its methodological differences with CPI. Breakeven inflation rates consequently fell between May 2012 and January 2013, as market prices reflected the anticipated reduction in the wedge between the two measures.

But on 10 January 2013, the UKSA recommended that there be no change to the formula used for the calculation of RPI. Breakeven inflation rates increased sharply on the announcement — by around 40 basis points. Contacts ascribed this to an immediate repricing associated with the reversal of expectations that there would be a change to the formula. This returned breakeven inflation rates to around their historical averages (Chart A).

Contacts believe that market participants have since returned to assuming the same long-run RPI-CPI wedge as before the uncertainty around RPI began. There is still uncertainty about the exact size of the wedge, but most contacts expect it to average between 80 and 100 basis points in the future.

In addition, contacts report that uncertainty regarding the outcome of the UKSA review caused a decline in pension funds' demand for index-linked gilts and swaps — which they use to hedge RPI-linked liabilities. That had the effect of reducing market liquidity. As pension funds began to restart inflation-hedging programmes, short-term imbalances in

Chart A UK implied five-year RPI inflation rate, five years forward



Sources: Bloomberg and Bank calculations.

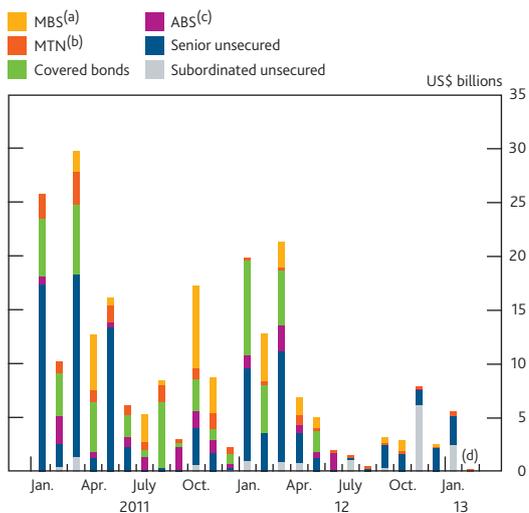
- (a) Derived from the Bank's inflation swap curve.
- (b) It is not possible to calculate averages prior to 2005 for both inflation swaps and index-linked gilts, as historical swaps data begin only in 2005.
- (c) Derived from the Bank's government liability curve.

supply and demand have led to a rise in volatility in inflation-linked gilt prices and contributed to further difficulties in interpreting market-based measures of inflation expectations.

Contacts also report that a rise in short-term breakeven inflation rates may have been due to hedge fund buying of inflation swaps, in the expectation of higher-than-anticipated near-term inflation.

(1) See www.ons.gov.uk/ons/guide-method/development-programmes/other-development-work/consumer-prices-advisory-committee/index.html.

Chart 6 Term issuance by UK lenders in public markets



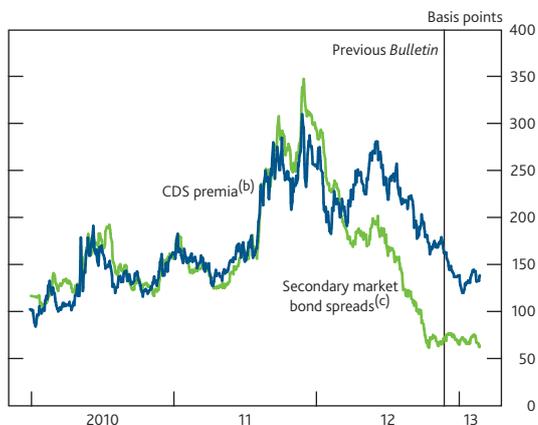
Sources: Dealogic and Bank calculations.

- (a) Commercial and residential mortgage-backed securities.
- (b) Medium-term notes.
- (c) Asset-backed securities.
- (d) Data up to 22 February 2013.

this to a number of factors: banks' ongoing efforts to deleverage; the existence of excess short-term liquidity buffers; a desire to shift the overall mix of funding towards retail deposits; and the availability of alternate sources of funding including the Funding for Lending Scheme and past LTROs by the ECB.

The lack of primary issuance has made it difficult to know for certain at what cost UK banks would be able to finance themselves were they to issue new debt. Available secondary market bond spreads imply that there has been little change in the cost of market funding over the period (Chart 7).

Chart 7 UK banks' secondary market bond spreads and CDS premia^(a)



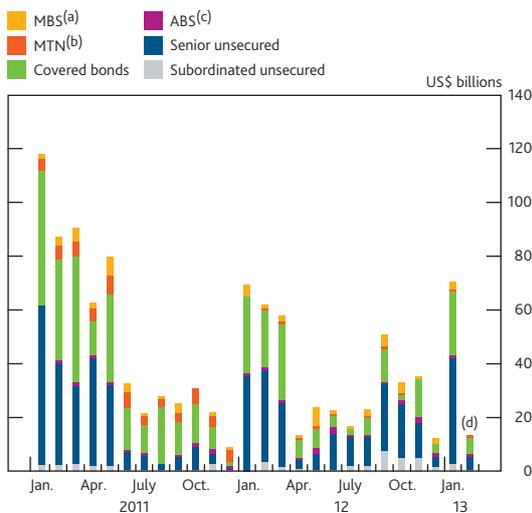
Sources: Bloomberg, Markit Group Limited and Bank calculations.

- (a) Barclays, HSBC, Lloyds Banking Group, Nationwide, Royal Bank of Scotland and Santander UK.
- (b) Unweighted average of five-year, senior CDS premia.
- (c) Constant-maturity unweighted average of secondary market spreads to mid-swaps of banks' five-year euro senior unsecured bonds, where available. Where a five-year bond is unavailable, a proxy has been constructed based on a bond of the nearest maturity available for a given institution and the historical relationship of that bond with the corresponding five-year bond.

Meanwhile, UK bank credit default swap (CDS) premia, which represent the cost of insuring against default on bank debt, and are sometimes used as an indicative measure of long-term wholesale market funding costs, have fallen (Chart 7). But they remain well above comparable secondary market bond spreads. That gap reflects, in large part, the lack of supply of cash bonds, in conjunction with limited arbitrage between the cash and CDS markets. On balance, while contacts tend to consider secondary market spreads to be a better proxy of bank funding costs than CDS, it may be that secondary spreads would rise were banks to begin to issue more debt.

In contrast to UK lenders, European banks continued to issue bonds in reasonable volumes (Chart 8), with some able to extend the maturity of new issuance. And lower-rated issuers, including banks in the euro-area periphery, appeared to have greater market access than in 2012. Banks also started to repay funds borrowed in the ECB's two three-year LTROs, suggesting that there had been a reduction in their reliance on short-term official liquidity.

Chart 8 Term issuance by European (excluding UK) lenders in public markets



Sources: Dealogic and Bank calculations.

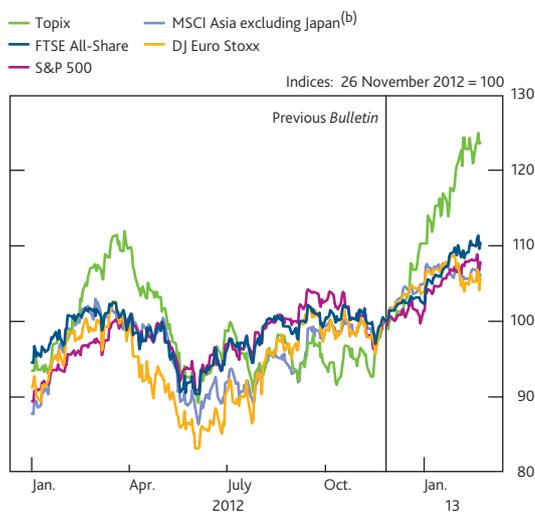
- (a) Commercial and residential mortgage-backed securities.
- (b) Medium-term notes.
- (c) Asset-backed securities.
- (d) Data up to 22 February 2013.

Both European and UK banks continued to raise regulatory capital to meet forthcoming Basel III requirements. A number of lenders successfully issued Tier 2 subordinated debt instruments, while others had conducted liability management exercises to improve their capital adequacy. Banks were hesitant, however, to issue any additional Tier 1 (AT1) capital instruments while there remained uncertainty about whether they would qualify as Tier 1 capital under new rules. European criteria for qualifying Tier 1 instruments are to be finalised in the second half of 2013.

Corporate capital markets

International equity indices increased significantly during the review period, supported by the perceived reduction in tail risks to the global economy (**Chart 9**). The S&P 500 recorded its largest rise in the month of January since 1997 and, along with the FTSE All-Share, ended the review period at a five-year high. European equities also rose steadily during December and January, but a rise in uncertainty ahead of the Italian elections pared back some of these gains. The belief that the Chinese authorities had managed to avoid a marked slowing in the economy lifted Asian indices generally, and expansionary monetary policy in Japan boosted the Topix by 20%.

Chart 9 International equity indices^(a)



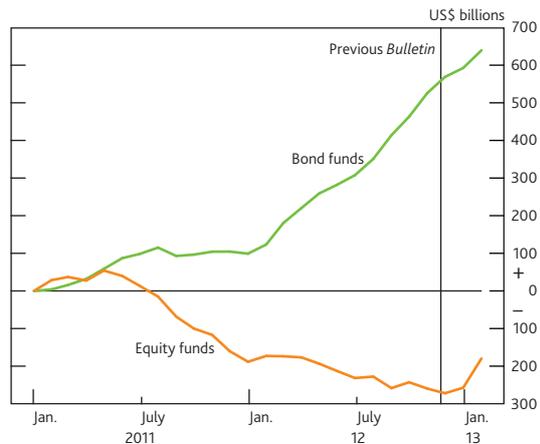
Sources: Bloomberg and Bank calculations.

- (a) Indices are quoted in domestic currency terms, except for the MSCI Asia excluding Japan index, which is quoted in US dollar terms.
 (b) The MSCI Asia excluding Japan index is a free float-adjusted market capitalisation-weighted index that monitors the performance of stocks in Asia.

While the volume of equity market transactions remained fairly steady, investor flows into equity funds picked up (**Chart 10**). Contacts reported that these flows had, to date, been driven primarily by a reallocation from cash, rather than out of bonds. And contacts added that there had actually been an increase in flows to European funds, reflecting returning international investor appetite for exposure to the region.

In fixed-income markets, investment-grade corporate bond yields were broadly flat or slightly higher, while yields on sub-investment grade debt continued to fall, reflecting the continuing strength of demand for relatively riskier assets. There was increasing discussion among market participants about the impact on bond prices should monetary authorities begin to withdraw stimulus, although most contacts did not expect policy tightening to outpace the path implied by yield curves.

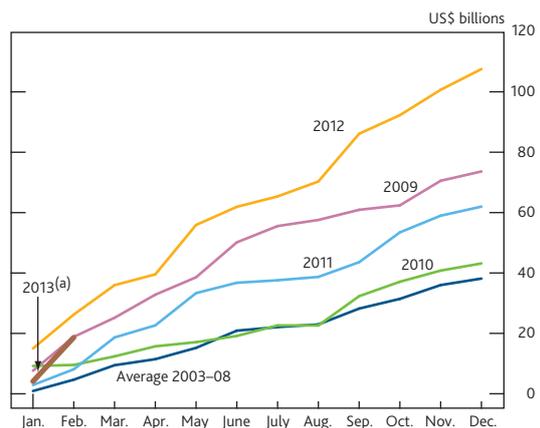
Chart 10 Cumulative inflows into global bond and equity funds since January 2011



Sources: EPFR Global and Bank calculations.

In the United Kingdom, there was a strong start to 2013 in terms of gross (**Chart 11**) and net corporate bond issuance. And across regions, borrowers continued to make the most of strong demand for higher-yielding assets, with buoyant issuance of sub-investment grade debt. The review period saw the largest ever sterling high-yield issue and a record month for US dollar-denominated issuance in January. Even in Europe, where businesses typically rely on bank finance, issuance was robust. Contacts also reported that it had become much more common for bond prices to increase between their initial marketing period and eventual issue.

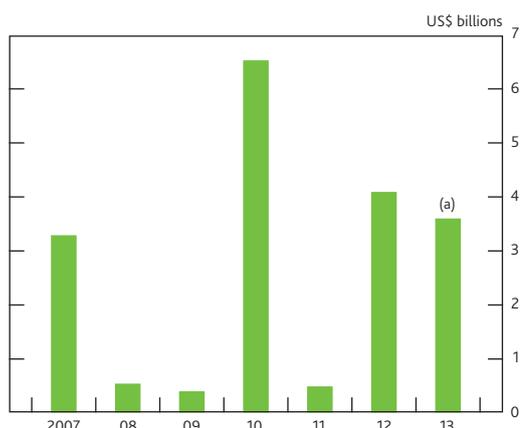
Chart 11 Cumulative gross bond issuance by UK private non-financial corporations (PNFCs)



Sources: Dealogic and Bank calculations.

- (a) Data up to 22 February 2013.

There was also strong issuance of perpetual bonds, which tend to offer a higher coupon than fixed-maturity bonds for a given issuer, again reflecting investor preferences for higher-yielding instruments (**Chart 12**). There had been US\$3.6 billion of issuance since the start of 2013, compared with just US\$4 billion over the entirety of 2012. According to contacts,

Chart 12 Perpetual bond issuance by European PNFCs

Sources: Dealogic and Bank calculations.

(a) Based on issuance for the year to date as at 22 February 2013.

there was also increasing demand for high-yield bonds and hybrid securities from retail investment funds.

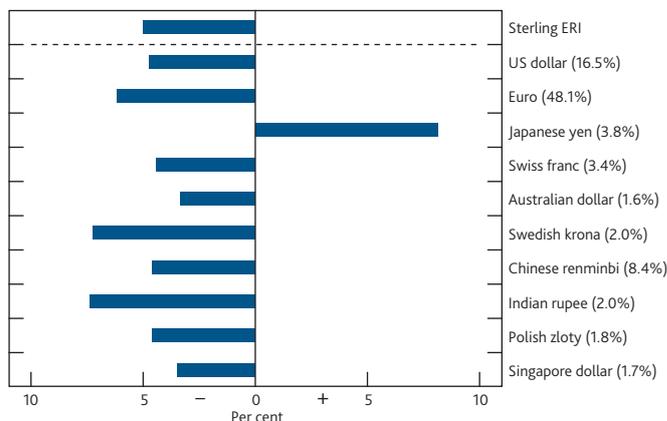
Issuance of collateralised loan obligations (CLOs) continued apace in the United States. And the review period saw the issuance of the first European CLO under new European risk retention rules. Contacts believed that these regulations, combined with a lack of supply of leveraged loans used to back such vehicles, were likely to prevent European CLO issuance picking up as it has in the United States.

Foreign exchange

Improved risk-appetite led to some sizable moves in exchange rates over the period, particularly among currencies perceived to be safe havens, including sterling. Sterling depreciated by 5% on a trade-weighted basis, with the bulk of that driven by a 6% depreciation against the euro. But the pound also fell against the currencies of all of its major trading partners except the Japanese yen (**Chart 13**), reflecting moves toward looser monetary policy by policymakers there.

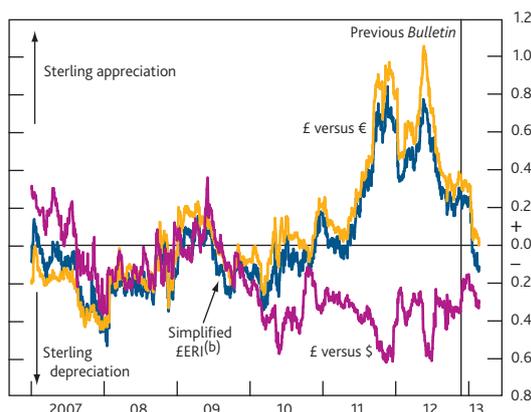
As in the case of UK sovereign bond yields, in addition to the impact of a broad-based slowing in the flow of funds into perceived safe-haven assets, contacts thought that there had been additional pressure on sterling as a result of some UK-specific factors. These included a slower-than-expected economic recovery and the associated risk of a sovereign credit rating downgrade.

Despite the sizable decline in the sterling exchange rate, at the end of the review period market-based measures suggested that investors were willing to pay more for protection against a sterling ERI depreciation than an appreciation (**Chart 14**). That said, the extent of the negative option-implied skewness was not particularly large by historical standards. And while commentators had been giving some attention to a rise in speculative short positions in sterling, those positions were also fairly small. Past research suggested that there is no

Chart 13 Changes in the sterling effective ERI and selected bilateral exchange rates since the previous *Bulletin*^(a)

Sources: Thomson Reuters Datastream and Bank calculations.

(a) Numbers in parentheses indicate the trade weight of each bilateral exchange rate in the sterling ERI.

Chart 14 Three-month option-implied skewness of foreign exchange returns^(a)

Sources: Bloomberg, British Bankers' Association and Bank calculations.

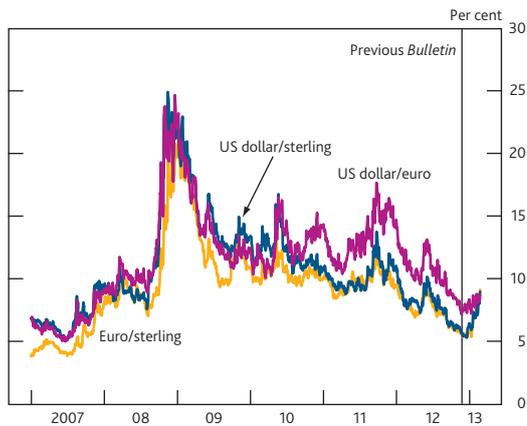
(a) Returns are defined as the logarithmic difference between the current forward rate and the spot rate at the maturity date of the contract.
 (b) The simplified sterling ERI places 70% weight on the euro-sterling bilateral exchange rate and 30% weight on the US dollar-sterling bilateral exchange rate.

leading relationship between movements in speculative positions and changes in exchange rates.⁽¹⁾

Rising actual and option-implied exchange rate volatility (**Chart 15**) and speculative activity in foreign exchange markets during the review period led to a significant increase in the volume of foreign currency transactions. Activity in spot and derivatives markets increased substantially in January — up by one third from the record low of December 2012. Following volatility in currency markets, the governments of the G7 countries reaffirmed their long-standing commitment to orient their fiscal and monetary policies towards meeting their domestic economic objectives and not to target their exchange rates.

(1) See Mogford, C and Pain, D (2006), 'The information content of aggregate data on financial future positions', *Bank of England Quarterly Bulletin*, Spring, pages 57–65.

Chart 15 Three-month option-implied volatility of foreign exchange rates



Sources: Bloomberg, British Bankers' Association and Bank calculations.

Market intelligence on developments in market structure

In discharging its responsibilities to ensure monetary stability and contribute to financial stability, the Bank gathers information from contacts across a wide spectrum of financial markets. This intelligence helps inform the Bank's assessment of monetary conditions and possible sources of financial instability and is routinely synthesised with research and analysis in the *Inflation Report* and the *Financial Stability Report*. More generally, regular dialogue with market contacts provides valuable insights into how markets function, providing context for policy formulation and the design and evaluation of the Bank's own market operations. The Bank also conducts occasional market surveys to gather additional quantitative information on certain markets.

Based on market intelligence, this section describes a prospective new tool for reducing counterparty credit risk exposures in over-the-counter (OTC) derivatives.

'Rebalancing' — a tool to reduce counterparty credit risk in OTC derivatives

The G20 Pittsburgh summit in September 2009 undertook to reduce systemic risk in OTC derivatives. As part of its programme to achieve that, the G20 mandated that standardised OTC derivative transactions should be centrally cleared, and that non-centrally cleared transactions should be subject to margin requirements.⁽¹⁾⁽²⁾ Other tools may be able to reduce systemic risk too, including 'portfolio optimisation' services. Of those, so-called 'compression' processes are already in widespread use. The remainder of this article reports market intelligence on prospective 'rebalancing' services.

Counterparty credit risk in OTC derivatives

An OTC trade involves a direct transaction between two counterparties, rather than through an exchange. A given OTC

derivative position incorporates both market risk (which refers to the change in the value of the position as prices change) and counterparty credit risk (the risk of a loss in the event of a counterparty default). Market risk on OTC derivative positions can be desirable for a market participant — for example if it wants to speculate on the value of an asset, or to hedge another risk on its balance sheet. But counterparty credit risk, while necessary to facilitate a trade, is undesirable.

Normal trading to manage market risk in OTC derivatives creates a network of counterparty credit risk exposures. To understand how, suppose that a market participant wishes to reduce the market risk from a trade. It might do so by executing an offsetting transaction which cancels out the risk. If that transaction is with the same counterparty as the original one, the market and counterparty credit risk can be largely extinguished by a contractual netting agreement. But the market participant may decide to trade with a new counterparty instead — perhaps because it offers a better price. As a result, while the offsetting transaction successfully reduces market risk, having two trades open with different counterparties actually increases counterparty credit risk. And where market participants seek to take on additional market risk, they may seek to diversify their counterparties to mitigate counterparty credit risk. Multiple counterparties behaving in this way can lead to the build-up of a potentially complex network of exposures over time.

Central counterparty clearing

Central counterparty (CCP) clearing provides a number of benefits, one of which is that it offers a means of reducing counterparty credit risk. CCPs work by becoming the counterparty to every cleared transaction. A CCP's legal arrangements allow it to net all of its (potentially offsetting) trades with each participant, and to manage risk on that net basis. This so-called 'multilateral netting' both simplifies the network of counterparty credit risk exposures and reduces the losses arising from any one counterparty's default. Importantly, CCPs also collect collateral to protect themselves (and other participants) in the event of a member default.

But some contacts are concerned that central clearing may not yet be able to provide the full risk-reduction benefit potentially available. Importantly, not all products can be centrally cleared. Some contacts also note that their portfolios with certain counterparties comprise clearable products as hedges against other products which are not currently clearable. If those portfolios remained entirely bilateral, the clearable and non-clearable trades would be able to offset each other, at least to some extent. Thus, while central clearing of eligible products provides a multilateral

(1) See www.g20.org/load/780988012 and www.g20.org/load/780986775.

(2) Bilateral margining reduces risks by requiring counterparties to provide margin to one another to mitigate counterparty credit risk exposure.

netting benefit between positions with different counterparties, it can reduce the benefit of netting between products within portfolios of trades with a given bilateral counterparty.

In addition, the netting benefit is reduced when clearing takes place at multiple CCPs. Contacts note that there may be reasons to clear with more than one CCP per product class — for example to meet client demands to use a particular CCP, or to diversify market participants' exposures to CCPs. But using multiple CCPs can also mean that less risk reduction is available from multilateral netting.

Portfolio optimisation

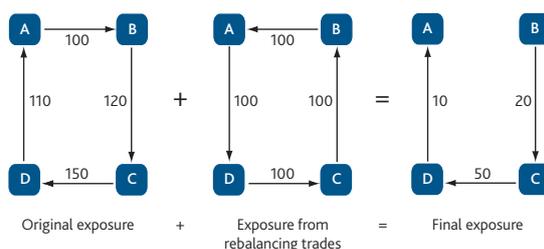
In addition to central clearing and bilateral margining, portfolio optimisation services can help reduce systemic risk. Market participants have for a number of years used so-called 'compression' services. These remove superfluous individual transactions between participants, in turn reducing operational risk.⁽¹⁾ More recently, the market has started to investigate so-called 'rebalancing' services. Instead of removing individual transactions, these identify the counterparty credit risk exposure between participants and aim to create portfolios with the same market risk exposure for each participant but lower counterparty credit risk. The remainder of this section explains these 'rebalancing' services.

How rebalancing works

Networks of exposures grow as counterparties meet the needs of their clients, and manage their own market risk. The networks also evolve over time as new trading relationships are formed. Within this network, individual market participants can only see and manage their own exposures, which limits their ability to minimise counterparty credit risk. But a rebalancing service provider, by gathering information on a confidential basis from a number of counterparties, can see the entire network of exposures. Knowledge of the whole set of interconnected exposures allows the service provider to identify and eliminate unnecessary loops or chains of exposures (see Figures 1 and 2 for examples), while leaving market participants' market risk largely unchanged.

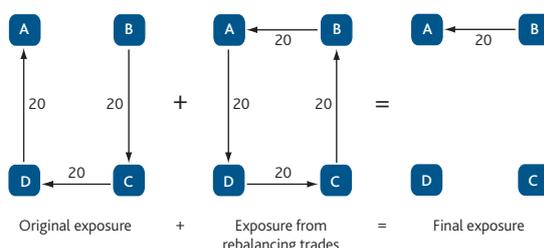
In a rebalancing exercise, market participants submit to the service provider information on the net counterparty credit exposure they have within a given asset class against each of the other participating counterparties (potentially including CCPs). Participants also submit parameters which define their tolerance to small changes in market risk or to increases in counterparty credit risk.⁽²⁾ The service provider then uses algorithms to identify counterparty credit risk exposures that can be reduced without affecting overall market risk, and recommends new trades which achieve that risk reduction subject to participants' tolerances.⁽³⁾ Each participant then reviews the proposed new trades. Assuming no participants object, all the trades are then executed simultaneously.

Figure 1 Example of a loop of exposures^(a)



(a) Each number represents the net counterparty credit risk exposure of a portfolio of trades, not the individual trades themselves.

Figure 2 Example of a chain of exposures^{(a)(b)}



(a) Each number represents the net counterparty credit risk exposure of a portfolio of trades, not the individual trades themselves.

(b) Note that for this set of new trades to proceed, B must have informed the service provider that it is willing to accept an additional 20 units of exposure to A.

Contacts report that such services have the potential to substantially reduce counterparty credit risk, which in turn may be able to lower associated capital and margin requirements.

Challenges

In order to reduce counterparty credit risk exposures, rebalancing exercises actually produce a small increase in the number of trades and the notional value of those positions in order to net out the exposures arising from the existing set of transactions. One way to mitigate that increase is to follow a rebalancing cycle with a compression cycle to remove any superfluous individual transactions. Another way is to 'reuse' existing rebalancing trades when doing a further rebalancing exercise, for example by amending the existing rebalancing trades. To the extent that rebalancing exercises also involve additional operational processes, they may add to operational risk.

(1) By reducing superfluous trades, compression can in some cases also reduce counterparty credit risk.

(2) In some cases, increasing counterparty credit risk to one counterparty can reduce overall risk — see Figure 2.

(3) The new trades achieve risk reduction by netting the counterparty credit risk on existing transactions.

Operations within the Sterling Monetary Framework and other market operations

This box describes the Bank's operations within the Sterling Monetary Framework and other market operations over the review period. The level of central bank reserves is determined by (i) the stock of reserves injected via the Asset Purchase Facility (APF); (ii) the level of reserves supplied by indexed long-term repo (ILTR) operations and the Extended Collateral Term Repo (ECTR) Facility; and (iii) the net impact of other sterling ('autonomous factor') flows across the Bank's balance sheet.

Operational Standing Facilities

Since 5 March 2009, the rate paid on the Operational Standing Deposit Facility has been zero, while all reserves account balances have been remunerated at Bank Rate. Reflecting this, average use of the deposit facility was £0 million in each of the November, December and January maintenance periods. Average use of the lending facility was also £0 million.

Indexed long-term repo open market operations

As part of its provision of liquidity insurance to the banking system, the Bank conducts ILTR operations. These typically occur once each calendar month. Participants are able to borrow against two different sets of collateral: one set corresponds with securities eligible in the Bank's short-term repo operations ('narrow collateral'); the other set contains a broader class of high-quality debt securities that, in the Bank's judgement, trade in liquid markets ('wider collateral').

During the review period, the Bank offered £5 billion via three-month ILTR operations on both 11 December 2012 and 8 January 2013, and £2.5 billion via a six-month operation on 12 February 2013 (Table 1).

Usage and cover ratios remained very limited, in line with recent quarters (Chart A). In part, this may be because short-term secured market interest rates remain below Bank Rate — the minimum bid rate in the ILTR operations — making repo markets a potentially cheaper source of liquidity. In addition, APF gilt purchases may have reduced the need for counterparties to use the ILTR operations to meet their short-term liquidity needs.

Extended Collateral Term Repo Facility

The ECTR Facility is a contingent liquidity facility, designed to mitigate risks to financial stability arising from a market-wide shortage of short-term sterling liquidity.⁽¹⁾

On 20 November, the Bank announced that the ECTR Facility would remain activated, but that the Bank would review the demand for auctions on a monthly basis, following the

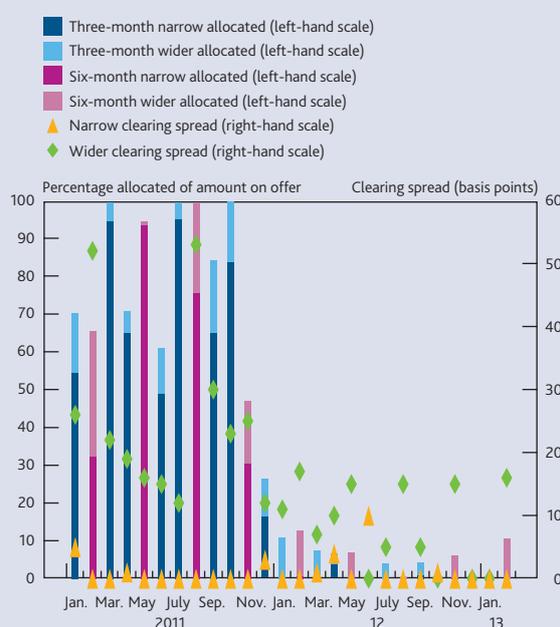
Table 1 Indexed long-term repo operations

	Total	Collateral set summary	
		Narrow	Wider
11 December 2012 (three-month maturity)			
On offer (£ millions)	5,000		
Total bids received (£ millions) ^(a)	10	10	0
Amount allocated (£ millions)	10	10	0
Cover	0.00	0.00	0.00
Clearing spread above Bank Rate (basis points)		0	n.a.
Stop-out spread (basis points) ^(b)	n.a.		
8 January 2013 (three-month maturity)			
On offer (£ millions)	5,000		
Total bids received (£ millions) ^(a)	0	0	0
Amount allocated (£ millions)	0	0	0
Cover	0.00	0.00	0.00
Clearing spread above Bank Rate (basis points)		n.a.	n.a.
Stop-out spread (basis points) ^(b)	n.a.		
12 February 2013 (six-month maturity)			
On offer (£ millions)	2,500		
Total bids received (£ millions) ^(a)	450	0	450
Amount allocated (£ millions)	270	0	270
Cover	0.18	0.00	0.18
Clearing spread above Bank Rate (basis points)		n.a.	16
Stop-out spread (basis points) ^(b)	n.a.		

(a) Due to the treatment of paired bids, the sum of bids received by collateral set may not equal total bids received.

(b) Difference between clearing spreads for wider and narrow collateral.

Chart A ILTR reserves allocation and clearing spreads



December 2012 auction, in consultation with ECTR eligible institutions.⁽²⁾ Should the Bank determine that there is sufficient demand, it will hold an auction, normally on the third Wednesday of the month. Auctions will be pre-announced by the Bank on the preceding business day at 4 pm. There will be no announcement in months when the Bank judges that no ECTR auction is required.

In the three months to 22 February 2013, the Bank conducted the remaining scheduled ECTR auction on 19 December, offering £5 billion (Table 2). There was no usage of the Facility, which contacts attributed to the ample quantity of liquidity already in the banking system, and the desire by some banks to retain their collateral for use in the Funding for Lending Scheme.

Table 2 ECTR operations

	Total
19 December 2012	
On offer (£ millions)	5,000
Amount allocated (£ millions)	0
Clearing spread (basis points)	n.a.

Discount Window Facility

The Discount Window Facility (DWF) provides liquidity insurance to the banking system by allowing eligible banks to borrow gilts against a wide range of collateral. On 8 January 2013, the Bank announced that the average daily amount outstanding in the DWF between 1 July 2012 and 30 September 2012, lent with a maturity of 30 days or less, was £0 million. The Bank also announced that the average daily amount outstanding in the DWF between 1 July 2011 and 30 September 2011, lent with a maturity of more than 30 days, was £0 million.

Other operations

Funding for Lending Scheme

The Funding for Lending Scheme (FLS) was launched by the Bank and the Government on 13 July 2012. The FLS was designed to incentivise banks and building societies to boost their lending to UK households and non-financial companies, by providing term funding at rates below those prevailing in the market at the time. The quantity each participant can borrow in the FLS, and the price it pays on its borrowing, is linked to its performance in lending to the UK non-financial sector.

The drawdown window for the FLS opened on 1 August 2012 and will run until 31 January 2014. The Bank publishes quarterly data showing, for each group participating in the FLS, the amount borrowed from the Bank, the net quarterly flows of lending to UK households and firms, and the stock of loans as at 30 June 2012. On 4 March 2013 the Bank published data showing that a total of 39 groups had signed up to the FLS, and a total of £13.8 billion had been drawn under the FLS as at 31 December 2012.⁽³⁾

US dollar repo operations

Since 11 May 2010, the Bank has offered weekly fixed-rate tenders with a seven-day maturity to provide US dollar

liquidity, in co-ordination with other central banks, and will continue to do so until further notice. Since 12 October 2011, the Bank has also offered US dollar tenders with a maturity of 84 days. This arrangement is currently scheduled to end on 1 February 2014, following an extension to these temporary arrangements on 13 December 2012. As at 22 February 2013, there had been no use of the Bank's US dollar facilities since May 2010.

Bank of England balance sheet: capital portfolio

The Bank holds an investment portfolio that is approximately the same size as its capital and reserves (net of equity holdings, for example in the Bank for International Settlements, and the Bank's physical assets) and aggregate cash ratio deposits. The portfolio consists of sterling-denominated securities. Securities purchased by the Bank for this portfolio are normally held to maturity, though sales may be made from time to time, reflecting, for example, risk or liquidity management needs or changes in investment policy. The portfolio currently includes around £3.4 billion of gilts and £0.4 billion of other debt securities. Over the review period, gilt purchases were made in accordance with the quarterly announcements on 1 October 2012 and 2 January 2013.

(1) Further details are available at www.bankofengland.co.uk/markets/Pages/money/ectr/index.aspx.

(2) Further details are available at www.bankofengland.co.uk/markets/Documents/marketnotice121120.pdf.

(3) For further details see www.bankofengland.co.uk/markets/Pages/FLS/data.aspx.

Asset purchases⁽¹⁾⁽²⁾⁽³⁾

As of 22 February 2013, outstanding asset purchases financed by the issuance of central bank reserves were £375 billion, in terms of the amount paid to sellers. On 7 February, the Monetary Policy Committee (MPC) voted to maintain the stock of asset purchases financed by the issuance of central bank reserves at £375 billion. **Table 1** summarises asset purchases by type of asset.

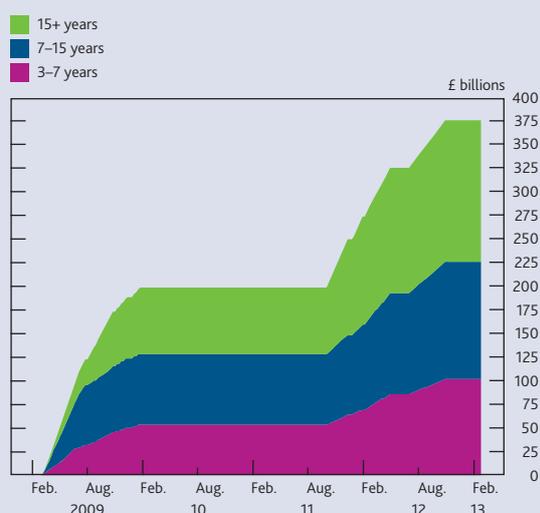
Gilts

No gilt purchases were undertaken during the review period. The total amount of gilts purchased since the start of the asset purchase programme in March 2009, in terms of the amount paid to sellers, was £374.9 billion, of which £101.7 billion of purchases were in the 3–7 year residual maturity range, £123.8 billion in the 7–15 year residual maturity range and £149.5 billion with a residual maturity greater than 15 years (**Chart A**).⁽⁴⁾ On 7 February, the MPC voted to reinvest the cash flows of £6.6 billion associated with the redemption of the Asset Purchase Facility's holdings of the March 2013 gilt.

Gilt lending facility⁽⁵⁾

The Bank continued to offer to lend some of its gilt holdings via the Debt Management Office (DMO) in return for other UK government collateral. In the three months to 31 December 2012, a daily average of £283 million of gilts was

Chart A Cumulative gilt purchases^(a) by maturity^(b)



(a) Proceeds paid to counterparties on a settled basis.
(b) Residual maturity as at the date of purchase.

lent as part of the gilt lending facility. Lending in the previous quarter was £225 million.

Corporate bonds

The Bank continued to offer to purchase and sell corporate bonds via the Corporate Bond Secondary Market Scheme, with purchases financed by the issue of Treasury bills and the DMO's cash management operations.

Table 1 Asset Purchase Facility transactions by type (£ millions)

Week ending ^(a)	Secured commercial paper	Gilts	Corporate bond		Total ^(b)
			Purchases	Sales	
22 November 2012 ^{(c)(d)}	0	374,949	43		374,992
29 November 2012	0	0	3	0	3
6 December 2012	0	0	0	1	-1
13 December 2012	0	0	0	0	0
20 December 2012	0	0	0	9	-9
27 December 2012	0	0	0	2	-2
3 January 2013	0	0	0	0	0
10 January 2013	0	0	0	9	-9
17 January 2013	0	0	0	0	0
24 January 2013	0	0	0	1	-1
31 January 2013	0	0	0	0	0
7 February 2013	0	0	0	0	0
14 February 2013	0	0	0	0	0
21 February 2013	0	0	0	0	0
28 February 2013	0	0	0	0	0
Total financed by a deposit from the DMO ^{(c)(e)}	–	–	6		6
Total financed by central bank reserves ^{(c)(e)}	–	374,949	17		374,966
Total asset purchases ^{(c)(e)}	–	374,949	23		374,972

(a) Week-ended amounts are for purchases in terms of the proceeds paid to counterparties, and for sales in terms of the value at which the Bank initially purchased the securities. All amounts are on a trade-day basis, rounded to the nearest million. Data are aggregated for purchases from the Friday to the following Thursday.

(b) Weekly values may not sum to totals due to rounding.

(c) In terms of proceeds paid to counterparties less redemptions at initial purchase price on a settled basis.

(d) Measured as amount outstanding as at 22 November 2012.

(e) Data may not sum due to assets maturing over the period and/or due to rounding.

Net sales of corporate bonds over the review period were lower than the period before, reflecting the portfolio's diminishing size. As of 22 February 2013, the Bank's portfolio totalled £23 million, in terms of amount paid to sellers, compared to £43 million at the end of the previous review period.

Secured commercial paper facility

The Bank continued to offer to purchase secured commercial paper (SCP) backed by underlying assets that are short term and provide credit to companies or consumers that support economic activity in the United Kingdom.⁽⁶⁾ The facility remained open during the review period but no purchases were made.

- (1) For further discussion on asset purchases see the *Asset Purchase Facility Quarterly Report* available at www.bankofengland.co.uk/publications/Pages/other/markets/apf/quarterlyreport.aspx.
- (2) Unless otherwise stated the cut-off date for data is 22 February 2013.
- (3) The APF was initially authorised to purchase private sector assets financed by Treasury bills and the DMO's cash management operations. Its remit was extended to enable the Facility to be used as a monetary policy tool on 3 March 2009. All purchases of assets between 6 March 2009 and 4 February 2010 were financed by central bank reserves. All purchases of private sector assets since 4 February 2010 have been financed by the issuance of Treasury bills and the DMO's cash management operations. All purchases of gilts since 10 October 2011 have been financed by central bank reserves. The Chancellor's letter is available at www.hm-treasury.gov.uk/d/chx_letter_090212.pdf.
- (4) Details of individual operations are available at www.bankofengland.co.uk/markets/Pages/apf/gilts/results.aspx.
- (5) For more details on the gilt lending facility see the box 'Gilt lending facility' in the *Bank of England Quarterly Bulletin*, Vol. 50, No. 4, page 253.
- (6) The SCP facility is described in more detail in the Market Notice available at www.bankofengland.co.uk/markets/Documents/marketnotice120801.pdf.

Research and analysis



Changes to the Bank of England

By Emma Murphy of the Bank's Macroprudential Strategy Division and Stephen Senior of the Bank's PRA Transition Unit.⁽¹⁾

The Bank of England is currently experiencing its most important institutional and functional changes in a generation. Failings in pre-crisis arrangements have prompted the Government to introduce wholesale changes to the UK regulatory landscape which come into force in April 2013. This regulatory reform has resulted in the Bank gaining significant new responsibilities, including for: microprudential regulation of insurers, deposit-takers and major investment firms, through the creation of the Prudential Regulation Authority; macroprudential regulation of the financial system as a whole, through the creation of the Financial Policy Committee; and supervision of some critical post-trade financial market infrastructure providers. This article summarises the main changes to the Bank arising from these reforms, including those already put in place in anticipation of the reforms, as well as the new governance arrangements that are being introduced, as part of the Bank's accountability to Parliament and the public.

In April 2013, a new regulatory framework will come into force under the Financial Services Act 2012.⁽²⁾ This article summarises the key elements of the new framework as they affect the Bank of England. The first section gives an overview of the main changes, including the creation of the Prudential Regulation Authority (PRA) and the Financial Policy Committee (FPC), and new responsibilities in relation to some post-trade financial market infrastructures (**Figure 1**). The second section looks at the new policymaking and regulatory powers of the Bank in more detail, focusing on the roles and objectives of the FPC and the PRA, and highlighting the work already done by the interim FPC and to establish the PRA. The third section focuses on the Bank's new responsibilities in relation to the oversight of financial market infrastructure providers. The fourth section looks at interactions between the different authorities. Finally, the fifth section describes a number of important changes to the governance of the Bank and its accountability to reflect its increased responsibilities.

Overview of responsibilities

The Financial Services Act 2012 ('the Act') introduces important changes to the regulatory framework of financial services in the United Kingdom, many of which affect the Bank of England. The Financial Services Authority (FSA), which was previously responsible for regulation of financial firms from both a 'prudential' and 'conduct' perspective, will cease to exist.

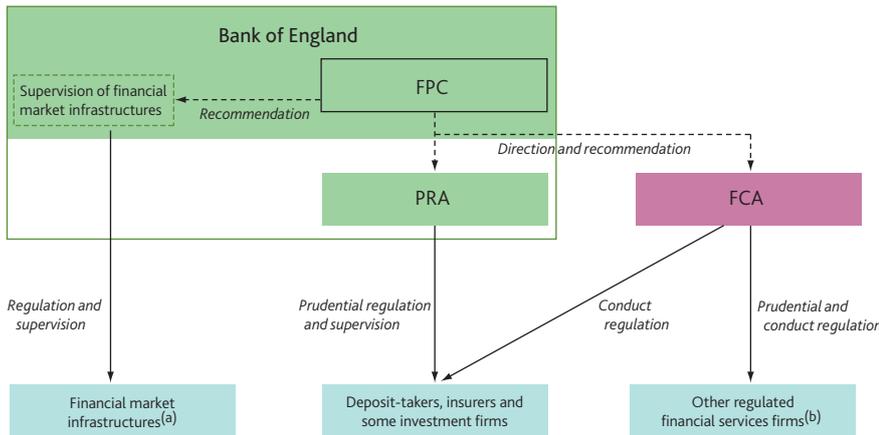
- The Prudential Regulation Authority will be part of the Bank and will be responsible for the **microprudential regulation** of deposit-takers, insurers and major investment firms. This includes setting standards and supervising financial institutions at the level of the individual firm so as to promote their safety and soundness, seeking to minimise the adverse effects that they can have on the stability of the UK financial system; and contributing to ensuring that insurance policyholders are appropriately protected.
- The Financial Conduct Authority (FCA), a separate institution from the Bank, will be responsible for ensuring that relevant markets function well. In doing so, it will aim to advance the protection of consumers, the integrity of the UK financial system and promote effective competition. It will be responsible for the **conduct regulation** of all financial services firms. This includes acting to prevent market abuse and ensuring that financial firms treat customers fairly. The FCA will also be responsible for the microprudential regulation of those financial services firms not supervised by the PRA, for example, asset managers, hedge funds, many broker-dealers and independent financial advisers.

The Bank of England will retain its responsibility for financial stability, having a statutory objective to protect and enhance

⁽¹⁾ The authors would like to thank Mounir Kenaissi and Sarah Parkinson for their help in producing this article.

⁽²⁾ The Act is available at www.legislation.gov.uk/ukpga/2012/21/contents/enacted.

Figure 1 Stylised diagram of the new regulatory framework



(a) Excludes regulation of trading platforms, which is the responsibility of the FCA.
 (b) Includes asset managers, hedge funds, exchanges, insurance brokers and financial advisers.

the stability of the financial system of the United Kingdom. In support of this objective, the Financial Policy Committee, which has existed in non-statutory form since 2011, will be formally established under statute within the Bank. It is charged with identifying, monitoring and taking action to remove or reduce systemic risks to the financial system as a whole, rather than at the level of the individual firm — **macroprudential supervision and regulation**.

Further, in support of its financial stability objective, the Bank will be responsible for the regulation of some post-trade **financial market infrastructures**, including the supervision of central counterparties and securities settlement systems, to help ensure that these important institutions are resilient. This responsibility will sit alongside the Bank’s existing responsibilities for overseeing recognised payment systems.

Changes are also being made to the arrangements to deal with failing institutions. In particular, the Act extends modified versions of the ‘special resolution regime’ created for banks in 2009 to investment firms and recognised clearing houses, including their parent undertakings, as well as to the parent undertakings of banks.⁽¹⁾ When brought into force (expected in Summer 2013), this will provide the Bank and HM Treasury with powers to deal with failing firms of these types in order to protect the stability of the financial system and public funds. These powers are due to be supplemented in some very important respects by the EU’s Recovery and Resolution Directive (RRD) in due course.

Finally, some changes are being made to the governance of **financial crisis management** arrangements. In particular, an explicit duty will be placed on the Governor to notify the Chancellor of the Exchequer if there is a material risk to public funds. The Chancellor will also have a new power of direction over the Bank in relation to the provision of financial assistance to a firm or to the use of stabilisation powers, where necessary to resolve or reduce a serious threat to financial stability.

Responsibilities in relation to financial crisis management are set out in a new Memorandum of Understanding between the Bank and HM Treasury.⁽²⁾

Statutory decision-making bodies

From April 2013, the Bank will have two new statutory decision-making bodies: the PRA Board, responsible for microprudential supervision and regulation; and the FPC, responsible for macroprudential supervision and regulation (Figure 2). These are in addition to the Monetary Policy Committee (MPC) and its existing responsibilities for monetary policy, and the Bank’s responsibilities for liquidity provision and resolution.

Figure 2 Major statutory decision-making responsibilities of the Bank of England



(1) For further detail on the Special Resolution Regime see www.bankofengland.co.uk/financialstability/Pages/role/risk_reduction/srr/default.aspx.
 (2) www.hm-treasury.gov.uk/d/fin_fs_bill_mou_financial_crisis_management_jan2012.pdf.

The Bank's statutory responsibilities in relation to monetary stability — that is, to maintain price stability and, subject to that, to support the Government's economic policies, including its objectives for growth and employment — remain unchanged under the Act.⁽¹⁾ This section therefore focuses on the Bank's new responsibilities in relation to the PRA and FPC.

Prudential Regulation Authority

The PRA will be a subsidiary of the Bank and will be the United Kingdom's microprudential regulator for deposit-takers, major investment firms and insurers. The PRA's new role will be grounded in two statutory objectives:

- To promote the **safety and soundness** of all the firms it supervises. This will be achieved primarily by minimising the harm that firms can cause to the stability of the UK financial system, in particular the harm resulting from disruption to the continuity of provision of financial services.
- And, specifically for insurers, to contribute to the securing of an **appropriate degree of protection for those who are, or may become, policyholders**.

In addition to its statutory objectives, the PRA must 'have regard' to a series of regulatory principles set out in the Act, including efficient use of its resources; transparency; proportionality; the desirability of sustainable growth in the economy of the United Kingdom; and the need to minimise any adverse effect on competition arising from the discharge of its functions.

A key feature of the statutory regime is that to be authorised, firms must meet, and continue to meet, a set of Threshold Conditions. These require a firm to go about its business in a prudent manner, for example by maintaining adequate financial resources, taking into account its resolvability, and to have suitable management. Given that the Threshold Conditions promote the safety and soundness of firms and policyholder protection, they will be crucial in helping the PRA to meet its objectives.

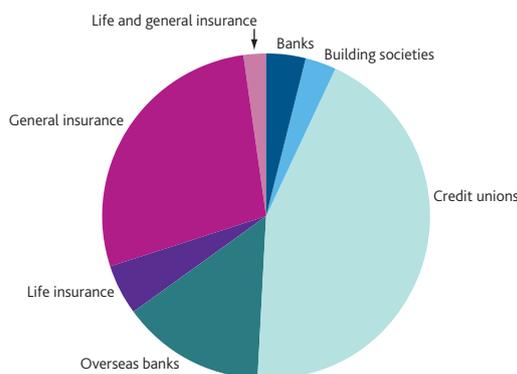
Importantly, a key principle underlying the PRA's approach to supervision, set out in statute, will be that it will not seek to operate a 'zero-failure' regime. Rather, the PRA, working with the Bank's Special Resolution Unit, will seek to ensure that financial firms which fail do so in a way that avoids significant disruption to the supply of critical financial services. This will depend in part on the efficacy of any statutory resolution regime in place. The forthcoming RRD is expected to broaden the range of resolution tools available to the authorities, and improve the effectiveness of some tools.

Scope

In total, the PRA will supervise around 1,400 financial groups (Chart 1). Approximately 900 of these groups will be

deposit-takers, including banks, building societies and credit unions, a small number of which will contain investment firms that have the potential to present significant risks to the stability of the financial system (and, as such, will have been 'designated' for supervision by the PRA). Some 500 firms will be insurers including general insurers, life insurance companies, firms involved in the largely wholesale London Market, and mutual insurers including friendly societies. The PRA will supervise both UK-headquartered and international financial firms, including 'passport' firms from within the European Economic Area, branches from other countries and UK-owned subsidiaries of international firms, some of which are systemically relevant in their own right. The PRA's legal powers and responsibilities will vary depending on the location of a firm's parent and the legal form of a firm's UK operations.

Chart 1 Distribution of PRA-supervised financial groups by type^(a)



Source: Financial Services Authority.

(a) As of 1 March 2013. Numbers of supervised firms change regularly.

The FCA will be the prudential supervisor for approximately 23,000 other firms that were previously regulated by the FSA. This will include investment firms not designated by the PRA, asset managers, hedge funds, exchanges, insurance brokers and financial advisers. In addition, the FCA will be the conduct supervisor.

Governance and accountability

The PRA, as part of the Bank, will be accountable to the Bank's Court of Directors for administrative matters, including its budget and remuneration policy, value for money and performance against objectives and its strategy. But the PRA will also have its own independent Board, which will be responsible for the most significant supervisory decisions about individual financial firms and PRA policy, including all rule-making. Membership of the PRA Board comprises the Governor of the Bank of England (who also chairs); the Chief Executive Officer of the PRA (who will also be the

(1) These have been detailed in earlier *Bulletin* articles including Lambert, R (2005), 'Inside the MPC', *Bank of England Quarterly Bulletin*, Spring, pages 56–65.

Deputy Governor for Prudential Regulation); the Deputy Governor for Financial Stability; the Chief Executive Officer of the FCA; and at least three independent non-executive members.⁽¹⁾ The non-executive members are appointed by Court with the approval of HM Treasury. The appointment of the PRA non-executive directors was announced on 6 March 2013, and the first Board meeting was held on 7 March 2013.

Like the Bank's other statutory decision-making bodies, the PRA Board will be accountable to Parliament. This accountability will be delivered to a large extent by PRA Board members appearing regularly before the Treasury Select Committee. Additionally, the PRA will be required under the Act to conduct a statutory investigation when (i) it appears to either the PRA Board or HM Treasury that a regulatory failure by the PRA has occurred; or (ii) HM Treasury considers it to be in the public interest for there to be an investigation related to a PRA-regulated activity. The PRA must report to HM Treasury on the findings of its investigations and, subject to restrictions set out in the Act, such reports must be published. The PRA will also be subject to performance reviews by the Oversight Committee of Court. The role of the Oversight Committee is discussed in the final section of this article.

Separately from issues of regulatory failure, HM Treasury will be able to order independent inquiries into the PRA's economy, efficiency and effectiveness. The PRA will be subject to regular audit by the National Audit Office, including value-for-money audits.

The PRA will have a number of mechanisms in place to support transparency to regulated financial firms and the wider public. These mechanisms include arrangements to consult interested parties, including on rules; publication of the PRA's strategy on an annual basis; the PRA's Annual Report; and a complaints scheme, including the establishment of an independent Complaints Commissioner, which is being set up jointly with the FCA.⁽²⁾

With specific regard to the financial services sector, the PRA will have a general duty to consult the firms it regulates, as well as representatives of those firms, about its general policies and practices and their consistency with its statutory duties. As well as requiring the PRA to publish proposed rules in draft, the Act also requires a PRA Practitioner Panel to be set up. The PRA will not be accountable to regulated firms or their representatives for delivery of its public policy objectives, however. It will be accountable to the public and to Parliament.

Approach

The PRA will advance its objectives by two means. First, through **regulation** — that is, by setting standards or policies that it expects firms to meet. And second, through **supervision** — that is, by assessing the risks that firms pose to

the PRA's objectives in the context of these policies and taking actions, where necessary, to reduce them.

The PRA's approach to regulation and supervision and how it will go about implementing this approach have been developed by the FSA's Prudential Business Unit and the Bank over the past couple of years. The approach, which has been set out in two 'approach' documents and was summarised in a 2012 Q4 *Bulletin* article,⁽³⁾ will build on significant changes to prudential supervision already introduced by the FSA since the crisis. It will, within the statutory framework, have three defining characteristics:

- **A judgement-based approach.** The PRA will use judgement in determining whether financial firms are safe and sound, whether insurers provide appropriate protection for policyholders, and whether firms meet, and are likely to continue to meet, the Threshold Conditions. Judgements will be based on evidence and analysis, and will not be constrained by a narrow interpretation of either domestic or EU rules.
- **A forward-looking approach.** The PRA will assess firms not just against current risks, but also against those that could plausibly arise in the future. Understanding the external economic environment will be crucial in this regard. Where the PRA judges it necessary to intervene, it will generally aim to do so at an early stage.
- **A focused approach.** The PRA will focus on those issues and firms that pose the greatest risk to the stability of the UK financial system and to policyholders. The frequency and intensity of supervision applied to a particular firm will therefore increase in line with the risk it poses to the PRA's objectives.

Although the PRA will be required by statute to promote the safety and soundness of all firms it supervises, it will prioritise its resources and focus towards those firms with the greatest potential to affect its objectives adversely. The scale of a firm's 'potential impact' on the financial system will depend on its size, complexity and interconnectedness with the rest of the system. Additionally for insurers, it will reflect the size (including number of policyholders) and type of business undertaken. The PRA will also vary the resources and focus it applies to financial firms based on their proximity to failure and resolvability, given the possible adverse effects of disorderly firm failure on its objectives.

(1) The Chief Executive Officer of the FCA will not take part in decision-making about individual firms.

(2) www.bankofengland.co.uk/financialstability/Documents/consultationoncomplaints.pdf.

(3) See www.bankofengland.co.uk/publications/Documents/other/prabankingappr1210.pdf, www.bankofengland.co.uk/publications/Documents/other/prainsuranceappr1210.pdf and www.bankofengland.co.uk/publications/Documents/quarterlybulletin/qb120405.pdf.

The PRA will set and communicate the policies that support its general approach. Reflecting the international nature of banking and insurance, this will involve the PRA, alongside other areas of the Bank, playing a full and active role in the development and implementation of EU and international prudential standards.

Financial Policy Committee

The primary statutory objective of the FPC is to exercise its functions with a view to helping the Bank achieve its financial stability objective. The responsibility of the FPC in achieving that objective relates primarily to the 'identification of, monitoring of, and taking of action to remove or reduce systemic risks with a view to protecting and enhancing the resilience of the UK financial system'.⁽¹⁾ The FPC's task will not be to achieve resilience at any cost, however. It should not act in such a way as to likely have 'a significant adverse effect on the capacity of the financial sector to contribute to the growth of the UK economy in the medium or long term'. The legislation provides that, subject to achieving its primary objective, the FPC must also support the Government's economic policy, including its objectives for growth and employment. This secondary objective is the same as the MPC's (Figure 2). To support meeting these objectives, the FPC will have powers to make recommendations and to use macroprudential tools.

In February 2011, Court created an **interim FPC** to shadow, as far as possible, the future statutory FPC's macroprudential role. Although lacking the legal powers of the statutory FPC, the interim FPC has contributed to maintaining financial stability by monitoring and publicising risks to stability of the financial system and making recommendations in order to reduce and mitigate them.

Against a backdrop of large and persistent risks from the euro area and weak credit growth in the United Kingdom, the interim FPC's recommendations have focused on moving the UK banking system towards a more transparently resilient position. The interim FPC has also strengthened the interaction between the Bank and the FSA, enhancing close co-ordination between micro and macroprudential policies. Finally, the interim FPC has provided leadership in developing the framework for macroprudential policy in the United Kingdom by carrying out preparatory work and analysis to support the creation of the statutory FPC. This has included making recommendations to HM Treasury on the set of statutory macroprudential instruments that the permanent FPC should have at its disposal.

Instruments of macroprudential policy

The statutory FPC will have two main types of power. The first power will be to make **recommendations**. It can make recommendations to anybody, including, for example, the rest of the Bank, the Financial Reporting Council and representative bodies.

The FPC will have a special power to make recommendations on a comply-or-explain basis to the PRA and the FCA. That is, to comply with the recommendation as soon as practicable or explain in writing and in public to the FPC why they have not done so.

The FPC will also be able to **direct** the PRA or the FCA to adjust specific macroprudential tools or instruments. The FPC will only be able to give directions in respect of macroprudential tools that HM Treasury has designated to it in secondary legislation, including through the implementation of the EU's Capital Requirements Directive (CRD4).

The Government is proposing to make the FPC responsible for the setting of two macroprudential tools:

- The **countercyclical capital buffer** can be used to require banks, building societies and large investment firms to hold additional loss-absorbing capital against all exposures. That increases the capacity of the system to absorb losses and acts to mitigate systemic risks. It is a simple, aggregate tool, readily applicable in a time-varying manner.
- **Sectoral capital requirements** require an additional capital requirement against specific exposures that the FPC judges to pose a risk to the stability of the system as a whole.

In addition, the Government intends to provide the FPC with direction power over a time-varying leverage ratio tool, but no earlier than 2018 and subject to a review in 2017 to assess progress on international standards.⁽²⁾

Mitigating systemic risks related to the fault lines or other vulnerabilities in the financial system will be a key responsibility of the FPC. The FPC will be able to make recommendations to HM Treasury on the 'regulatory perimeter' — that is, the boundary between regulated and non-regulated activities within the UK financial system. In particular, the FPC may provide recommendations on: which activities should be regulated, and which should not; whether institutions carrying out regulated activities should be designated for prudential regulation by the PRA, rather than the FCA, and *vice versa*; where the FCA might be able to set product intervention rules; and the types of unregulated institutions from which the PRA may collect information.⁽³⁾

The FPC will co-operate closely with overseas counterparts, including at the European Systemic Risk Board and through other global fora (such as the Financial Stability Board, the

(1) See section 9(c) of the Act.

(2) The design of the leverage ratio tool will depend on the provisions of the relevant European legislation and will be set out in secondary legislation to be introduced as necessary by the Government at the time.

(3) See Box 4, Bank of England *Financial Stability Report*, November 2012 for further detail on the FPC's approach to the regulatory perimeter.

Committee on the Global Financial System and the Basel Committee on Banking Supervision) to ensure that macroprudential policy decisions are implemented effectively and that cross-border leakages are dealt with appropriately. The FPC will have due regard to the impact of its decisions on jurisdictions both inside and outside the European Economic Area and, where relevant, will adhere to EU legislation outlining co-ordination arrangements once finalised.

The FPC will monitor a wide and time-varying set of measures, depending on the emerging risks, including both market and supervisory intelligence, and 'stress tests' of financial sector resilience.⁽¹⁾

Governance and accountability

The FPC will have ten voting members: the Governor (who will chair the FPC); the Deputy Governors for financial stability, monetary policy and prudential regulation; the Executive Director of the Bank of England for Financial Stability; the Chief Executive Officer (CEO) of the FCA; and four external members. In addition, a representative of HM Treasury will be a non-voting member of the FPC and the Executive Director of the Bank of England for Markets will routinely attend FPC meetings.

If consensus cannot be reached then a decision is taken by a vote of all those voting members present at the meeting. In the event of a tied vote, the Chair of the FPC has a second, casting vote. The nature of the vote on any decision, whether unanimous or otherwise, will be reflected in a formal Record of the meeting.

The FPC is required by statute to meet at least four times a year. Meetings will be held to a pre-announced quarterly schedule. The Record of the FPC's deliberations must be published within six weeks of a meeting. The FPC is also required to publish a *Financial Stability Report* twice a year. This will cover the Committee's assessment of the outlook for the stability and resilience of the financial sector at the time of preparation of the *Report*. It will also review progress against previous recommendations and directions, as well as report any new policy actions it has taken to reduce and mitigate risks to stability. The FPC's public policy decisions will be announced via the *Financial Stability Report* or in an official statement to the market shortly after a meeting.

Oversight of financial market infrastructures

A further change in the Act is to grant the Bank responsibility for the supervision of central counterparties and securities settlement systems in the United Kingdom, to sit alongside the Bank's existing responsibilities for overseeing recognised payment systems.

The Act brings responsibility for supervision of these post-trade financial market infrastructure providers (FMIs) to the Bank in light of their particular importance to financial stability. The Bank and other authorities internationally, including the G20, have encouraged market participants to make greater use of FMIs given the benefits they can provide to market stability and wider financial stability through improved counterparty credit and operational risk management. But this has, in turn, increased the scale and importance of FMIs, in particular central counterparties, for the functioning of the global financial system.

The Bank's supervision of FMIs will seek to ensure that management of these institutions gives proper regard to protecting the financial system as a whole and that sufficient priority is given to the continuity of key services, without systemic disruption and without recourse to public funds. The FPC, in light of its responsibilities for reducing risks to the UK financial system, will be able to make recommendations to the Bank regarding the supervision of payment systems, clearing houses and settlement systems.

The Bank's approach to supervision of FMIs will be grounded in the international CPSS-IOSCO 'Principles for financial market infrastructures'.⁽²⁾ These establish principles for the management of risks faced by FMIs including credit, liquidity, operational and legal risks as well as governance, default management and transparency.⁽³⁾ And UK central counterparties will need to satisfy the technical standards that support the European Market Infrastructure Regulation. The Bank's supervisory approach will go beyond those minimum standards where necessary.⁽⁴⁾ The Bank will focus its interventions on material threats to stability but will expect systems to address regulatory requirements across the board. The Bank will have powers of enforcement but will, where possible, seek to supervise with the support of FMIs and their participants.

Importantly, the Act also provides for enhanced recovery and resolution powers in relation to central counterparties. The Act establishes a resolution regime, as part of which the Bank will become the resolution authority for central counterparties. The current European draft legislation for resolution regimes does not extend to FMIs. However, the European Commission issued a consultation on a possible framework for the recovery and resolution of non-bank financial institutions in late 2012.

In terms of accountability, the Bank is required to report annually on performance of its oversight functions. A

(1) See Bank of England (2013), 'The Financial Policy Committee's powers to supplement capital requirements', January.

(2) Committee on Payment and Settlement Systems-International Organization of Securities Commissions.

(3) www.bis.org/publ/cpss101.htm.

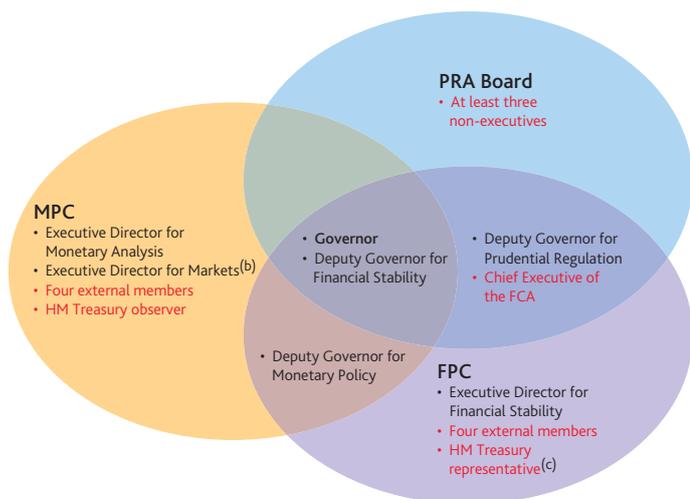
(4) www.bankofengland.co.uk/publications/Documents/news/2012/nr161.pdf.

complaints scheme, with an independent Complaints Commissioner, will be established in relation to these functions. HM Treasury also has power to direct the Bank in relation to its supervision of central counterparties or payment systems if necessary for compliance with EU or international requirements and to request investigations into regulatory failures.

Interaction between the authorities

The new system will not work if the Bank functions in silos. The framework therefore encourages co-operation and co-ordination across the different policy bodies. As highlighted in **Figure 3**, for example, there is overlap between the memberships of the FPC, the PRA Board and the MPC, including the Governor and the Deputy Governor for Financial Stability both being members of all three policymaking bodies. This will support the flow of information across the different bodies and an understanding of their approaches and likely reactions to events.

Figure 3 Membership of Bank of England statutory decision-making bodies^(a)



(a) Members shown in red are not part of the Bank's Executive Team.

(b) The Executive Director for Markets will also routinely attend FPC meetings.

(c) Non-voting member of the FPC.

PRA

Co-ordination between the PRA and the FCA will be assisted by the membership of their CEOs on each other's board. Further, the PRA and the FCA will have a statutory duty to co-ordinate with each other in the exercise of their public functions, including policymaking and supervision. And the PRA will have the power to require the FCA to refrain from certain actions where it sees a potential threat to financial stability, including where that arises from the potential failure of a firm.⁽¹⁾ A Memorandum of Understanding (MoU) between the FCA and the PRA describes how the two regulators will fulfil this duty to co-ordinate.⁽²⁾ A further MoU provides for co-operation between the Bank (including the PRA) and the FCA on market infrastructure issues,

including in relation to the supervision of members of FMI's by the PRA and the FCA.⁽³⁾

FCA

As well as being the United Kingdom's conduct regulator, the FCA will carry out microprudential regulation for many financial firms, including non-designated investment firms, asset managers, exchanges, trading platforms and hedge funds. As such, it will play a role in supporting the stability of the UK financial system. Co-ordination between the FPC and the FCA will be assisted by the CEO of the FCA being a voting member of the FPC. And the FPC will have the power to make recommendations on a comply-or-explain basis to the FCA.

Bank and HM Treasury — crisis management

Ex-ante measures to underpin financial stability may not always be successful. The authorities therefore need clear arrangements in place for crisis management. Responsibilities between HM Treasury and the Bank (including the PRA) in relation to financial crisis management are set out in an MoU, which has a particular focus on monitoring and managing potential risks to public funds. Under the Act, the Chancellor has a power of direction over the Bank in relation to the provision of financial assistance to a firm or to the use of stabilisation powers, where necessary to resolve or reduce a serious threat to financial stability. Under the MoU, the Chancellor can direct the Bank to:

- conduct special support operations for the financial system as a whole, in operations going beyond the Bank's published frameworks;
- provide 'Emergency Liquidity Assistance' in support operations going beyond the Bank's published frameworks to one or more firms that are not judged by the Bank to be solvent and viable; and
- implement a particular stabilisation option under the Special Resolution Regime.

HM Treasury will provide the Bank, and any special purpose vehicle set up by the Bank to carry out support operations, with indemnities covering any risks arising from actions taken under direction from HM Treasury. The power of direction is not available in relation to supervisory decisions taken by the PRA and certain other decisions and functions of the Bank.

(1) In the special case of with-profits insurance policies, the Act gives the FCA the responsibility for determining whether the declaration of discretionary payments to policyholders is fair, and the PRA the power to veto any such proposed declaration if it is incompatible with the safety and soundness of the insurer. An MoU sets out the responsibilities of the FCA and the PRA in relation to with-profits insurance, see www.bankofengland.co.uk/publications/Documents/other/pradraftwithprofitsmou.pdf.

(2) www.bankofengland.co.uk/financialstability/Documents/overseeing_fs/fca_pra_draft_mou.pdf.

(3) www.bankofengland.co.uk/publications/Documents/other/pradraftmou.pdf.

MPC

Information flows between the MPC, the PRA and the FPC will be important in supporting the objectives of all three bodies, including the MPC. Both credit conditions and broader financial stability help to shape macroeconomic conditions and are therefore important to monetary stability, while prudential supervisors may have special insights to developments in credit conditions. Further, actions taken by the FPC may have a bearing on macroeconomic conditions. In addition to overlapping membership between the FPC, the MPC and the PRA Board, there will be information exchange between the bodies, including MPC members being able to attend briefings for FPC meetings and *vice versa*.

Governance of the Bank

With the granting of significant new powers to the Bank, effective governance will be crucial for ensuring that the Bank can carry out its responsibilities. This section sets out the main governance arrangements of the Bank from April 2013, including the roles of Court and the newly created Oversight Committee.

Court

The Court of Directors is responsible for managing the affairs of the Bank of England other than the formulation of monetary policy. The members of Court are appointed by the Crown and consist of the Governor of the Bank of England, the Deputy Governor for Financial Stability, the Deputy Governor for Monetary Policy, the Deputy Governor for Prudential Regulation and not more than nine Non-executive Directors. One of the Non-executive Directors is designated by the Chancellor of the Exchequer to chair Court.

Court's overall responsibilities include determining the Bank's objectives and strategy, and ensuring the effective discharge of the Bank's functions and the most efficient use of its resources. There is a new requirement for the Bank to publish a record of each meeting of Court. The record will set out decisions taken by Court and, in relation to each decision, a summary of Court's deliberations.

Court delegates the day-to-day management of the Bank to the Governor, who, in turn, delegates to other members of the executive. Court reserves key decisions to itself in relation to the following areas: the Bank's strategy and objectives; risk management policies; senior appointments within the Bank; changes in remuneration and pension arrangements; and the establishment of sub-committees of Court.⁽¹⁾

Oversight Committee

A new body, created by statute, in the governance of the Bank is the Oversight Committee, a sub-committee of Court consisting of the non-executive Court members. It replaces the Non-executive Directors Committee (NedCo).

The Oversight Committee has a statutory responsibility for keeping under review the performance of the Bank in relation to its objectives and strategy. This responsibility covers both monetary policy objectives and financial policy objectives, including the responsibilities of the MPC and the FPC.

In addition to scrutinising the processes and information used by the Bank and its committees to reach and implement their policy decisions, the Oversight Committee will have the power to commission reviews, including by external experts, of the Bank's performance in relation to its objectives. The Oversight Committee will be required to publish such reviews unless that would not be in the public interest. The Oversight Committee will also be required to monitor the Bank's response to a review and, where recommendations of a review are accepted by the Bank, monitor their implementation. This will give the Oversight Committee an explicit role in ensuring that reviews translate into real action, and that the Bank takes on board the lessons learnt. Members of the Oversight Committee will be able to attend MPC and FPC meetings in order to observe their discussions.

The statutory responsibilities of the Oversight Committee do not extend to the PRA. Court has decided however that, as a subsidiary of the Bank, the PRA should also be subject to review by the Oversight Committee.

The Oversight Committee will be chaired by the chair of Court. The Bank's *Annual Report* will include a report by the Oversight Committee on the matters for which it is responsible.

Other changes

One other important governance change is to the appointment arrangements of the Governor of the Bank. Under the amendment to the Act, a Governor of the Bank of England is to be appointed for a single term of eight years, rather than a maximum of two five-year terms, as was the case previously.⁽²⁾ Deputy Governors will be appointed for no more than two terms of five years.

Conclusion

From April 2013, the Bank of England will be given significant new powers and responsibilities by Parliament in relation to the regulation of individual financial institutions, financial market infrastructure providers and the oversight of the financial system as a whole, to go alongside its existing responsibilities, including for monetary policy.

(1) For a full list of responsibilities reserved by Court see www.bankofengland.co.uk/publications/Documents/annualreport/2012/2012report.pdf. Note that, under the Act, the Financial Stability Committee, currently a statutory sub-committee of Court, will be ended and its statutory functions, mainly in relation to firm resolution and payment system oversight, will revert to Court.

(2) Mark Carney, who will become Governor on 1 July 2013, has been appointed for a single term of five years.

As part of the Bank, the PRA will promote the safety and soundness of deposit-takers, insurers and designated investment firms, focusing primarily on the adverse effects that they can have on the stability of the financial system; and contribute to ensuring that insurance policyholders are appropriately protected. Meanwhile, the FPC, which has been operating in interim form since 2011, will be formally charged with contributing to the achievement of the Bank's financial stability objective by identifying, monitoring and taking action to remove or reduce risks to the resilience of the

financial system as a whole. The Bank will also become responsible for regulation of certain post-trade financial market infrastructure providers, as well as having new powers in relation to the arrangements to deal with failing financial institutions.

Given these new powers, revised governance arrangements are being put in place to ensure that the Bank carries out its responsibilities effectively and transparently. The Bank is accountable to Parliament and the public.

The profile of cash transfers between the Asset Purchase Facility and Her Majesty's Treasury

By Nick McLaren and Tom Smith of the Bank's Macro Financial Analysis Division.⁽¹⁾

In November 2012, a process for regular cash transfers between the Bank of England's Asset Purchase Facility Fund Limited (APF) and Her Majesty's Treasury (HMT) was established. The size and timing of these transfers depends on a number of uncertain factors, including the future path of Bank Rate, and the price at which the assets held by the APF are ultimately sold. This article uses a spreadsheet-based framework, which has also been made available on the Bank's website, to show how the size and timing of the transfers varies depending on the assumptions made about these uncertain factors. While the initial transfers are from the APF to HMT, it is likely they will be offset by payments in the opposite direction in the future. The ultimate net amount that will be transferred is uncertain, and a wide range of outcomes is possible.

The Bank of England Asset Purchase Facility Fund Limited (APF) is a wholly-owned subsidiary of the Bank of England. It was established in January 2009 to purchase high-quality private sector assets on behalf of the Bank, in order to improve conditions in these markets and so increase the availability of corporate credit. In February 2009, this remit was expanded to allow the Monetary Policy Committee (MPC) to use the APF to make purchases of public and private sector assets for monetary policy purposes. Since then the APF has continued to be used for both these reasons. By acting as a backstop in private markets, the APF has been successful in supporting these markets without the need for large purchases of private sector assets. So the majority of the APF's purchases have been of UK government bonds (gilts) for monetary policy purposes.⁽²⁾

The APF is fully indemnified by Her Majesty's Treasury (HMT): that is, any financial losses as a result of the asset purchases are borne by HMT, and any gains are owed to HMT. Initially, it was envisaged that payments due under the indemnity would be settled when the asset purchase scheme ended. But as the scale and likely duration of the scheme have since increased significantly, on 9 November 2012 it was agreed to alter this arrangement and establish a process for ongoing quarterly transfers between the APF and HMT.⁽³⁾

The size of these quarterly transfers, and the ultimate net amount transferred to or from the APF, is uncertain and depends on a number of factors, including the future path of Bank Rate and the price of the assets when they are sold. This

article explains how the expected size of the transfers varies depending on the assumptions made for these uncertain factors. For instance, other things equal, if Bank Rate rises faster or to a higher level, then the size of the ultimate net transfers from the APF to HMT will be smaller. A spreadsheet has also been made available on the Bank's website, allowing users to examine for themselves how the transfers depend on the assumptions made for these variables.⁽⁴⁾

The net amount transferred to or from HMT by the end of the scheme is the same as the net financial gain or loss of the APF. But while it is useful to understand the possible size and timing of these transfers to and from the APF, this narrow accounting definition of the financial gain or loss is not a measure of the impact of the scheme on the public sector accounts as a whole. That is for two reasons. First, it does not take into account the effect of asset purchases on the value of the

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- (1) The authors would like to thank Simon Liddell, Paul McArdle, Sarah Prince and Magda Rutkowska for their help in producing this article.
 - (2) The initial purchases of private sector assets were directed towards improving market functioning and were funded by the issuance of Treasury bills and the cash management operations of the Debt Management Office. For more details of the rationale of these purchases and their impact, see Fisher (2010). From March 2009 asset purchases were also used as a tool for monetary policy, financed by the creation of central bank money, a policy commonly known as quantitative easing. To date £375 billion of assets have been purchased for this purpose. More details on the history and design of the APF and the Bank's quantitative easing policy can be found in Joyce, Tong and Woods (2011).
 - (3) The details were set out in an exchange of letters between the Chancellor of the Exchequer and the Governor of the Bank of England. See www.hm-treasury.gov.uk/d/chx_letter_091112.pdf and www.bankofengland.co.uk/monetarypolicy/Documents/pdf/govletter121109.pdf.
 - (4) The spreadsheet is available for download at www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2013/APFcashtransfers.xlsx. Excel 2007 or a compatible program must be installed on your computer to open the file. Instructions for use are included in the spreadsheet.

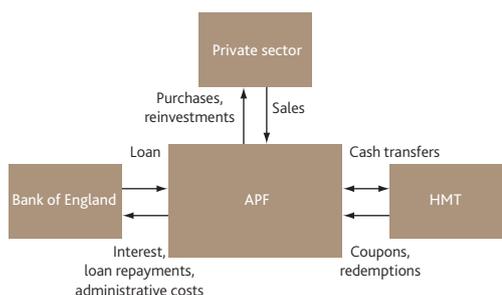
government’s liabilities, or their impact on the government’s ongoing financing costs. And, second, it does not include the effects on government tax and spending of the fall in yields and boost to economic activity caused by asset purchases.⁽¹⁾ More broadly, the success of the asset purchase scheme should be judged by the degree to which it meets its aims — to improve corporate credit conditions and to boost nominal spending in order to meet the inflation target in the medium term.⁽²⁾

The first section of this article outlines the cash transfer arrangement in more detail, and then explains why the initial transfers to HMT are likely to be offset by payments back in the opposite direction in the future. The second section sets out the factors that will affect the profile of the cash transfers. The third section then considers how the profile of transfers is affected by adjusting each of these uncertain factors. The final section concludes.

Understanding the cash transfers

Asset purchases involve a series of cash flows between the APF, the Bank of England, HMT and the private sector. To understand how the cash transfers between HMT and the APF fit into this, this section first outlines these interconnections, which are summarised in **Figure 1**. It then goes on to explain why cash accumulates in the APF’s account at the Bank of England, in order to show how the transfers are likely to evolve over time.

Figure 1 Cash flows to and from the APF

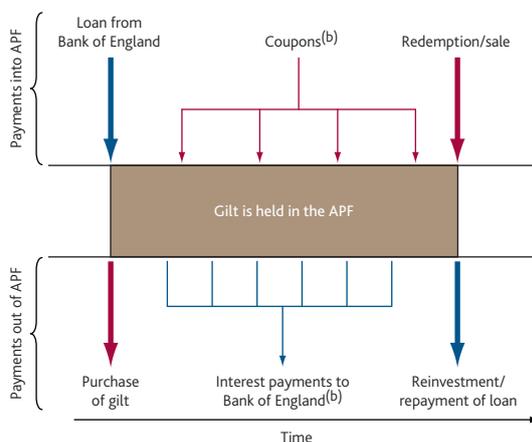


The assets held by the APF are nearly all gilts, which were bought in the secondary market funded by a loan from the Bank of England. The APF also holds some high-quality private sector assets, and remains ready to buy and sell these assets in private markets. But these holdings are small compared to the gilt holdings: they peaked at £3 billion in May 2009 and are now less than £25 million, compared to just under £375 billion of gilts.⁽³⁾ In the interest of simplicity, the rest of this article focuses on the gilt holdings, and does not discuss the private sector assets held by the APF.

The APF receives coupon payments on its gilt holdings, which are paid by HMT. If the gilts are held until they mature, the APF also receives a final redemption payment.

The income earned from coupons is used by the APF to pay the interest on the loan from the Bank of England, at Bank Rate, and the administrative costs to the Bank.⁽⁴⁾ When a gilt in the portfolio matures or is sold, the MPC may decide either to repay the loan or reinvest by buying other gilts in the secondary market. Which action is taken will be decided by the MPC at the time, in light of the prevailing circumstances.⁽⁵⁾ **Figure 2** illustrates each of these payments into and out of the APF for an individual gilt. The red arrows correspond to payments associated with the gilt, and the blue arrows to payments relating to the loan from the Bank used to finance the purchase.

Figure 2 The lifetime of a gilt in the APF^(a)



(a) Red arrows represent payments for, and from, the gilt. Blue arrows represent payments relating to the loan used to finance the gilt purchase.
 (b) Coupon payments are made every six months, while interest payments are made on a monthly basis.

The cash transfer arrangement

Importantly, the size and timing of the cash payments into and out of the APF is not necessarily the same. For instance, there is no reason why the APF’s coupon income should be equal to its interest payments: the coupon rate is set when a bond is first issued, while the level of Bank Rate is set by the MPC based on prevailing economic conditions. Indeed, since the APF first purchased gilts in March 2009, Bank Rate has

(1) Bank of England estimates suggest the first £200 billion of asset purchases may have had a peak impact on the level of real output of 1.5%–2% (Joyce, Tong and Woods (2011)). Based on the Office for Budget Responsibility estimates for cyclically adjusted net borrowing, all else equal a 1% increase in real output would reduce the public sector net borrowing requirement as a proportion of output by 0.5% in the contemporaneous year, and by 0.2% in the following year: see Helgadottir *et al* (2012). Each of these central estimates is subject to considerable uncertainty.
 (2) For more details see Bean (2009).
 (3) Details of the transactions are published through the Bank’s statistical publications, operational announcements, the ‘Markets and operations’ *Quarterly Bulletin* article and the *APF Quarterly Report*. For more details see www.bankofengland.co.uk/markets/Pages/apf/default.aspx.
 (4) The administrative costs are small relative to the cash flows associated with the gilt holdings, and so are not discussed further in this article.
 (5) For more details, see the minutes of the Monetary Policy Committee meeting, 6 and 7 February 2013, www.bankofengland.co.uk/publications/minutes/Documents/mpc/pdf/2013/mpc1302.pdf.

remained at 0.5%, considerably below the average coupon rate on the gilts that have been purchased. So the interest paid on the loan has on average been much less than the coupon income received. As a result, a large amount of cash has built up in the APF account at the Bank: more than £31 billion by the end of 2012. (As the next subsection will explain, not all of this cash can be thought of as a financial gain for the APF.)

In November 2012, it was agreed that the APF would transfer the existing cash balance to HMT over a nine-month period.⁽¹⁾ A process was also created for an ongoing quarterly transfer. The amount transferred to HMT at the end of each quarterly accounting period will be the coupon income earned by the APF during that quarter, minus a buffer of cash for the known expenses of the APF in the next quarter, as well as any additional income or expenses incurred during the current quarter. If the total deductions exceed the coupon income earned during the quarter, then a transfer is made in the opposite direction, from HMT to the APF.⁽²⁾

The expenses which are included in the buffer are the expected interest payments on the loan, the administrative costs, and any extra cash required when gilts mature (that is, any difference between the redemption payment and the amount needed to pay for reinvestment or to repay the loan). Unlike the redemption payments received when gilts mature, the timing of gilt sales and the proceeds received are not known in advance, and therefore neither is the amount of extra cash (if any) required to repay the loan. Likewise, if Bank Rate does not change in line with market expectations during the quarter, the interest payments on the loan will be different from those that were expected at the start of the quarter. Neither of these expenses is specified in the buffer; instead they are deducted from the transfer made at the end of the quarter in which they occur.

How the transfers are likely to evolve over time

To show how the size of these transfers is likely to evolve over time, it is useful to understand why cash has built up in the APF account to date. There are two main reasons for this cash accumulation.

First, Bank Rate has been lower for longer than was priced into markets when most of the gilts were purchased. As a result, the APF's interest payment outflows have been smaller than would have been expected at that point, relative to the coupon payment inflows, providing an *unexpected* boost to the APF's cash balance.

The second reason relates to the fact that almost all of the gilts held by the APF were bought 'above par': that is, for a higher price than their redemption payment. That has an important influence on the broad profile of cash transfers over the life of the APF.

When the price of a gilt is above its redemption payment, that reflects market expectations, at the time of purchase, that the gilt would pay a coupon rate which was high relative to the expected path of Bank Rate. This means that, even at the time of the purchase of the gilt, the APF was *expected* to receive coupon income which was greater than the interest payments on its loan from the Bank. It does not, however, make sense to think of this in isolation as a financial gain for the APF. That is because this part of the income from the coupons is expected to be offset by a shortfall that will materialise when the gilts are sold or reach maturity.

That shortfall is likely to arise because gilt prices tend to approach their redemption payments over time: the APF gilts which were purchased above par will tend to decline in value, even if the yield curve does not rise. As a result, the proceeds from redemption payments or gilt sales are expected to be insufficient to cover the required loan repayments. The expected part of the excess of coupon income over loan interest payments is needed to cover this shortfall. Therefore, when the above-par gilts start to reach maturity or be sold, the need to cover any shortfall will result at first in smaller payments to HMT, and then the likelihood of payments back from HMT to the APF.

The fact that almost all of the gilts were bought above par ensures that all of the profiles examined below feature the same broad pattern of payments: in each case, transfers are initially made from the APF to HMT but then this is offset by payments in the opposite direction in the future.

What determines the size and timing of the transfers to and from HMT?

As discussed above and illustrated in **Figure 1**, the cash transfers between the APF and HMT are just one of a number of cash flows into and out of the APF. In order to make projections for the size and timing of the transfers between the APF and HMT, it is necessary to make projections for all the other flows, as well as for the paths of the relevant external factors, such as gilt prices and the path of Bank Rate. This section sets out a spreadsheet-based framework that can be used to produce these projections.

Some of the factors that affect these cash flows are known in advance. For example, the future coupon and redemption payments from HMT to the APF will depend only on the holdings of gilts in the current APF portfolio — as long as no further gilts are bought or sold.

(1) A schedule was agreed with HMT to pay the accumulated past excess cash (up to 31 March 2013) gradually across the first three quarters of 2013. This was to avoid excessively large flows back to the Debt Management Office. The first regular transfer of newly accumulated excess cash balances will be made in July 2013.

(2) For administrative reasons the transfers will take place shortly after the end of the quarterly accounting period, in the first month of the next quarter.

Other factors, such as the future path of Bank Rate or the MPC's decisions about future asset sales or purchases, are not known in advance. So it is necessary to make assumptions about these factors. To explain the spreadsheet-based framework, this section uses an example based on a set of illustrative assumptions for each of these factors, details of which are set out below.

As the next section will show, the size of the transfers is very sensitive to the underlying assumptions, many of which relate to things which are difficult to predict. The examples and assumptions outlined in this article are therefore *not* intended as forecasts, either of the path of policy or of the future size of transfers between the APF and HMT. The particular illustrative example used in this section is instead intended to demonstrate how the framework variables affect the transfers. It is then used in the next section as a yardstick to measure the effect of changing these assumptions.

Table A summarises the three key variables in the framework, outlining their main effects on the APF balance sheet, and the values that are assumed for each variable in the illustrative example presented below. The effect of varying these assumptions is then considered in the following section.

Table A Variables used in the spreadsheet-based framework

Variable	Main effects on APF balance sheet	Assumption in illustrative example
Path of Bank Rate	Determines interest payments from the APF to the Bank. Affects gilt yield curve and the market value of the gilt portfolio.	Follows path implied by market rates as of 28 February 2013: rates begin rising by about 10 basis points/quarter in early 2016, continuing to rise until they reach 4%.
Path of gilt sales	Determines time until the asset purchase scheme ends. Timing of sales affects the price at which gilts are sold.	£25 billion/quarter (at market prices) from September 2016.
Effect of sales announcement on term premia (see below)	Affects gilt yield curve and so the market value of the entire gilt portfolio.	Increases the profile for term premia by 200 basis points.

The framework also contains some simplifying assumptions about the details of future policy decisions and the future path of gilt yields. These are included so that the spreadsheet can be calculated quickly and is easier to understand.

- **The size and composition of the APF portfolio.** The framework assumes that no further assets are purchased, and that any sales and reinvestments take place uniformly across each of the gilts held in the portfolio.
- **Reinvestment of redemption payments.** Following each redemption payment prior to the MPC announcing gilt sales, the amount that was originally used to purchase the maturing gilt is reinvested in additional gilts, as was done

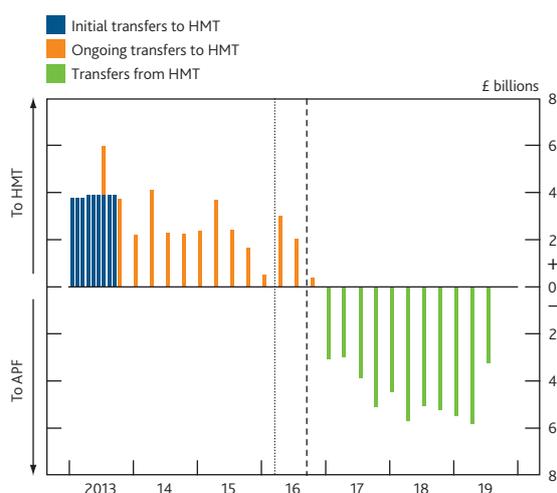
with the March 2013 redemption; once sales have started, following each redemption payment the amount that was originally used to purchase the maturing gilt is used to pay down the loan. As mentioned above, in practice the MPC has said that it will decide on the appropriate size of the asset purchase programme each month, including whether or not to reinvest maturing gilts.

- **The expected path of Bank Rate.** Expectations of the path of Bank Rate are identical to the assumed path for Bank Rate at all times, so there are no surprise movements in Bank Rate.
- **Term premia.** The treatment of the path for term premia — the difference between the expected path of Bank Rate and the gilt yield curve — is extremely simplified. The profile for term premia is set as the difference between the gilt yield curve and the assumed path of Bank Rate as of 28 February 2013. This profile is assumed not to vary at all, except for when sales are announced, at which point there is an immediate shift to its new profile.⁽¹⁾

An illustrative example

Chart 1 shows the transfers between the APF and HMT under the assumptions used in our illustrative example, as set out in the previous subsection, while **Chart 2** shows how the APF's balance sheet evolves over time under those assumptions. (Throughout this article, payments to HMT are represented on charts as positive values, while payments from HMT are represented as negative values.)

Chart 1 Transfers between the APF and HMT in the illustrative example^(a)

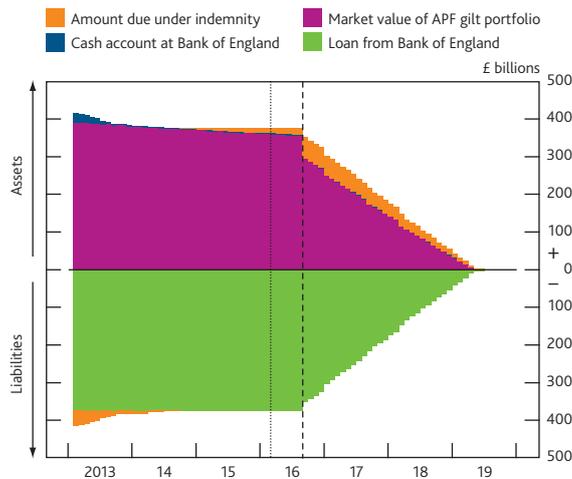


Sources: Bloomberg and Bank calculations.

(a) The dotted line represents when Bank Rate is assumed to start to rise. The dashed line represents when asset sales are assumed to begin.

(1) The shift in the level of term premia is constant for maturities greater than ten years. It is phased in at shorter maturities to avoid unrealistic jumps in short-maturity gilt yields.

Chart 2 The APF’s balance sheet in the illustrative example^(a)



Sources: Bloomberg and Bank calculations.

(a) The dotted line represents when Bank Rate is assumed to start to rise. The dashed line represents when asset sales are assumed to begin.

The sequence of events described by these charts is as follows. First, the £35 billion or so of cash that will have accumulated in the APF by the end of March 2013 is transferred from the APF to HMT. This is done in nine monthly instalments, shown by the blue bars in **Chart 1**. As that cash is transferred, the amount of cash in the APF account, shown by the blue area in **Chart 2**, decreases, and so does the amount due from the APF to HMT (the orange area).

Starting in July 2013, the ongoing coupon income is transferred in quarterly instalments, net of any interest payments or reinvestments. These are shown by the orange bars in **Chart 1**.⁽¹⁾ Some of the gilts reach maturity, and are reinvested. As discussed in the previous section, because almost all of the gilts were bought ‘above par’, the final redemption payment on these gilts is smaller than the purchase price, and so there is a shortfall relative to the quantity of cash that is reinvested. Where possible, this is made up using the cash available in the APF; if this is not sufficient, then the cash is transferred from HMT. The orange bars in **Chart 1** are smaller in quarters where this occurs — for instance, in January 2016 — because there is less cash available for transfer to HMT following the deductions.⁽²⁾

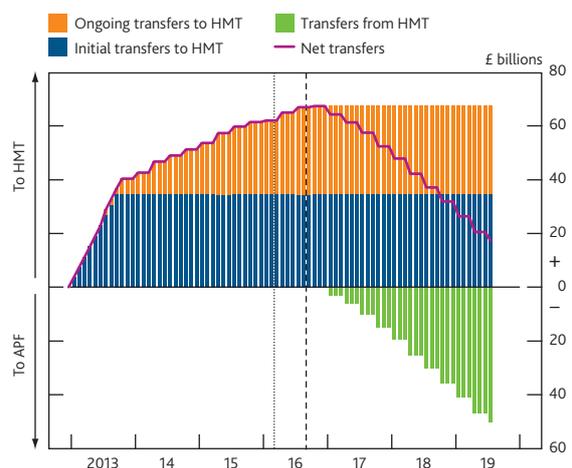
In the illustrative example, policy starts to tighten in 2016. At first, only Bank Rate is raised (the assumed timing of the first Bank Rate rise is denoted by a dotted vertical line in **Charts 1** and **2**).⁽³⁾ That increases the interest payments that must be made by the APF, reducing the amount of cash that is available to transfer to HMT: so the orange bars in **Chart 1** begin to shrink. Then, in September 2016, sales are announced (denoted by the dashed vertical line in **Charts 1** and **2**), and the yield curve is assumed to rise by 200 basis points (the reaction of the yield curve to the announcement of sales is considered in more detail in the next section). That lowers gilt prices,

reducing the market value of the entire portfolio — the height of the magenta area in **Chart 2** falls sharply at this point. This reduction implies that the amount due from HMT under the indemnity — the orange area in **Chart 2** — increases.

Selling the gilts has several effects. Most obviously, the portfolio starts to shrink over time. And because the cash received from sales is used to pay down the loan, that also shrinks over time (shown by the green area in **Chart 2**). Because the price of all the gilts held is assumed to fall when gilt sales are announced, the gilts are sold for a lower price (over and above the extent to which this would occur anyway as a result of the gilts being purchased ‘above par’, as discussed in the previous section). HMT makes transfers to the APF to cover this shortfall, shown by the green bars in **Chart 1**. Again, where possible, cash in the APF is used to make up this shortfall, with the remainder being transferred from HMT. But because the portfolio gets smaller as sales continue, the amount of coupons received also starts to fall, and therefore so does the amount of cash available to make up the shortfall: that is why the size of the transfers from HMT increases over time. This continues until the entire portfolio is sold.

To illustrate the net effect of the transfers, **Chart 3** shows the cumulative transfers over time. Under these assumptions the offsetting transfers back from HMT to the APF are initially small relative to the cumulative transfers to HMT.

Chart 3 Cumulative transfers between the APF and HMT in the illustrative example^(a)



Sources: Bloomberg and Bank calculations.

(a) The dotted line represents when Bank Rate is assumed to start to rise. The dashed line represents when asset sales are assumed to begin.

- (1) The quarterly transfers begin before the initial monthly transfers are complete: that is why there is a particularly large transfer to HMT in July 2013, when the first quarterly transfer coincides with one of the initial monthly transfers.
- (2) In the illustrative example, this shortfall can always be met by deductions from the cash that would have been transferred to HMT that quarter, without the need for supplementary transfers from HMT. In cases where a supplementary transfer was necessary, the orange bar would vanish completely, as there would be no cash remaining for transfer to HMT; the supplementary transfer, meanwhile, would appear as a single green bar.
- (3) The first rate rise is defined, for the market curve, as the date on which Bank Rate first rises above 75 basis points.

But over time these offsetting transfers grow in importance as transfers are required to cover the shortfall on the sale of gilts. By the time the asset purchase scheme ends, that leaves the net cumulative transfer from the APF to HMT at just over £17 billion (shown by the end point of the magenta line in **Chart 3**).

The possible size of the cash transfers

The previous section showed how the spreadsheet-based framework can be used to make projections about the APF's balance sheet and the transfers to and from HMT. But the illustrative example shown in that section is very sensitive to the underlying assumptions, over which there is considerable uncertainty. This section explains how the profile of the transfers changes when each of the key assumptions is varied. This provides an insight into how the size of the transfers will vary depending on the assumptions used. And it also demonstrates the wide range of possible outcomes for the net value of the total transfers, highlighting how much uncertainty there is over the final outcome.

The spreadsheet has also been made available on the Bank's website, allowing the user to input alternative assumptions for each of these uncertain variables.

The impact of announcing asset sales

It is very difficult to judge how the yield curve will react when the MPC announces its intention to reduce the size of the APF portfolio by selling the gilts. The metric used in the example above was based on the reaction of the yield curve to announcements about asset *purchases*. Previous Bank work found that the initial £200 billion of asset purchase announcements depressed gilt yields by around 100 basis points.⁽¹⁾ Applying this result to the current £375 billion gilt portfolio, and assuming an equal and opposite effect from announcing sales, would imply an increase in gilt yields of a little less than 200 basis points.

Alternatively it could be that current gilt prices already fully reflect expectations of future asset sales. In this case, if the announcement of sales and its timing did not contain any unexpected news, there would likely be little or no yield curve reaction.

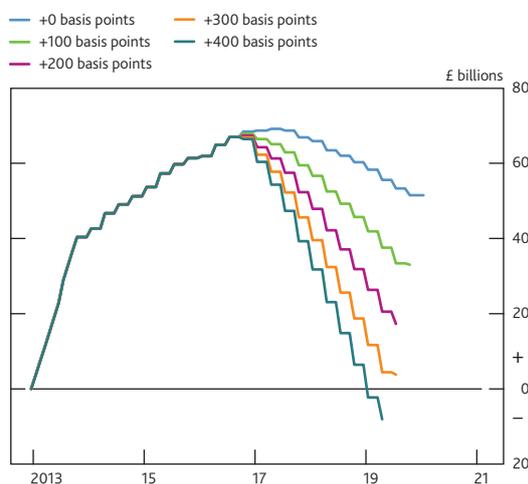
A further possibility is that announcing sales could trigger a larger reaction in gilt markets. As there is little precedent for large sales of government bonds by a central bank, it is difficult to calibrate this risk based on past events. But to give an indication of what the path of cash transfers would look like in this case, a 300 and 400 basis point rise are also considered below.

It could also be that there are other factors, such as stresses in financial markets, which have lowered current gilt yields

through a reduction in term premia. Such influences on the yield curve are not captured directly by this framework; but if those factors unwound before any assets were sold, then this could also reduce the market value of the APF portfolio.

Changing the assumption about how the announcement of asset sales affects the yield curve has a significant impact on the size of the cash transfers. The uncertainty over the size of the transfers can be seen in **Chart 4**, which shows the cumulative net transfers over time under the different assumptions about how the gilt yield curve reacts to the announcement of sales. The other assumptions used are the same as those in the illustrative example shown in the previous section — so the magenta +200 basis points line is the same as the magenta net transfer line in **Chart 3**, which also assumed a 200 basis points rise. In the case where announcing sales is assumed to have no effect on gilt yields, net transfers to HMT peak at around £70 billion in 2017 and end up at around £50 billion in 2020. In the opposite case, where the yield curve rises extremely sharply in response to the sales announcement, net transfers to HMT peak at around £65 billion. But by the time the asset purchase scheme ends, so much cash has flowed back from HMT to the APF that overall there has been a cumulative net transfer of £8 billion from HMT to the APF.

Chart 4 Cumulative net transfers to HMT under different assumptions about the effect of announcing sales^(a)



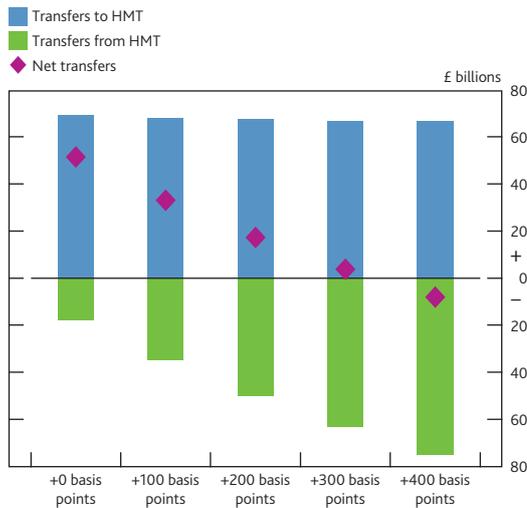
Sources: Bloomberg and Bank calculations.

(a) Assumptions for Bank Rate and the timing of asset sales as in **Table A**.

The reason why the net transfers are so different under these variations can be seen in **Chart 5**, which shows the final cumulative transfers in each direction under each assumption, as well as the cumulative net transfers. In each case the gross transfers from the APF to HMT are between £65 billion and £70 billion. That is because these transfers are largely determined by the composition of the portfolio, the path of

(1) See Joyce *et al* (2011).

Chart 5 Cumulative transfers under different assumptions about the effect of announcing sales^(a)



Sources: Bloomberg and Bank calculations.

(a) Assumptions for Bank Rate and the timing of asset sales as in Table A.

Bank Rate and the time taken for the scheme to end, which follow the same assumptions in each of these cases (the effect of altering these assumptions is explored in more detail below). But the gross transfers back from HMT to the APF range from around £20 billion to around £75 billion. This is because the different assumptions about the yield curve reaction lead to very different sales prices for the gilts in the APF portfolio. As a result, the size of the transfers that HMT must make to the APF to offset the shortfall from sales also varies substantially.⁽¹⁾

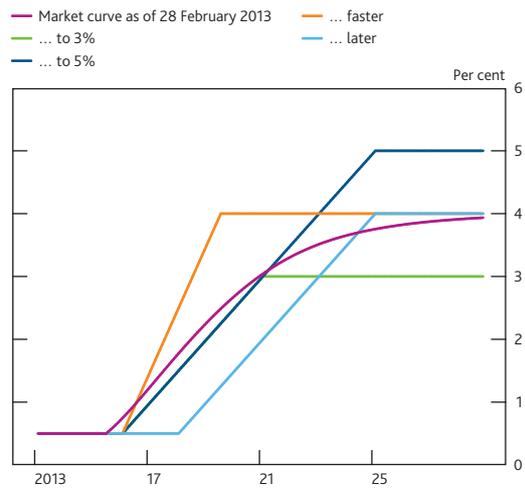
Clearly, just altering the single assumption about the reaction of gilt yields to the announcement of asset sales can cause large changes in the results. But it is very difficult to judge which of these outcomes is most likely.

The impact of different paths for policy

So far, this analysis has taken the path for Bank Rate and asset sales as given, with Bank Rate assumed to follow the path implied by market interest rates and asset sales following an arbitrarily chosen path. Of course the exact path of monetary policy is highly unlikely to follow that particular path in practice: the MPC may judge that a different path for Bank Rate is warranted by the economic conditions which subsequently prevail.⁽²⁾ And similarly the MPC may choose to begin selling gilts at a different time or speed than was assumed in the illustrative example. This subsection considers how the profile of cash transfers varies under different paths for policy.

The path of Bank Rate could take many different shapes, and it is impossible to examine all of them. To give an idea of the range of possible outcomes, four stylised alternative paths for Bank Rate, shown in Chart 6, will be considered. They are: a path where Bank Rate rises broadly in line with the

Chart 6 Alternative paths for Bank Rate^(a)



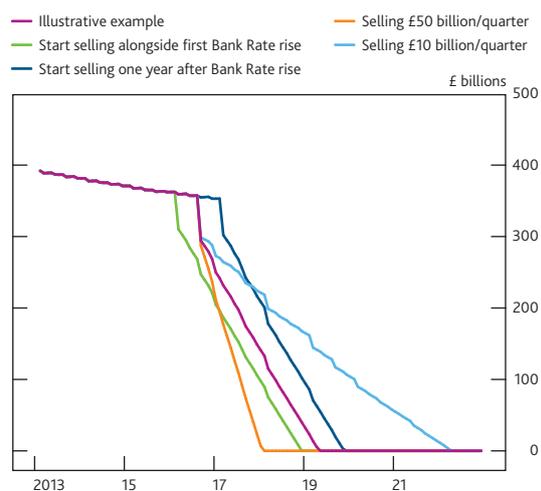
Sources: Bloomberg and Bank calculations.

(a) Assumptions for the impact of sales announcement and the timing of asset sales as in Table A.

market-implied path, but only to 3%; a path where it rises broadly in line with the market-implied path, but continues rising to 5%; a path where policy is tightened from the same point as in the market-implied path and to the same ultimate level, but where the pace of tightening is considerably faster; and a path where Bank Rate remains at 0.5% for much longer before rising in the same way as the market path would imply.

Similarly, Chart 7 shows what happens to the size of the APF portfolio under four stylised alternative paths for asset sales. They are: a path in which sales start as soon as Bank Rate is

Chart 7 Market value of the APF gilt portfolio under alternative paths for sales^(a)



Sources: Bloomberg and Bank calculations.

(a) Assumptions for Bank Rate and the impact of sales announcement as in Table A.

(1) The time taken to sell the gilts is also affected by this assumption. This is because the gilts are always assumed to be sold at a rate of £25 billion per quarter. So in scenarios where the value of the gilts falls further, it takes fewer quarters to sell them all.
 (2) Even as a measure of market expectations of the path of Bank Rate, the market-implied rates are imperfect: they will be affected by risk premia in the prices of the underlying financial contracts. Joyce and Meldrum (2008) discuss the use of market interest rates as a measure of expectations of Bank Rate.

Table B The effect of varying the underlying assumptions on the transfers to and from HMT

	Final cumulative transfers to HMT (£ billions)	Final cumulative transfers from HMT (£ billions)	Final cumulative net transfers to HMT ^(a) (£ billions)	Final payment date
Illustrative example	67	50	17	July 2019
Impact of sales announcement^(b)				
+0 basis points	69	18	51	January 2020
+100 basis points	68	35	33	October 2019
+300 basis points	67	63	4	July 2019
+400 basis points	67	75	-8	April 2019
Alternative paths for Bank Rate^(c)				
To 3%	69	46	23	July 2019
To 5%	68	53	15	July 2019
Faster	68	57	11	July 2019
Later	69	44	26	July 2019
Alternative paths for sales^(d)				
Faster	67	51	16	April 2018
Slower	68	47	21	July 2022
Earlier	63	48	16	April 2019
Later	71	56	15	January 2020

Sources: Bloomberg and Bank calculations.

(a) Difference of the previous two columns: so a positive number is a net transfer from the APF to HMT, while a negative number is a net transfer from HMT to the APF. Figures may not sum exactly due to rounding.

(b) Assumptions for Bank Rate and the timing of asset sales as in Table A.

(c) Assumptions for the impact of sales announcement and the timing of asset sales as in Table A.

(d) Assumptions for Bank Rate and the impact of sales announcement as in Table A.

raised for the first time; a path in which sales start a year after Bank Rate is raised for the first time; a path in which sales start at the same time as in the illustrative example shown in the previous section, but are carried out at a faster pace; and a path in which sales start at the same time as in the example but are carried out at a slower pace.

The effects on the profile of payments from varying these assumed paths for policy are summarised in Table B, together with the effects of varying the impact of announcing sales on the yield curve shown above.

Altering the path of Bank Rate has two main effects. Both of these effects act in the same direction such that, as shown in Table B, raising Bank Rate more quickly or to a higher level reduces the size of the total net transfers from the APF to HMT. First, by changing the interest payments that the APF must make on its loan, it changes the amount of cash available for transfer to HMT: that changes the gross cash transfers from

the APF to HMT. Second, the expected path of Bank Rate will affect the level of the yield curve: the higher the expected path of Bank Rate, the higher will be the level of the yield curve, all else equal. So the expected path of Bank Rate also affects the price at which the gilts are sold and thus the gross transfers back from HMT to the APF.

Altering the path of sales, meanwhile, affects not only the gross transfers from the APF to HMT, but also the gross transfers flowing in the opposite direction. These two effects, however, tend to offset each other, so that the effect on the net transfer to HMT is small relative to the gross transfers. This can be seen in Table B where the final cumulative net payments to HMT (penultimate column) do not vary by that much across the different assumptions about the path of asset sales.⁽¹⁾

Conclusion

The size of the quarterly transfers from the APF to HMT, and the ultimate net amount transferred, is uncertain and depends on a number of factors, including the future path of Bank Rate, and the price of the assets when they are sold. The framework outlined in this article can be used to examine how the size and timing of the transfers varies depending on each of the assumptions made.

In all of the scenarios considered in this article, the initial transfer of cash to HMT is followed by large offsetting cash transfers back in the future. But it is not possible to say with any precision how large the total gross and net transfers between the APF and HMT are likely to be, as the variables on which these transfers depend are difficult to predict, and a wide range of outcomes is possible depending on the assumptions chosen. Although the net transfers from the APF to HMT are positive in most of the scenarios considered in this article, it is not inconceivable that they could be negative overall, particularly if there is a large shift in the yield curve, for instance when asset sales are announced.

In any case, the eventual size of the net payments to or from HMT should not be used as a measure of the success of asset purchases, or of the impact of the scheme on the public sector accounts as a whole. The scheme should instead be judged by the degree to which it meets its aims — to improve corporate credit conditions and boost nominal spending in order to meet the inflation target in the medium term.

(1) The path of asset sales makes more of a difference if Bank Rate reaches a level high enough such that the outgoing interest payments on the loan exceed the incoming coupon payments. In that case, cash transfers back from HMT will be needed to make up the difference. The later asset sales begin, the longer this will go on for, and the larger the cumulative gross transfers back from HMT will be.

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Private equity and financial stability

By David Gregory of the Bank's Markets, Sectors and Interlinkages Division.⁽¹⁾

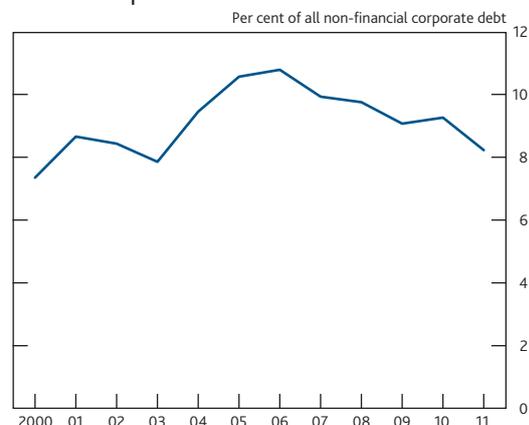
In the mid-2000s, there was a dramatic increase in acquisitions of UK companies by private equity funds. The leverage on these buyouts, especially the larger ones, was high. The resulting increase in indebtedness makes those companies more susceptible to default, exposing their lenders to potential losses. This risk is compounded by the need for companies to refinance a cluster of buyout debt maturing over the next few years in an environment of much tighter credit conditions. From a macroprudential policy perspective it will be important to monitor the use of debt in acquisitions in future episodes of exuberance. But there is also a potential role for private equity to play in promoting recovery in a downswing, in particular at the current juncture, by restructuring companies in difficulty.

A stable financial system is a key ingredient for a healthy corporate sector. In turn, a distressed corporate sector can have an adverse impact on the health of the financial system. Under a new regulatory framework coming into effect in April 2013, the Bank of England will take on an amended statutory objective to protect and enhance the stability of the financial system of the United Kingdom. And, in support of that objective, a Financial Policy Committee (FPC) — already operating in 'interim' mode — will be established within the Bank, charged with identifying, monitoring and taking action to remove or reduce systemic risks. Understanding different threats to stability, including from the sources and the structure of corporate finance and how these develop over the cycle, will be an important consideration for the FPC.

Private equity is a source of capital that has been raised outside of public equity markets for the purpose of investment in a company or asset. Private equity funds are sourced from investors — known as 'limited partners' — and then assigned to prospective investments by the fund managers — known as 'general partners'. Private equity funds differ from other investment funds in terms of strategy, typically seeking to control the businesses they invest in. They are also distinctive in terms of structure as they usually have a finite lifetime and are 'closed-end' — that is, they have a fixed number of shares. The origins of the industry lie in the purchase of equity stakes in companies — often referred to as 'buyout' activity — although some private equity firms now offer funds in other asset classes such as distressed debt and real estate. The focus of this article is on the buyout activity of private equity firms and the box on page 39 explains how a private equity buyout is structured.

Over the past two decades private equity has become an increasingly important source of capital in the global financial system. Companies owned by private equity funds now account for a material portion of the corporate sector. At the beginning of 2007, 14,000 firms were held in private equity ownership worldwide, compared to fewer than 5,000 in the year 2000 and fewer than 2,000 in the mid-1990s (World Economic Forum (2008)). In the United Kingdom the private equity owned sector amounts to around 5% of the corporate sector by total assets but accounts for a larger proportion of UK corporate sector debt — around 8%. Between 2000 and 2006, this share of debt accounted for by private equity owned companies grew significantly (Chart 1).

Chart 1 Relative amount of debt owed by private equity owned companies^(a)



Sources: Dealogic, S&P Capital IQ and Bank calculations.

(a) Sample includes all UK private non-financial corporations with balance sheet data available on S&P Capital IQ. Private equity owned companies are identified in two ways: (i) from a search on ownership within S&P Capital IQ; and (ii) from a search of private equity sponsored deals within Dealogic.

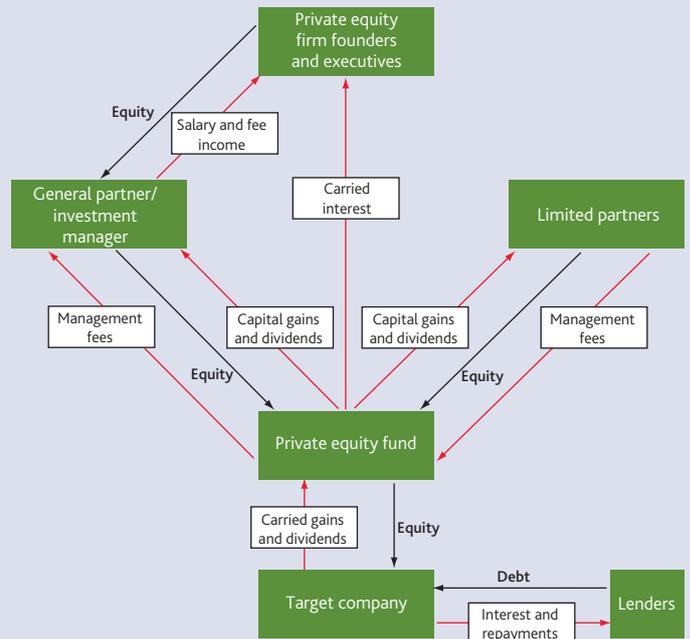
(1) The author would like to thank Tamara Li for her help in producing this article.

How is a private equity buyout structured?

A stylised illustration of a typical private equity buyout is shown in **Figure A**. The black arrows in **Figure A** represent the flow of capital in a private equity sponsored buyout. A private equity firm will typically establish a number of funds, each one ring-fenced for a different set of investments. The private equity firm and/or its staff typically invests its own capital into the fund. This capital sits alongside equity commitments from institutional investors or 'limited partners'. When the general partner/investment manager finds a prospective investment, it will use a portion of the fund's capital, combined with bank debt, to purchase the target company.

Red arrows in **Figure A** represent the payment of interest, fees, dividends and capital gains. Throughout the life of the fund — usually ten years with a possible two-year extension — the general partner/investment manager collects management fees (usually around 2% of the investment) from the limited partners, for which it returns dividends during and at the end of the investment. The private equity firm also takes a share of profits in the form of 'carried interest'. On funds established before the 2007–08 financial crisis, this usually amounts to around 20% of fund profits, once a certain hurdle rate (such as 8% return on equity for the limited partners) has been met.

Figure A Stylised illustration of a typical private equity buyout structure

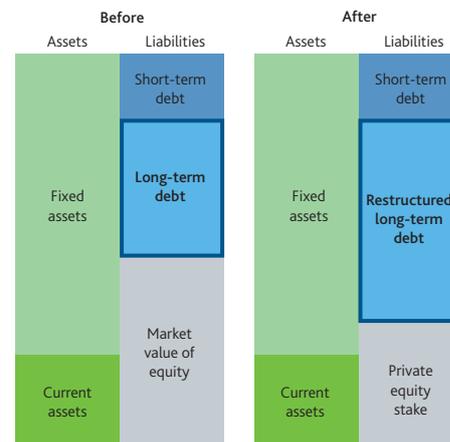


Sources: Centre for the Study of Financial Innovation (CSFI) (2010), Financial Services Authority (FSA) (2006) and Institute of Chartered Accountants in England and Wales (ICAEW) Corporate Finance Faculty (2010).

A key aspect of private equity investments is their use of debt. Most company buyouts are leveraged, meaning that investor equity is combined with debt in order to purchase a 'target' company. After acquisition, that debt becomes a liability of the purchased company. This is shown in **Figure 1**. The construction of a fund's portfolio of purchased firms in this way means that lenders only have recourse to the assets of the individual firm in the event of failure of that firm, and not to the assets of the other firms in the fund's portfolio. The use of debt in buyouts became particularly prominent in the run-up to the 2007–08 financial crisis, and has implications for the fragility of the corporate sector and, consequently, the resilience of the financial system.

This article investigates the implications of the leverage associated with private equity deals for the stability of the UK financial system. The first section sets out some background on private equity and its involvement in the UK corporate sector. The second section reviews some benefits and drawbacks of private equity buyouts for the 'target' company. The third section sets out two key risks for financial stability arising from the increased leverage associated with private equity deals, with a box on page 43 summarising some of the findings from the academic literature. The final section briefly discusses current private equity activity in the United Kingdom.

Figure 1 Stylised balance sheets before and after the leveraged buyout of a publicly listed company



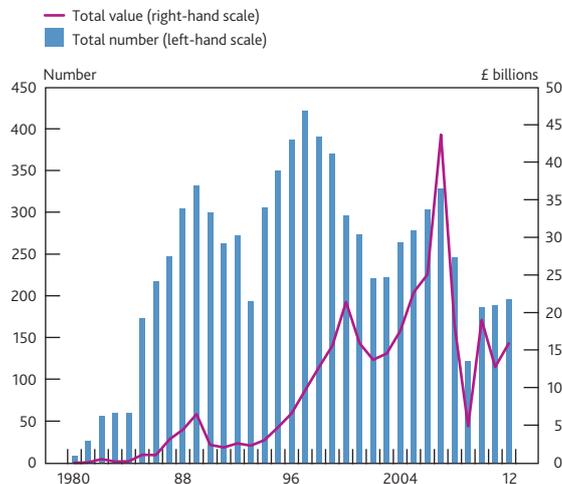
Private equity and the UK corporate sector

Acquisitions of companies by private equity funds rose to prominence in the 1980s in the United States. While a large volume of deals were also undertaken in the United Kingdom at this time (**Chart 2**), they were far smaller in value.

This picture changed in the late 1990s, with a pickup in deals involving larger UK companies. In the mid-2000s, private equity buyouts of companies with a total transaction value above £500 million accounted for over half of total

buyout activity (by value), with some of the largest deals taking place in 2007 (Table A).

Chart 2 Acquisitions of UK companies by private equity funds^{(a)(b)}



Sources: Centre for Management Buy-out and Private Equity Research (CMBOR), Equistone Partners Europe, Ernst & Young and Bank calculations.

(a) Value is defined as total transaction value (that is, it includes both debt and equity used to acquire a company).

(b) Acquisitions in this chart, and subsequent charts that use CMBOR data, include 'buy-ins', which usually involve a change of management, and 'buy-outs', in which the existing management is retained.

Table A Five largest UK private equity deals, 2000–08

Company	Type of buyout ^(a)	Year of deal	Value ^(b) (£ billions)
Alliance Boots	P2P	2007	11.1
MEPC	P2P	2000	3.5
Acromas (AA & Saga)	SBO	2007	3.4
EMI	P2P	2007	3.2
Spirit Amber	Divestment	2003	2.5

Source: ICAEW (2010).

(a) P2P = public to private; SBO = secondary buyout.

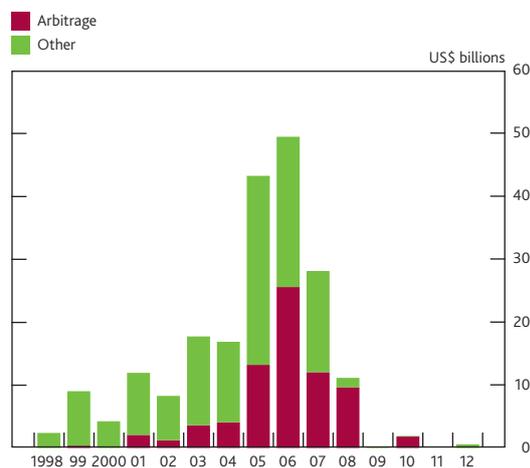
(b) Value is defined as total transaction value (that is, it includes both debt and equity used to acquire a company).

The growing importance of larger deals coincided with a loosening in credit conditions on lending used to fund acquisitions by private equity companies. Banks started to relax both the price and non-price terms and conditions of these loans in order to compete for business. The relaxation of non-price terms meant that a new class of 'covenant lite' lending emerged, on which standard terms that protect the lender were removed. As a result of the loosening in the terms of credit, buyout funds were able to use more debt, and relatively less equity, in taking over a company. A consequence of the increased use of debt was that overall deal values — the total amount of equity and debt used to finance an acquisition — rose and debt to earnings ratios of acquired companies started to climb.⁽¹⁾

A significant factor in the dramatic increase in the quantity of buyout debt was the 'originate to distribute' model. Banks originating leveraged loans used to finance buyouts became

less focused on the inherent risks of the transaction and more focused on collecting arrangement fees. For example, the Financial Services Authority (FSA) report into the failure of the Royal Bank of Scotland cited a decision by the bank's Board in 2006 to undertake an aggressive expansion strategy in leveraged finance as an important factor in the scale of the bank's eventual credit losses. After origination — and until leveraged loan markets froze in 2008 — banks were able to sell down (that is, 'distribute') leveraged loan exposures to non-bank entities such as collateralised loan obligations (CLOs). The demand for leveraged loans was high because many market participants were 'searching for yield'.⁽²⁾ Chart 3 illustrates the importance of CLOs in this originate to distribute model — arbitrage CLOs, which primarily contain private equity sponsored leveraged loans, grew dramatically between 2004 and 2006.

Chart 3 European CLO issuance, by type



Sources: Dealogic and Bank calculations.

The use of leverage, however, varied (and continues to vary) greatly across sector and deal size. Some industries provided more popular targets for leveraged buyouts because of their ability to take on leverage. For example, retailers, care homes, pubs and hotels were all common targets because of their property holdings (which could be used as collateral on leveraged loans) and relatively predictable cash flow generation. A common structure used in private equity buyouts was to purchase a company and split it into an 'OpCo' (the operating company) and a 'PropCo' (the property company). Under this model, the PropCo was able to borrow cheaply against the property it held, aided by a long lease with the tenant OpCo. This structure was designed to reduce the cost of the acquisition by cutting the firm's overall funding costs.⁽³⁾

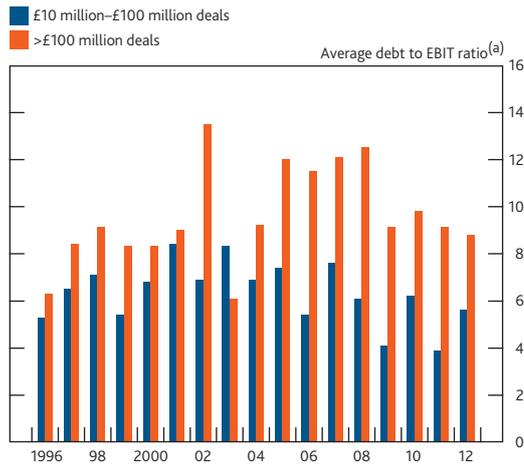
(1) See, for example, Axelson *et al* (2012).

(2) For a discussion of the 'search for yield', see, for example, the December 2005 Bank of England *Financial Stability Review*.

(3) The article 'Commercial property and financial stability' on pages 48–58 of this *Bulletin* discusses the OpCo/PropCo structure in the context of the link between the commercial property market and financial stability.

Lower-value buyouts, in which targets are more likely to be privately owned companies than publicly listed ones, tend to be less leveraged. **Chart 4** shows that deals greater than £100 million in value, represented by the orange bars, typically result in a much larger ratio of debt to earnings for the target company. The difference in leverage between small and large deals also became much starker from the mid-2000s.

Chart 4 Entry debt to earnings ratios on acquisitions of UK companies by private equity funds



Sources: CMBOR, Equistone Partners Europe, Ernst & Young and Bank calculations.

(a) EBIT: earnings before interest and tax.

Merits and drawbacks of private equity ownership

The pros and cons of the private equity ownership model are debated in the academic literature, as well as in other publications.⁽¹⁾ Economic theory can be used to suggest a number of benefits of private equity ownership, largely arising from the potential for improved alignment of interests between the managers and the owners of a company.

One such benefit put forward in favour of the private equity buyout is its use of debt financing and the disciplining effects this brings.⁽²⁾ Greater leverage introduces regular interest payments, reducing ‘free’ cash flow. Lower free cash flow can help to exert discipline on company management by removing resources that could otherwise be used by management to invest in negative net present value projects. Other benefits of private equity ownership that are often cited are listed in the first column of **Table B**.

But there can be disadvantages relating to the use of debt financing (second column of **Table B**). Capital gains on a private equity investment reflect any value added in restructuring the company, for example by raising revenues and increasing margins. These gains should, to a certain extent, be determined by the skill of the general partner in setting strategy and, in some cases, introducing new management. But they are also a function of deal leverage: in

Table B Potential advantages and disadvantages of private equity funded buyouts

	Advantages	Disadvantages
Greater use of debt financing, in particular for larger buyouts	Disciplining effects on cash-flow management (Jensen (1989)).	Increases probability of default.
Time horizon	Buying out a listed company and taking it out of the public spotlight could ease pressure to meet short-term revenue or profitability targets (ICAEW (2008)).	Decisions, especially those made near to the end of a private equity fund’s lifetime, could still be short term in nature, such as hoarding cash flow and cutting investment (Kosman (2009)).
Shareholder control	By giving one owner, rather than a fragmented group of shareholders, complete control, the private equity model allows greater shareholder influence over management (Kay (2012)).	Private equity ownership can introduce its own ‘principal-agent’ problems, caused by conflicts of interest between the general and limited partners (IOSCO (2010)).

certain cases, the total cost of an acquisition will fall with the amount of debt funding used, implying that returns can be increased through greater leverage.⁽³⁾ Some commentators (for example Kosman (2009)) focus on the potential destabilising effects caused by leverage, which can become particularly overused in periods of loose credit conditions when debt is mispriced. An increase in investors’ valuation of comparable firms over the private equity firm’s holding period will also affect returns: in times of generally rising equity markets, private equity firms could expect to profit simply by holding an investment in a company.

The extent to which private equity buyouts result in a longer-term outlook than other types of shareholder is also contested. Although taking a company private puts it outside of the public spotlight, private equity firms are sometimes accused of short-term decisions to hoard cash flow, cut costs (including investment) and raise prices in order to allow a quick sale at a profit (Kosman (2009)). Such actions would be detrimental to the firm over a longer time horizon. In addition, the incentive structure of the relationship between general partner and limited partner has been questioned, with some arguing it has its own principal-agent problems. These problems could be caused by conflicts of interest between limited partners and the general partner. One example of a potential conflict — raised in IOSCO (2010) — is that general partners might operate multiple funds with competing or conflicting investment strategies. So even though a decision to allocate an investment to a particular fund might be rational from the overall private equity firm’s perspective, it might not best serve the interests of limited partners participating in just one of those funds.

(1) See, for example, CSFI (2010) or Kosman (2009).

(2) See Jensen (1989).

(3) This results from a failure of the Modigliani-Miller (M-M) Capital Irrelevance Theorem (1958). A failure of M-M rests on there being financial frictions that distort the relationship between the cost of debt and the amount of equity. If capital markets were fully efficient, the capital structure of a transaction would have no impact on its overall cost of funding. A variety of information and incentive problems and policy distortions (for example the tax deductibility of debt) are widely believed to cause deviations from this theoretical equilibrium.

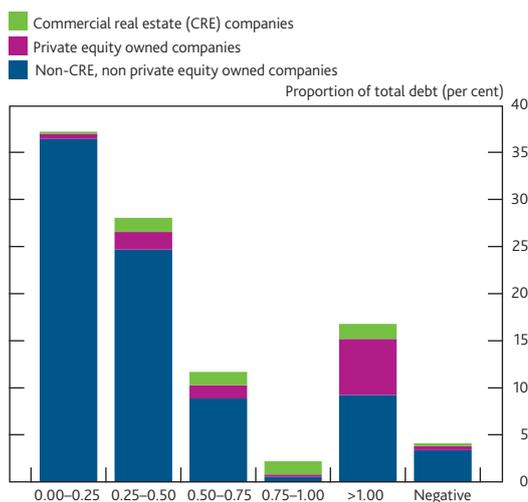
The following section of this article focuses on the use of debt in private equity buyouts, examining two potential financial stability risks: first, the implications of buyout debt for the fragility of corporate sector balance sheets; and second, the refinancing challenge associated with maturing buyout debt.

Risks to financial stability

Corporate sector fragility

A consequence of the increased use of debt financing on buyouts in the mid-2000s was that debt to earnings ratios, in particular on deals in excess of £100 million, climbed to persistently high levels. **Chart 5** illustrates that private equity owned companies typically have higher income gearing than other companies in the United Kingdom, as shown by the concentration of private equity owned companies with an income-gearing ratio over one.

Chart 5 2010 income-gearing distribution of private equity owned versus other companies^{(a)(b)(c)}



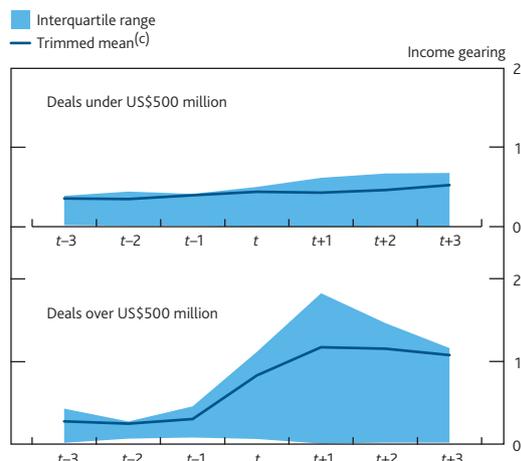
Sources: Dealogic, S&P Capital IQ and Bank calculations.

- (a) Distribution of income gearing, by firm, weighted by total debt.
 (b) Sample includes all UK private non-financial corporations (PNFCs) with balance sheet and income statement data available on S&P Capital IQ. Private equity owned companies are identified in two ways: (i) from a search on ownership within S&P Capital IQ; and (ii) from a search of private equity sponsored deals within Dealogic. Note that S&P Capital IQ balance sheet and income statement data do not fully capture the UK PNFC sector.
 (c) The definition of income gearing used is 2010 interest expenses divided by the average of 2006–10 operating income.

Not only are private equity owned companies more leveraged than their peers, but, as one might expect, their leverage often increases at the point of acquisition. **Chart 6** shows that the mean income gearing of companies involved in large deals rises sharply upon acquisition.

One risk to the UK financial system from these debt levels is the heightened fragility of the corporate sector. Specifically, higher debt levels could make companies less likely to undertake long-term investment if that investment is crowded out by the costs of servicing debt. Lower investment affects the productive capacity of the economy and could therefore have an indirect effect on the financial system via lower long-term corporate profitability. Higher debt levels could

Chart 6 Change in income gearing after initial acquisition by private equity fund^{(a)(b)}



Sources: Dealogic, S&P Capital IQ and Bank calculations.

- (a) 't' is the year in which the firm was taken over. The sample includes acquisitions between 1993 and 2010.
 (b) Income gearing is defined as net interest expense divided by operating income. Income gearing is set to 0 for any firm with positive net interest income and to 2 for any firm with negative income. Quartiles are recalculated each period and therefore may contain different firms in different periods.
 (c) Ten per cent of the sample is excluded (5% at either end of the distribution).

also make companies more likely to default. This would have a direct effect on the financial system through increased losses on bank lending.

Academic evidence on the impact of leveraged buyouts on investment is inconclusive. Long and Ravenscraft (1993), find that leveraged buyouts (LBOs) result in a reduction in research and development (R&D) expenditure, but that LBOs tend to take place in low R&D industries anyway. Lerner, Sorensen and Strömberg (2011) find that, in the years following private equity buyouts, target firms do not noticeably change investment behaviour, but perhaps pursue more important and influential innovations. Similarly, the impact of private equity funded LBOs on firm distress is unclear. Hotchkiss, Smith and Strömberg (2012) find that leverage accounts for the higher default rate of private equity owned firms relative to other firms. But Wilson *et al* (2012) find no difference in the failure rate after 2003. The box on page 43 sets out key findings of the academic literature in more detail.

One caveat to these results, however, is that the majority of academic studies are unweighted by firm size. Given the fact that higher-value deals, especially in the mid-2000s, were typically more leveraged, this might underplay the relationship between private equity ownership, leverage and distress.

A more complete picture on the success or failure of companies bought out at the peak of the leveraged lending boom might not become clear for many years. As can be seen from **Chart 7**, the majority of private equity investments from 2006 onwards have not yet been exited.⁽¹⁾ This is partly

(1) A private equity 'exit' is the exit of the private equity investor in a target company. This can arise through an initial public offering, insolvency, or a sale to another company, private equity firm, or investor.

Findings from the academic literature

This box provides a brief overview of the — largely mixed — findings from the academic literature on the performance of private equity and how private equity ownership affects firms' investment and likelihood of distress.

Private equity fund performance and leverage

Data published by trade bodies (for example, the British Venture Capital Association and European Venture Capital Association) show that buyout fund returns consistently outperform other forms of private equity investment, as well as other, alternative, asset classes.

Academic studies, however, reveal more mixed results. For example Kaplan and Schoar (2005) and Phalippou and Gottschalg (2009) show that private equity funds earn gross returns that exceed the S&P 500 average, but that once fees are taken into account, the net return is equal to or lower than S&P 500 average returns.

Axelson, Strömberg and Weisbach (2009) highlight the procyclical nature of the private equity industry, with a theoretical paper arguing that general partners have the incentive to invest in 'bad deals' in periods of loose credit conditions. A follow-up empirical paper by Axelson *et al* (2012) finds that variation in economy-wide credit conditions is the main determinant of leverage in buyouts, and that greater deal leverage is associated with higher deal values and lower investor returns.

Private equity ownership and investment

Lerner, Sorensen and Strömberg (2011), in a study of 472 leveraged buyout (LBO) transactions between 1980 and 2005, find that in the years following private equity buyouts, target firms do not noticeably change investment behaviour — proxied by the level of patenting activity — but that the number of patent citations does increase, perhaps indicating that private equity owned firms pursue more influential innovations.⁽¹⁾

Long and Ravenscraft (1993), using US data from 1977–91, find that LBOs result in a reduction in research and development (R&D) expenditure, but that LBOs tend to take place in low R&D industries anyway.

Private equity ownership and distress

In a study of US companies that took out leveraged finance between 1997 and 2010, Hotchkiss, Smith and Strömberg (2012) find that private equity owned firms typically have a higher annual default rate than other firms — 5.1% compared to 3.4%. This wedge disappears once leverage is controlled for, indicating that the prevalence of debt might explain the higher

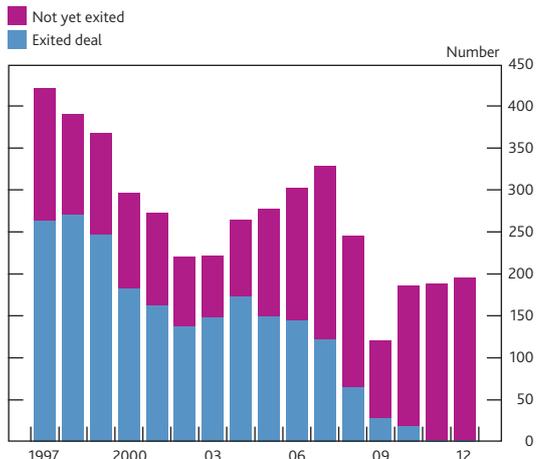
failure rate among private equity owned firms. The authors also find that distressed private equity owned firms are more likely to be restructured successfully — in terms of avoiding liquidation — than non private equity owned firms.

In evidence from a UK population of firms over the period 1995–2010, Wilson *et al* (2012) find that private equity backed companies perform more strongly (higher return on assets, higher interest cover, higher gross margin) than a matched sample of private and listed companies both before and during the recent recession. They also find that bought-out companies have a higher failure rate than other companies, but this does not apply for deals completed after 2003. And Andrade and Kaplan (1998), in a study of highly leveraged transactions that subsequently become financially distressed, find that the net effect of a highly leveraged buyout which subsequently becomes distressed is to leave the value of the company slightly higher.

The evidence on private equity ownership and distress is therefore mixed. But more time is needed to get a full picture of the effects of the recent boom in leveraged buyouts. As explained in the main text, the full picture will not be known until all private equity investments from this period have been exited. In addition, the majority of academic studies are unweighted which, given the fact that higher-value deals were typically more leveraged, might underplay the relationship between private equity ownership, leverage and distress.

(1) The citation count of a patent is the number of times the patent has been cited by other patents in the calendar year of the patent grant or the three calendar years following that.

Chart 7 Status of acquisitions of UK companies by private equity funds, by year of deal^{(a)(b)}



Sources: CMBOR, Equistone Partners Europe, Ernst & Young and Bank calculations.

- (a) Added together, the bars represent the total number of private equity sponsored acquisitions in a particular year.
 (b) Exit rates as of end-2012.

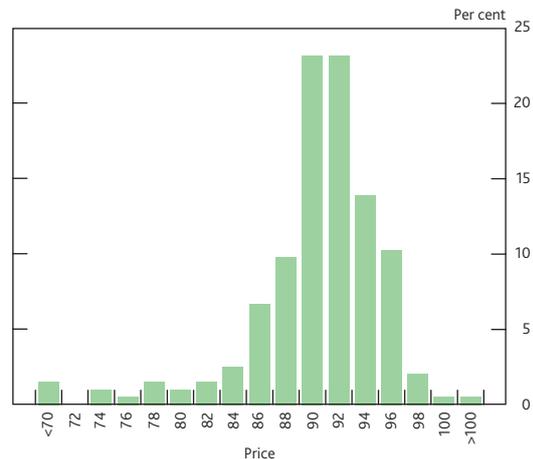
because the lifetime of a private equity fund is typically around ten years and many investments are not realised until towards the end of this period (ICAEW (2012)). But it is also likely to be due to the generally low level of mergers and acquisitions and initial public offerings since the crisis. The average time to exit for large (>£100 million) private equity buyouts completed in 2002 was less than three years. On the basis of current exit rates, the average exit time for 2008 deals could be over six years. And this rump of unrealised investments could be where problems are most likely to materialise, especially if private equity firms choose to extract dividends from the companies they own without any underlying improvement in corporate fundamentals. Market contacts report some signs of this, with several 'dividend recapitalisations' taking place in 2012.⁽¹⁾

Evidence of a link between private equity ownership and distress should most clearly become apparent in insolvency rates. While insolvencies in the United Kingdom have accounted for around 30% (in unweighted terms) of private equity exits since 2009, these make up less than 1% of overall UK insolvencies. But the aggregate rate of corporate insolvencies is currently much lower than that experienced in the 1990s recession. Given the large build-up in debt before the financial crisis, a larger rise in insolvencies might have been expected. The low level of interest rates combined with the practice of bank forbearance are two possible explanations for this.⁽²⁾

Moreover, there is evidence from a recent FSA study that the practice of forbearance is particularly widespread on debt exposures associated with private equity sponsored acquisitions. This study revealed that around a third of the £35 billion of major UK banks' leveraged loan exposures to European companies are benefiting from forbearance.⁽³⁾ This

would seem to indicate a high level of borrower distress. The pricing of leveraged loans is also indicative of market expectations of a high level of eventual default, with a long tail of loans held in European CLOs priced at a significant discount (Chart 8).

Chart 8 Distribution of underlying loan prices in European CLOs^{(a)(b)}



Source: Bank of America Merrill Lynch Global Research.

- (a) Data as at 30 January 2013.
 (b) A price of 100 indicates that the loan is priced at 'par' value. Most loans are prepayable at par on any coupon date. A price below 100 indicates that the loan is priced at a discount.

In summary, it is clear that leverage of the UK corporate sector has increased as a result of larger private equity acquisitions. And the high level of forbearance on leveraged loans, alongside current market prices, would seem to indicate elevated risks of default. But given the long lifetimes of private equity funds, low interest rates and the current attitudes of lenders towards forbearance, a more complete picture on the success or failure of companies bought out at the peak of the leveraged lending market may not become clear for a number of years.

The refinancing challenge

The second risk highlighted in this article is also heavily influenced by exit prospects for private equity firms and relates to the maturity, rather than the amount, of buyout debt.

The low level of exits, combined with a weak macroeconomic backdrop, suggests that many private equity owned companies may not currently be able to repay their leveraged loans and will therefore have to refinance. Failure to meet this refinancing challenge might result in default and therefore implies risks for bank exposures to private equity owned companies. Two circumstances make the refinancing challenge particularly acute: first, the clustering of leveraged loans

(1) A 'dividend recapitalisation' occurs when a company incurs a new debt in order to pay a dividend to equity holders.

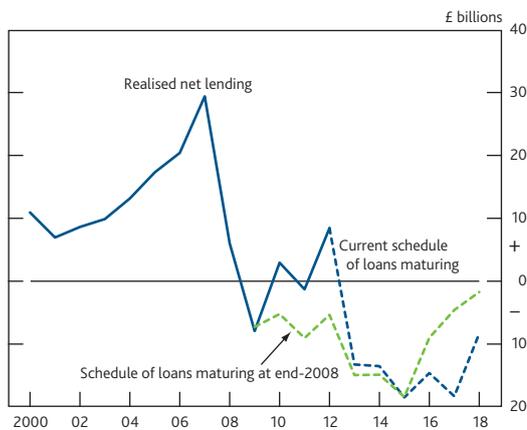
(2) See, for example, the November 2012 Bank of England *Financial Stability Report*, for a more detailed explanation.

(3) Data as at end-2011.

maturing over the next couple of years; and second, large changes to the investor base for leveraged loans since the 2007–08 financial crisis.

The average maturity of UK LBO debt is around seven years. Given that the peak in debt issuance was around 2007, there is a significant ‘hump’ of maturities from 2014. **Chart 9** shows where this cliff currently stands, but also estimates where it has stood in the recent past. The solid blue line reflects realised net lending — that is, loans being originated in a particular period minus loans maturing in that period. The dashed lines represent the schedule of loans maturing — or ‘refinancing cliff’ — at different points in time. The green dashed line shows that by end-2008, the scale of previous loan issuance had resulted in a refinancing cliff which peaked in 2015. Between 2008 and 2012, however, refinancing activity (some of which might be limited to forbearance), as well as further issuance, pushed out the cliff further — this is shown in the blue dashed line. As it currently stands, £32 billion of LBO debt is expected to mature in the period 2014–15, with a further £41 billion in the period 2016–18.

Chart 9 Net lending to private equity owned companies in the United Kingdom^{(a)(b)(c)}



Sources: Dealogic and Bank calculations.

- (a) The solid line shows net lending to leveraged companies with a financial sponsor (usually a private equity firm) in the United Kingdom (that is, loans being originated in a particular period minus loans maturing in that period). The dashed lines show the schedule of loans maturing at different points in time. The schedule of upcoming loans maturing is adjusted for refinanced loans, but the mapping between original and refinanced loans is imperfect, meaning that the chart may overestimate the scale of the refinancing cliff.
- (b) The Dealogic search was for UK syndicated lending to companies with a financial sponsor. The main use of proceeds for the majority of these loans is ‘LBO/MBO’, although categories such as ‘refinancing’ and ‘dividend recapitalisation’ are also captured.
- (c) As at 30 November 2012.

The refinancing challenge is exacerbated by the fact that, for much of the debt related to private equity acquisitions, a large lump sum will need to be repaid when loans mature. Some LBO debt is amortising — that is, the principal is repaid over the life of the loan. But a substantial portion is structured as a ‘bullet’ repayment: the principal is only repaid at the date of maturity. Of the £160 billion UK leveraged loans that were originated with a maturity of 2012 or later, £14 billion, or 9%, are amortising, meaning that only a minority of leveraged loan exposures will have been paid down after origination.⁽¹⁾

The identity of the debt holder is also important in understanding risks around the refinancing cliff. While leveraged loans were usually originated by a single bank or small group of banks, much of this was distributed after origination to other banks, as well as to non-banks such as CLOs. After the collapse of Lehman Brothers, the leveraged loan market shut down and many originating banks were left with ‘pipeline’ loans that could no longer be distributed. In the short term, the dramatic drop in CLO capacity — especially in Europe — led to unexpected bank exposures on recently originated loans.

But the drop in CLO capacity also affects longer-term refinancing conditions — market contacts indicate that since many European CLOs’ portfolios become fixed from 2014 onwards, they will no longer be able to refinance existing loans. Market contacts also point out that many banks are constrained in providing refinancing options given their focus on balance sheet repair. This change in the investor base for leveraged debt heightens the risk of firm difficulty around the refinancing cliff due to the shortage in the United Kingdom of other financing options, especially for low-rated companies. For example, the high-yield bond market — a potential source of refinancing — is much less developed in the United Kingdom than it is in the United States.

The wide distribution of leveraged loans to different parts of the financial system — associated with the originate to distribute model — further compounds the refinancing problem. If a leveraged loan associated with a particular deal is held by a wide range of investors, it can be very hard for lenders exposed at different points in the debt hierarchy to agree on a refinancing solution.

Recent activity involving private equity

The discussion above demonstrates that high leverage deals that were undertaken in periods of loose credit conditions potentially present a significant risk to the financial system. This risk comes through the leveraged loan exposure of UK banks, as well as through the effects of leveraged buyouts on corporate indebtedness.

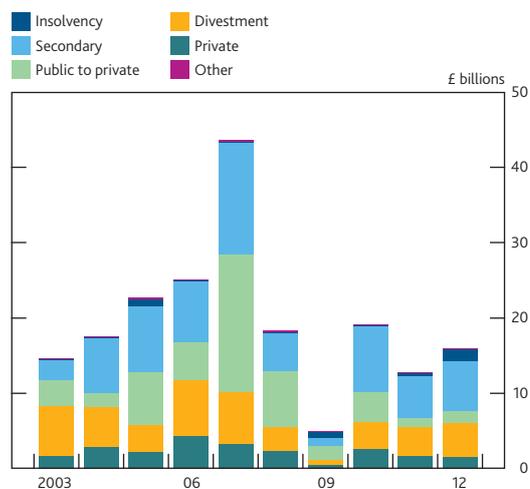
It will be important to monitor this risk from previous acquisitions by private equity funds. And from a macroprudential policy perspective, there is also a need to remain alert to any return to the debt levels used on acquisitions in the run-up to the 2007–08 financial crisis.

There might, however, be an important role for buyout funds to play in promoting economic recovery at the current juncture. By taking over struggling companies and restructuring them, private equity might be able to play a part

(1) This calculation assumes that only ‘Term Loan A’ tranches are amortising.

in increasing the productivity of the UK corporate sector. Activity in the UK buyout market, however, is currently relatively subdued. As **Chart 10** shows, there were very few transactions in 2009, and the market has been dominated by secondary buyouts (the sale of a company from one private equity fund to another) since then. Conversations with market contacts confirm that, in contrast with the United States, where many investors report that the buyout market is showing renewed signs of activity, the market in the United Kingdom remains much less active than before 2008.

Chart 10 Acquisitions of UK companies by private equity funds, by source



Sources: CMBOR, Equistone Partners Europe, Ernst & Young and Bank calculations.

The number and value of private equity sponsored acquisitions picked up following the early 1990s recession (**Chart 2**), which might indicate some role for private equity in a recession. In addition, Davis *et al* (2011) have argued that private equity fosters creative destruction in the US labour market — that is, a faster pace of job reallocation, with more job destruction but also more job creation. And a study from Oliver Gottschalg and Golding Capital Partners (2011) on realised private equity buyouts shows that the added value in

private equity returns is greatest during equity market downturns. There is some recent evidence that this may be taking place in the United Kingdom — private equity firms taking ownership of insolvent companies has accounted for 11% of buyout activity in 2012, compared to 3% of total private equity sponsored buyouts in 2011.

Conclusion

This article has outlined risks around the involvement of private equity firms in the UK corporate sector. In the mid-2000s, there was a dramatic increase in the value of private equity sponsored buyouts of UK companies. Aided by loose credit conditions, the leverage on these buyouts, in particular on large deals, was high.

While it is argued in some of the academic literature that a key strength of the private equity buyout is its use of leverage in imposing discipline on company management, the amount and maturity profile of buyout debt could present risks to UK financial stability. In particular, the increased indebtedness of the private equity owned corporate sector makes it more fragile and more susceptible to default. The refinancing challenge associated with the approaching hump in maturing debt compounds this risk. There is no clear evidence yet of a higher default rate among private equity owned companies, but there has been some evidence of the poor performance of loans to private equity sponsored firms since the crisis began. Nonetheless, a complete picture will not become clear until more investments from the mid-2000s have been exited. The FPC, in its role to protect and enhance the stability of the financial system of the United Kingdom, will continue to monitor potential risks to financial stability from private equity sponsored activity.

That said, there might be an important role for private equity funds at the current juncture in promoting economic recovery by restructuring struggling companies. The level of new buyout transactions, however, currently remains subdued.

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Commercial property and financial stability

By James Benford and Oliver Burrows of the Bank's Financial Stability Directorate.⁽¹⁾

Commercial property played a key role in the recent financial crisis in the United Kingdom. A rapid build-up of debt tied to commercial property investments pre-crisis supported a boom in prices. The consequent bust led to a sharp rise in non-performing loans. This episode has many precedents in the United Kingdom and parallels across countries. The structure of the commercial property market, and in particular the role of leveraged investors with significant maturity mismatches on their balance sheets, is important in understanding the market's dynamics and the risks it can pose. The new Financial Policy Committee will be alert to these risks and deploy tools to counteract them where necessary to protect financial stability.

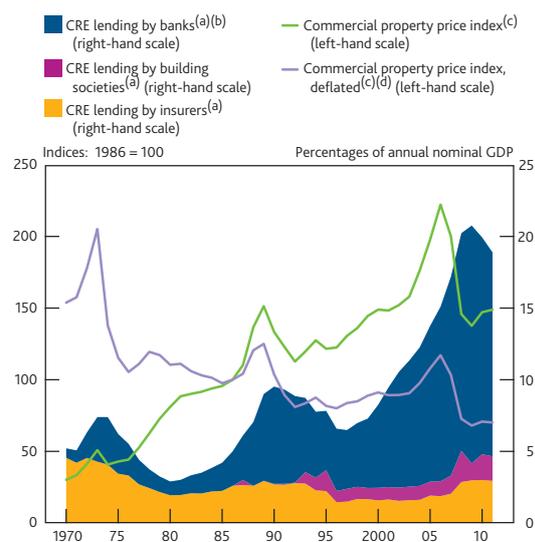
The UK financial crisis beginning in 2007 was exacerbated by a rapid build-up in debt tied to investments in commercial property, a large swing in property valuations and, in the aftermath, a sharp rise in non-performing loans. That pattern echoed the previous two episodes of distress in the UK banking sector and was not unique to the United Kingdom. A number of countries in the euro area and regions of the United States suffered their own property market boom and bust, with the associated losses particularly severe on commercial real estate (CRE) lending. The losses some large UK banks made on commercial property loans overseas were of the same order of magnitude as those on their UK commercial property loans. Commercial property lending is therefore of great importance to the stability of the UK financial system. In recognition of this, the Financial Services Act will give the statutory Financial Policy Committee the power to vary banks' capital requirements on commercial property lending.

This article focuses on the importance of commercial property for the resilience of the financial system. The first section describes the losses that have been made in the past on UK CRE lending. The second section considers the causes of variability in commercial property prices, both in general and paying particular attention to the recent financial crisis. It argues that some of the variation depends on institutional factors like leverage and maturity mismatch. A box on page 52 sets out the international context for commercial property markets in the run-up to and during the recent financial crisis. The third section explores the institutional features of the UK commercial property market and considers their role in market developments. Finally, a short section discusses policy implications in the context of recent changes to the financial policy framework.

Commercial property and the resilience of the financial system

Over the past half century, there have been three large swings in UK commercial property valuations, each associated with a large build-up in CRE lending and a subsequent period of deleveraging (**Chart 1**). Following the secondary banking crisis from 1973–75, there was a period of falling to stagnant debt levels lasting almost a decade, with CRE debt relative to nominal GDP falling by around a half. The late-1980s' boom

Chart 1 UK commercial property debt and valuations



Sources: Association of British Insurers, Bank of England, Building Societies Association, Investment Property Databank, ONS and Bank calculations.

- (a) End-year stock of outstanding lending.
- (b) In 2010 and 2011 this includes an adjustment to include CRE loans transferred to the Irish National Asset Management Agency.
- (c) Based on end-year data.
- (d) Deflated using GDP deflator.

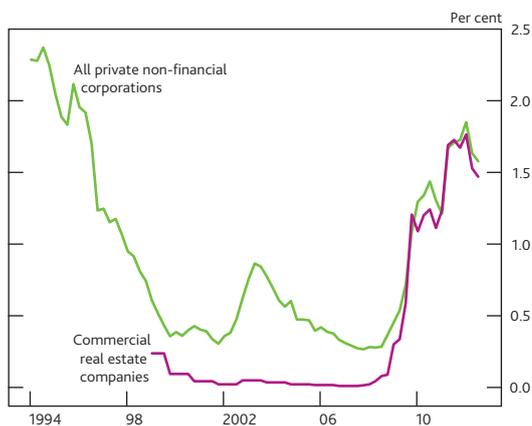
(1) The authors would like to thank Kishore Kamath for his help in producing this article.

was characterised by a rapid increase in debt levels and property valuations. CRE lending relative to nominal GDP more than doubled and real valuations increased by around 30%. When the bubble burst, prices fell by over a third, and there was a ‘near crisis’ with 25 banks failing or closing down.⁽¹⁾ Indeed, losses on commercial property lending were a key feature of bank failures in both the 1970s’ and 1990s’ episodes.⁽²⁾ The backdrop to the recent crisis involved yet another build-up in valuations and debt levels, with CRE lending exceeding 20% of annual nominal GDP, double the previous peak. By the end of 2007, CRE loans accounted for more than a third of the stock of lending to UK private non-financial companies by UK-resident banks. As the crisis unfolded, valuations fell sharply, with real commercial property prices almost a half lower than their 2007 peak by end-2012.

Losses on commercial property lending during the recent crisis

The most recent episode has demonstrated that fluctuations in commercial property prices can have a dramatic effect on loan performance. Between the period from 2000 to 2006, when commercial property prices were rising, losses on lending to commercial real estate companies were close to zero (Chart 2). As the crisis broke, the amount of CRE debt written off each year rose sharply, with — in aggregate — around 6% of the UK banks’ stock of CRE debt written off between 2008 and 2012.

Chart 2 Write-off rates on lending to UK businesses^(a)



Sources: Bank of England and Bank calculations.

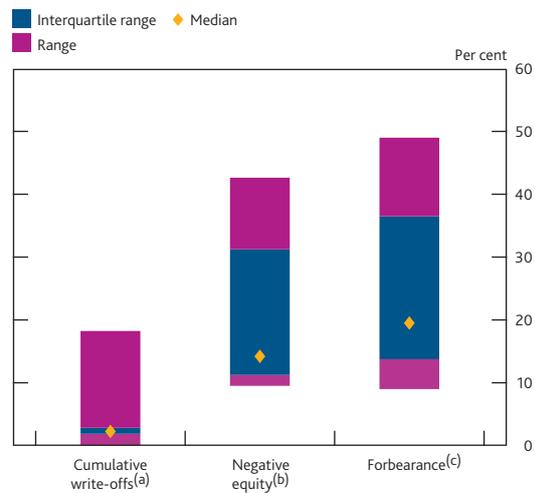
(a) Lending by UK monetary financial institutions. The series are calculated as annualised quarterly write-offs divided by the corresponding loans outstanding at the end of the previous quarter. The data are presented as four-quarter moving averages and are non seasonally adjusted. Lending in both sterling and foreign currency, expressed in sterling terms.

While the proportion of write-offs on CRE and non-CRE commercial loans is currently roughly the same, it is likely that this indicator significantly understates the scale of non-performing commercial property loans. A Financial Services Authority (FSA) survey in 2011 suggested that around a third of the outstanding stock of commercial property loans were in some form of forbearance, where the lender had

waived loan covenants, such as loan to value (LTV) requirements, or relaxed interest and repayment requirements, to make it easier for borrowers to service the debt.

Moreover, there has been a very wide range of loan performance across the large UK banks that are covered in the FSA survey. While the median cumulative write-off rate across that group was 2% from 2008 to 2012, the worst-performing bank in the peer group wrote off nearly 20% of its loans (Chart 3).

Chart 3 CRE lending for large UK banks: losses and indicators of non-performing loans



Sources: Bank of England, FSA surveys and Bank calculations.

(a) Total write-offs from the beginning of 2008 to September 2012, expressed as a share of the stock of CRE loans at end-2007.
 (b) Share of the stock of CRE loans in negative equity as at September 2011.
 (c) Share of the stock of CRE loans in forbearance in 2012 where available, otherwise 2011.

The quality of banks’ remaining loans is still in some doubt. Another survey by the FSA found that in 2011, for the median bank, 14% of the total amount of CRE debt was accounted for by loans that exceeded the value of the property against which they were secured (that is, loans that were in negative equity); for the worst performer that figure rose to over 40%. And a separate survey found that in 2012, while the median bank had just over 20% of loans in some form of forbearance, for the poorest performer on this metric, around half of the outstanding stock of CRE loans were in some form of forbearance. Many of these loans are unlikely to be refinable in current market conditions.

The success of forbearing on loans in negative equity, including by extending loans on maturity, relies in part on borrowers being able to pay down their debts through future rental income. Where this is not possible, borrowers will eventually be forced to inject their own capital or to default on the loans. Since the majority of commercial property loans are effectively set up on a ‘non-recourse’ basis, where the lender has a claim

(1) See Logan (2000).
 (2) For an extensive discussion of these two earlier episodes see, for example, Goobey (1992).

only on the underlying property in the event of default (and not the borrower's other assets), many borrowers may opt to default rather than inject more of their own capital. In that event, the lender finds itself owning an asset that is not sufficiently valuable to cover the loan.

The interplay between property values, rental income and the likelihood of default means that holding commercial property as collateral only provides lenders with limited protection in the event of default. When a borrower has defaulted, rental income is likely to be low and the property is likely to have fallen in value substantially, a form of so-called 'wrong way risk'. The next section explores the sources of fluctuations in commercial property valuations in more detail.

Explaining variations in commercial property prices

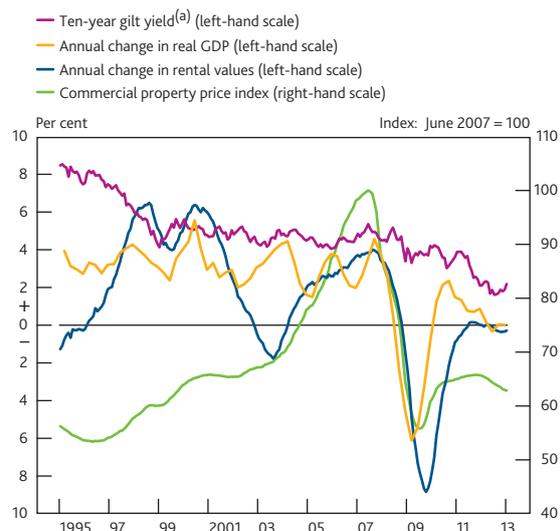
In principle, the value of an asset is related to the expected future stream of income earned by that asset, discounted by the relevant rate of interest. This can be formalised using a dividend discount model (DDM).⁽¹⁾ In the case of commercial property, the value is calculated as the net present value of future rental income, discounted by a risk-free rate plus some 'risk premium' demanded by investors.⁽²⁾ In practice, simple models like this fail to explain all of the variability of commercial property prices. This is because they make a number of simplifying assumptions: borrowers are assumed to have unconstrained access to credit and not to be 'irrationally exuberant' about the prospects for future returns, for example. These and other factors are discussed at the end of this section. Nonetheless, the dividend discount model is a useful starting point for analysing changes in property prices.

The dividend discount model

The DDM breaks down changes in nominal property valuations into changes in rental values, expectations for rental value growth and the risk-free interest rate. An increase in rents — or expected future rents — leads to higher property prices, as does a fall in the risk-free rate. The 'residual' term captures any changes in observed CRE valuations not explained by these factors. It can be interpreted as a measure of the 'risk premium': for example, an unexplained increase in property prices would be consistent with there having been a fall in the risk premium (which boosts valuations in a similar fashion to a fall in the risk-free rate). As it is calculated as a residual, however, it could also be capturing other factors that are missing from the model.

The growth in rental values — a key input to the model — has been highly sensitive to economic conditions. Rental values growth fell sharply in the aftermath of the 'dotcom' bust in the early 2000s, and sharper still — with a drop in the level of rents of more than 10% — during the 2008–09 recession (Chart 4). The variability in rental growth is not surprising. In

Chart 4 Commercial property prices and determinants



Sources: Bloomberg, Investment Property Databank, ONS and Bank calculations.

(a) Refers to zero-coupon gilts.

a downturn, as companies go out of business and employment falls, the demand for commercial property space is likely to fall. More space available for let becomes vacant and this spare capacity adds to downward pressure on rents.⁽³⁾

Chart 5 decomposes movements in commercial property prices in the run-up to and throughout the crisis using the dividend discount approach. Commercial property prices peaked in the first half of 2007, almost 60% above their 2000 value. Around a third of that rise is explained by an increase in rental incomes, with the remainder explained by residual. One interpretation is that investors came to demand a markedly lower rate of return for holding commercial property: by 2007 investors were willing to hold commercial property yielding just 4 percentage points above a UK government bond, having demanded a 6 percentage point premium seven years earlier. Under this interpretation, that fall in desired compensation for risk was enough to add around 50% to valuations.

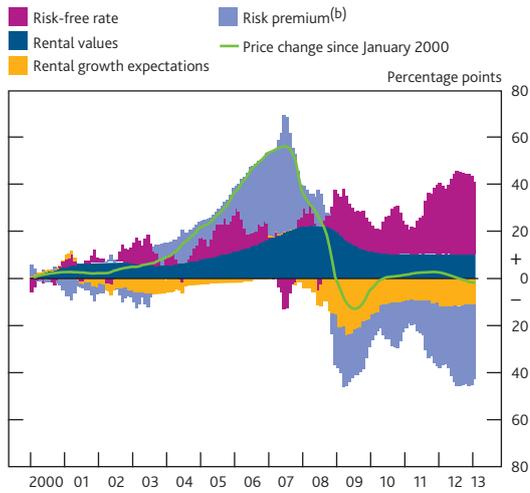
The crisis brought about large changes in all components of this dividend discount approach to property valuations. The level of rents fell by over 10% relative to its peak in 2007, leading to a fall in prices of the same amount. Expected near-term growth in rental income fell from around 4% a year to zero, further reducing valuations in the model by over 10%. Other things equal, these reductions ought to have been more

(1) For more details on how the DDM can be used, see Panigirtzoglou and Scammell (2002).

(2) In theory, this risk premium is determined by the covariance of the assets' income stream with a representative investor's future income (Cochrane (2005)). The intuition is that assets for which the income stream follows the business cycle — such as commercial property — require a higher risk premium than those which do not.

(3) This is markedly different from the dynamic that exists for residential property. In a downturn, households are likely to be less confident about making a home purchase, perhaps exacerbated by tight credit conditions. Given that households need to live somewhere, they instead turn to the rental market, putting upward pressure on rents, at least in the near term. That pressure on rents eases only when households return to the owner-occupied market or the supply of rental property is increased.

Chart 5 Dividend discount model decomposition of commercial property prices^(a)



Sources: Investment Property Databank, Investment Property Forum and Bank calculations.

(a) The model used is a three-stage DDM, as explained in Panigirtzoglou and Scammell (2002). Expectations of rent are taken from the Investment Property Forum.
 (b) The 'risk premium' is calculated as the residual of the model decomposition. A positive contribution of the residual to changes in commercial property prices represents a fall in the risk premium.

than offset by the fall in gilt yields over the same period, from 5% to below 2%. The actual peak-to-trough fall of around 45% in property prices, then, is largely explained by the residual. One interpretation of the model is that the risk premium demanded for holding commercial property doubled from 4 percentage points in 2007 to 8 percentage points by 2012.

Alternative explanations for swings in commercial property prices

Attributing most of the movement to 'risk premia' abstracts from a variety of important explanations for fluctuations in commercial property prices. In reality, it seems likely that a number of factors not captured by the DDM are likely to have played a role, for instance:

- **Leverage:** the presence of leveraged investors can create a feedback loop between credit growth and asset prices, particularly in markets like UK commercial property where supply responds slowly. As prices rise, property firms have more equity with which to borrow, allowing them to buy more properties, further increasing property prices. Such credit-fuelled price rises may not be sustainable.
- **Irrational exuberance:** investors and lenders may extrapolate past gains in property prices when making investment and lending decisions, supporting unsustainable price rises. This is likely to interact with the role of leverage.
- **Maturity mismatch:** some property companies invest in illiquid property while offering their own investors the opportunity to withdraw their funds at short notice. In a downturn, this can force the property firms to sell property, exacerbating the fall in prices.

The experience of property markets in other countries lends support to the role of some of these factors in driving swings in commercial property prices. The box on page 52 describes changes in commercial property prices in the run-up to the crisis across different countries. The analysis suggests that a boost to property valuations through a compression in rental yields was common to a number of countries — including the United Kingdom — and may have been linked to leverage and irrational exuberance.

A fuller understanding of the role of these factors requires knowledge of the structure of the commercial property market. This is discussed in the following section.

The shape of the UK commercial property market

To gain a deeper understanding of the workings of the UK commercial property market it is useful to identify the key players, the roles they play and their scale in financial terms.

Most non-financial, non-CRE companies, are **occupiers** of commercial property, which can be considered to be one of their core inputs to production. Some own the property they occupy, while others rent it from landlords that represent investors. **Investors** wanting exposure to commercial property can gain it directly, by purchasing and managing the property. These include large investors, such as insurance companies and pension funds; and smaller investors, such as wealthy individuals and small businesses. Investors can also gain exposure indirectly, by investing with a specialist CRE fund. These funds can be listed, such as real estate investment trusts (REITs), or unlisted. Some funds offer investors more liquid exposure to property and most employ leverage. Finally, **lenders** provide funding to individuals and property funds to purchase property.

There is no single, comprehensive source of data on UK commercial property. But data from a range of sources can be brought together to sketch a picture of the structure of the market. These data are described in the following subsections and summarised in **Figures 1, 2 and 3** for CRE **occupiers, investors and lenders**, respectively. The importance of each of these groups from the perspective of financial stability is highlighted throughout. In addition, the box on page 55 explores the role of institutions and market structures in the recent boom and bust.

(i) Non-financial, non-CRE companies (Figure 1, balance sheets 1–5)

As occupiers of property

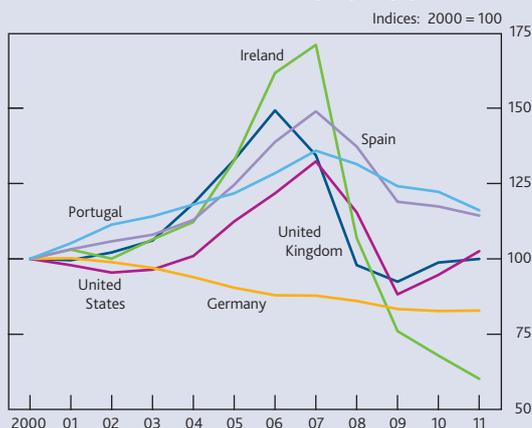
Almost all non-financial companies occupy premises of some sort. One method of estimation suggests that around £465 billion of UK commercial property is occupied by renters — shown on balance sheet 5 in **Figure 1**. The remainder of

Understanding cross-country variation in commercial property prices

Movements in commercial property prices prior to, and during, the recent financial crisis differed across countries. This box sets out the international context for the recent swing in commercial property prices in the United Kingdom.

As in the United Kingdom, there has been a large swing in property prices in a number of countries within the euro-area periphery over the past decade. Irish commercial real estate prices climbed 70% above their 2000 level by their 2007 peak and Spanish and Portuguese prices were around 35%–50% higher (Chart A). In contrast, Germany experienced no boom nor bust, with valuations flat to falling across the 2000s. And although there was, on average, a large swing in property prices in the United States, patterns across the regions differed markedly.

Chart A Nominal commercial property price indices^(a)



Sources: Thomson Reuters Datastream and Bank calculations.

(a) Annual end-year data.

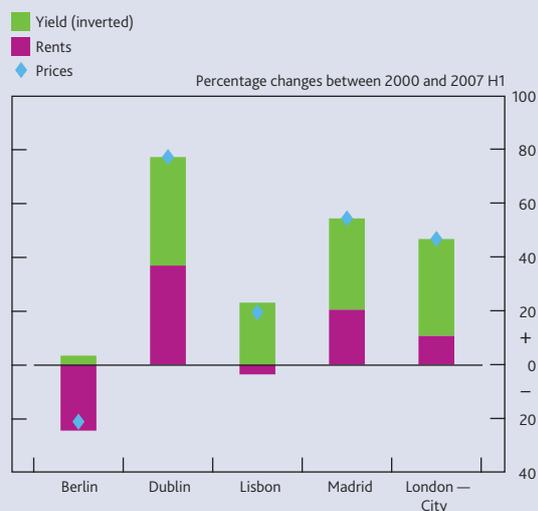
Data on property valuations and rental values for offices in European capitals helps decompose movements in prices (Chart B). In Dublin, Madrid and London a compression in rental yields (equivalent to a higher price to rent ratio) from 2000 to 2007 of around 2 percentage points was enough to boost valuations by 30%–40% relative to rental values. One

properties — an unknown amount — is occupied by owner-occupiers (balance sheets 1, 2 and 3). Leases on rented premises are one of the largest financial obligations of the private non-financial corporation (PNFC) sector, along with debt and taxes. Failure to pay landlords is a common trigger of insolvency proceedings.

Some owner-occupiers have a legal structure that separates the property from the rest of the company's balance sheet. The property is held in a 'PropCo' (short for property company) and is leased to an 'OpCo' (short for operating company), which contains the rest of the assets and liabilities of the

possible explanation is that investors extrapolated from previous increases in rental incomes and revised up their expectations of how these would evolve in the future — the cities that had more robust growth in rents experienced larger falls in rental yields. In addition, encouraged by the easy availability of bank credit and a number of years of increases in property prices, investors may have revised down the yield they were prepared to accept on property investments. This is consistent with the fall in the measured risk premium in the United Kingdom in the run-up to the crisis, shown by the positive lilac area in Chart 5.

Chart B Nominal office prices in European cities^(a)



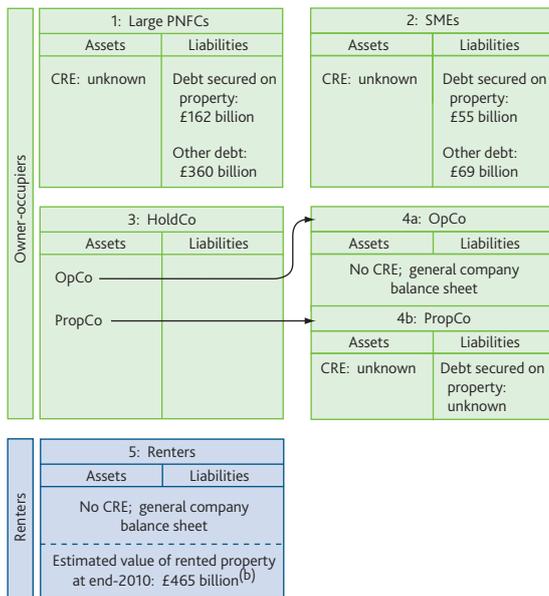
Sources: CBRE Group and Bank calculations.

(a) Data for rents and yields, in local currency, are from CBRE. The price is calculated by dividing the rent by the yield.

Berlin's experience was clearly very different. An important factor in Germany was the after-effects of the long boom in construction that followed reunification throughout the 1990s. A demographic trend towards an ageing and declining population subsequently exposed an oversupply of property throughout the 2000s which then led to a slow decline in rents. Valuations have tended, historically, to closely follow rents in Germany, supported by a practice among surveyors of valuing properties at a long-run average of rental yields.

company (balance sheets 4a and 4b in Figure 1). Both the OpCo and the PropCo are owned by a parent 'HoldCo' (balance sheet 3 in Figure 1). This separation of assets was popular in the 2000s, particularly with private equity firms, and appears to have been motivated by a desire to reduce a firm's overall funding costs. An article on pages 38–47 of this *Bulletin* investigates the implications of corporate debt arising from private equity deals for financial stability. 'Sale and lease back' structures, where the PropCo is sold to a group of investors, were also popular in the 2000s, particularly with supermarket chains and other businesses with large property estates.

Figure 1 Occupiers of CRE (non-financial, non-CRE companies)^(a)



Note: PNFCs: private non-financial corporations; SMEs: small and medium-sized enterprises; HoldCo: holding company; OpCo: operating company; PropCo: property company.

Sources: British Bankers' Association, Investment Property Databank (IPD), ONS, SME Finance Monitor, S&P Capital IQ and Bank calculations.

(a) All figures are indicative, based on available data sources. Figures refer to end-2010 data where possible.

(b) This number is derived from adding the £94 billion of CRE owned by insurance companies, pension funds and asset managers (Figure 2) to the estimated value of rented property owned by property companies of £371 billion. The £371 billion is based on dividing £28 billion (total rents earned by property companies in 2010 from the ONS Annual Business Inquiry) by 7.6% (the average rental yield in 2010, from IPD).

Both structures have encountered problems since the start of the crisis. The cheaper funding costs attracted by the PropCo, for example, appears to have rested in many cases on an underestimate of the credit risk in the long lease to the OpCo (often struck at an inflexible rent). In addition, in many cases it has become apparent that the resale value of the property had been overestimated in the event of failure of the operating company. The financial restructurings of some high-profile healthcare providers and pub chains have led to significant losses for lenders and brought some applications of this model into question.

As users of property as collateral

As well as occupying premises, it is common for owner-occupiers to use their property as collateral to reduce borrowing costs. Published accounts data suggest that for larger PNFCs, at least 35% of bank loans and 15% of bond issuance is secured, with the security most likely to be property (balance sheet 1 in Figure 1). For smaller companies, property likely plays an even larger role as collateral (balance sheet 2 in Figure 1). Data from SME Finance Monitor on new loans and overdrafts arranged in 2012 Q2 suggest that around 44% of SME bank loans, by value, were secured on property (25% for overdrafts and 47% for loans).⁽¹⁾ As property prices rise, firms' access to credit eases as they have a greater value of property

collateral to pledge against the loan. Conversely, as property prices fall, their access to credit is reduced.⁽²⁾

(ii) Investors in property (Figure 2, balance sheets 6–14)

Commercial property is a significant investment class for many investors, particularly those with longer investment horizons, such as insurance companies and pension funds. Investors hold exposure to CRE to earn rental income, to benefit from anticipated capital gains and as an inflation hedge. Some investors hold commercial property directly, while others seek exposure via specialist investment firms. Rough estimates based on available data suggest a fairly even split between the two.

Direct investors in CRE

Direct investors in property can, for the most part, be split into two very different groups. First, there are large institutions — such as insurers, pension funds and sovereign wealth funds — that invest in 'prime' commercial property with a long-term investment horizon.⁽³⁾ They are sufficiently large to be able to build a diversified property portfolio despite the lumpiness of property. These institutions do not tend to make significant use of leverage or operate with maturity mismatches. The second class of investors comprises wealthy individuals. They often invest with large amounts of leverage. Information gathered from the Bank's Commercial Property Forum suggests that such wealthy individuals and small local businesses accounted for a significant amount of the investment in the small, local units that constitute much of the stock of 'secondary' quality commercial property.

ONS data on insurance companies and pension funds put their direct holdings of property at around £77 billion (balance sheet 6 in Figure 2).⁽⁴⁾ Estimating non-resident institutions' holdings of CRE is harder, although transactions data from Property Archive suggest that it is likely to be at least £100 billion (balance sheet 8). The holdings of wealthy individuals — both directly and indirectly via unlisted property vehicles — is not easily estimated, although it is likely to be substantial.

Specialist CRE funds

Direct investment in property is difficult for smaller investors that wish to gain a diversified exposure to the sector. Property funds offer a solution to this problem, allowing small

(1) While some of these loans were secured on personal property, the majority were secured on business property.

(2) See Bernanke, Gertler and Gilchrist (1996).

(3) 'Prime' and 'secondary' property are terms commonly used in the commercial property market to describe the segmentation of the market. While there is no universally agreed definition, 'prime' property is generally considered to refer to larger properties often located in London or other large cities, often with strong leases that create an investment similar to a bond. 'Secondary' property refers to all other commercial property; it is typically smaller, with shorter leases and requires more active management.

(4) Bottom-up analysis of individual firms' balance sheets, using S&P Capital IQ, suggests UK-based asset managers hold at least a further £17 billion.

Figure 2 Investors in commercial property^(a)

		6: ICPFs ^(b)		7: Asset managers ^(b)		
		Assets	Liabilities	Assets	Liabilities	
Direct owners of CRE	CRE: £77 billion		CRE: at least £17 billion			
	Property funds	8: Non-residents 9: Wealthy individuals		CRE: £301 billion of which: Non-residents hold at least £100 billion. Open-ended and closed-ended funds hold around £45 billion each.	Loans and bonds: £213 billion	
		Unlisted	10: Open-ended funds 11: Closed-ended funds 12: Other			
			Listed			13: REITs
	Assets	Liabilities		Assets	Liabilities	
		CRE: £47 billion	Debt: £20 billion	CRE: at least £18 billion	Debt: £14 billion	
			Equity: £27 billion	Other: £5 billion	Equity: £9 billion	
		14: Other listed				

Note: ICPFs: insurance companies and pension funds; REITs: real estate investment trusts.

Sources: ONS, Property Archive, Property Funds Research, S&P Capital IQ and Bank calculations.

(a) All figures are indicative, based on available data sources. Figures refer to end-2010 data where possible.

(b) ICPFs and asset managers also hold CRE loans as assets (these are shown in Figure 3).

investments in diversified property portfolios. They also allow a far more liquid exposure to property, with listed funds offering equity securities that can be bought and sold during market hours and some unlisted funds willing to return investments at a month's notice. While attractive for end-investors, from the perspective of financial stability, property funds can combine leverage and maturity mismatch in ways that can exacerbate swings in property prices, potentially exposing both borrowers and lenders to larger losses.

Listed property funds account for around £70 billion of commercial property holdings (balance sheets 13 and 14 in Figure 2). More than two thirds of this is held in REITs. All listed property funds can choose to apply for REIT status, which confers tax advantages but applies restrictions on investment behaviour. Both REITs and other listed property companies tend to have reasonably modest leverage, with median debt/assets at end-2011 of around 40% and 50%, respectively. Shares in listed companies are publicly traded, making them highly liquid in the sense that they can be bought and sold easily at a market price. However, the underlying property is generally considerably less liquid and REITs can trade at large and volatile discounts or premia to their net asset values. From the perspective of an investor, this means their investment can depart substantially and persistently from the value of the underlying property to which they want exposure. Listed property funds target both retail and institutional investors.

Unlisted funds appear to account for at least £90 billion of indirect investors' holdings of real estate (balance sheets 10–12 in Figure 2).⁽¹⁾ Like listed funds, unlisted funds offer exposure

to diversified portfolios of property, but they are priced based on valuations of the property, rather than in a market for their securities, as is the case for listed funds. Unlisted funds can be split by their liquidity profile into open-ended and closed-ended funds.

Open-ended funds sell equity to new investors and allow them to sell shares back to the fund directly on a monthly, quarterly or annual basis, although redemptions can generally be suspended in stressed market conditions. To accommodate a fluctuating fund size, the fund manager must hold some liquid reserves (often cash or shares in REITs) and must buy and sell property as the fund grows and shrinks. These funds do not operate with a fixed time horizon. Much indirect exposure to 'core' commercial property — existing, high-quality buildings with long leases — has traditionally come via open-ended funds.

Closed-ended funds instead lock up investors' money for a pre-agreed period — often around ten years — and dispose of the investments prior to winding down the fund and returning capital to investors. This has traditionally allowed them to invest in more speculative property classes, including property with weak or no leases and land or buildings that require development. Closed-ended funds, including those run by private equity firms, are likely to employ higher leverage than open-ended firms.

The role of different investors in the crisis is explored in the box on page 55. It argues that the share of the CRE market held by specialist CRE funds increased markedly during the boom period and that the leverage and maturity mismatches of these investors played an important role in the market dynamics seen in both the boom and the bust.

(iii) Lenders to commercial property firms (Figure 3, balance sheets 15–19)

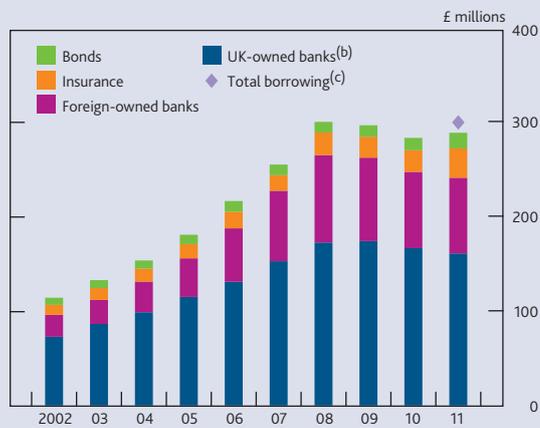
Figure 3 shows aspects of the balance sheets of lenders to CRE companies (this does not include lending to non-CRE firms that is secured on property, which is shown separately in balance sheets 1 and 2 in Figure 1). The majority of lending is accounted for by UK-owned banks and building societies (£166 billion) and the branches and subsidiaries of foreign-owned banks (£81 billion), shown on balance sheets 17 and 18 in Figure 3. Insurers and pension funds account for a further £27 billion of loans (balance sheet 15) while other asset managers, including private equity firms and specialist debt funds, provide a small additional amount of funding. Of the bank lending, the majority has remained on balance sheet, although £56 billion of loans have been securitised and funded via the issuance of commercial mortgage-backed securities (CMBS). The lending of non-resident banks is not captured in

(1) The true figure is likely to be higher, as Property Funds Research does not claim full market coverage.

The role of different investors in the recent crisis

The late 1990s and early 2000s saw the market share of traditional, long-term, unleveraged investors (primarily insurance companies and pension funds) decline in the face of a rapid growth of investment funds. Lending to commercial real estate (CRE) funds grew very rapidly from 2002–08 (Chart A), driven almost entirely by banks, suggesting an easing of bank credit conditions. As property prices started to rise CRE firms' equity increased, further easing their access to credit and starting a positive feedback loop between commercial property prices and lending to commercial property companies.

Chart A Borrowing by UK CRE companies, by source^(a)



Sources: Association of German Pfandbrief Banks, Bank of England, Dealogic, De Montfort University, ONS and Bank calculations.

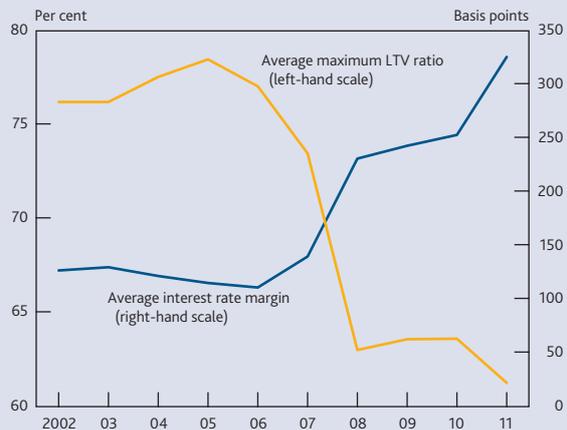
- (a) End-year data.
- (b) Includes building societies.
- (c) 2011 total borrowing taken from the De Montfort survey (Maxted and Porter (2012)).

Much of the CRE-related lending was to highly leveraged investors. Data from Property Funds Research suggest that assets under management of unlisted funds — one such type of leveraged investor — grew from around £40 billion in 2000 to around £130 billion in 2007, with the number of funds increasing nearly fourfold over the period.⁽¹⁾ Given their relatively high leverage targets, they accounted for a substantial part of the total increase in CRE-related debt. Smaller funds, private equity funds and private individuals are likely to account for the remainder.⁽²⁾ Discussions at the Bank's Commercial Property Forum have suggested that some of these investors were attracted to commercial property by potential capital gains, rather than as a long-term investment.

This pattern of investment in the CRE market may help explain not only the rise in property prices in the run-up to the crisis, but also its subsequent fall. As discussed earlier, commercial property is by nature lumpy, making it subject to periods of more intense illiquidity than equity or bond markets, as the weight of investors' expectations of near-term returns turn

from positive to negative. The presence of short-term investors hoping for capital gains, and their investment via leveraged and open-ended funds, likely exacerbated the falls in property prices. As fears about the US property market spread around the world in 2007, there was a sharp reduction in credit supply to UK CRE firms, as partly evidenced by the falling loan to value (LTV) limits and rising margins on lending (Chart B). The reduced access to finance prevented them buying property as other investors started to sell. And while long-term investors could choose not to sell as prices started to fall, open-ended funds that offered liquidity to their investors were faced with large redemptions, forcing them initially to run down reserves and sell investments in real estate investment trusts (REITs) (exacerbating the fall in REIT prices) and then property, but also to suspend redemptions (Chart C). The forced sales of property is likely to have further depressed prices.

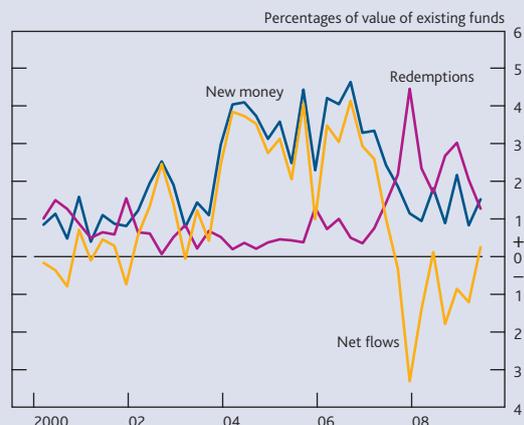
Chart B Lending terms for CRE firms^{(a)(b)}



Sources: De Montfort University and Bank calculations.

- (a) End-year data.
- (b) CRE firms refer to the unweighted average of prime office, prime retail, prime industrial, secondary office, secondary retail and secondary industrial property.

Chart C Unlisted property funds' inflows and outflows



Sources: The Association of Real Estate Funds and Bank calculations.

- (1) See Baum (2008).
- (2) See Chart 6 and associated discussion.

Figure 3 Lenders to CRE companies^(a)

Lenders	15: ICPFs ^(b)		16: Asset managers ^(b)	
	Assets	Liabilities	Assets	Liabilities
	CRE loans: £27 billion		CRE loans: unknown	
	17: UK-owned banks and building societies		18: Foreign-owned banks	
	Assets	Liabilities	Assets	Liabilities
	CRE loans: £166 billion ^(c)		CRE loans: at least £81 billion ^(c)	
	of which 19: CMBS			
	Assets	Liabilities		
	CRE loans from UK and non-UK banks	CMBS: £56 billion		

Note: ICPFs: insurance companies and pension funds; CMBS: commercial mortgage-backed securities.

Sources: Association of German Pfandbrief Banks, Bank of America Merrill Lynch, Bank of England, Commercial Real Estate Finance Council Europe, ONS and Bank calculations.

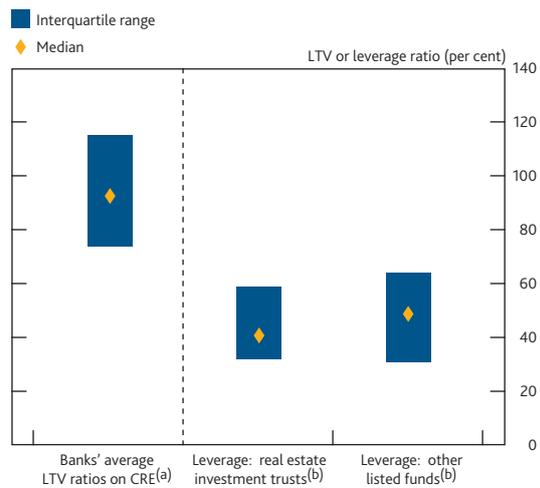
- (a) All figures are indicative, based on residual data sources. Figures refer to end-2010 data where possible.
 (b) ICPFs and asset managers also hold CRE assets directly (these are shown in Figure 2).
 (c) UK and non-UK banks, together, have issued £56 billion CMBS.

these data, but one method of estimation suggests that it is small.⁽¹⁾ Finally, a small number of CRE funds, including some REITs, issue bonds.

While the lenders' balance sheets cannot be matched with the borrowers' balance sheets with complete confidence, it is relatively clear that the majority of lending is to unlisted property companies and wealthy individuals.⁽²⁾ Chart 6 shows that LTV ratios on CRE lending of UK banks is high (around 95% for the median bank in the sample). One would expect the ratio of debt to total assets — that is, the leverage — of CRE investors, in aggregate, broadly to match this figure. Listed firms appear in aggregate to be quite lightly geared — the median leverage of both REITs and other listed CRE funds is less than 50% — suggesting that unlisted property companies and private individuals are, as a whole, very highly geared.

There is less flexibility to modify or refinance loans funded through CMBS vehicles than there is for loans retained on banks' balance sheets. These vehicles tend to be structured so that the loans mature two to three years before the CMBS, giving the loan servicer some time to resolve problematic loans. But forbearance that materially changes the value of investors' interest in the CMBS requires majority support. Where such support is not forthcoming, failure to repay a loan will automatically trigger the repossession and sale of the underlying property. In an environment of tight refinancing conditions, then, the use of CMBS as a financing tool for commercial property lending is likely to bring forward the date upon which the loans are foreclosed.

Chart 6 CRE investor leverage and banks' LTV ratios



Sources: De Montfort University, Property Funds Research, S&P Capital IQ and Bank calculations.

- (a) Data refer to LTV ratios for individual loans, as of end-2011.
 (b) Data refer to balance sheet leverage, calculated as total debt/total assets, as of end-2010. This differs conceptually from LTV ratios. For example, investors hold equity on their balance sheets over and above the equity held in individual properties.

The role of the Financial Policy Committee

Looking ahead, the statutory Financial Policy Committee (FPC) will have specific tools to address threats to stability posed by commercial property lending. The Financial Services Act will establish an FPC, tasked with a primary objective of protecting and enhancing the resilience of the UK financial system.

Parliament has vested in the statutory FPC two sets of powers. The first set is to make recommendations on a 'comply or explain' basis to the UK conduct of business and prudential regulators. As an example, the interim FPC recommended in November 2012 that the prudential regulator take action to ensure UK bank and building societies' assets were properly valued, particularly those relating to the commercial property sector.⁽³⁾

The second set of powers is to direct regulators to adjust specific macroprudential tools. That includes a *general* tool — the countercyclical capital buffer (CCB) — to require banks, building societies and investment firms to have an additional buffer of capital to absorb potential losses on UK lending; and a *specific* tool — sectoral capital requirements — to adjust capital requirements on particular classes of exposure, including commercial property.

- (1) The data on foreign-owned banks cover all UK-resident foreign-owned banks and non-resident German Pfandbrief banks. The De Montfort survey (Maxted and Porter (2012)), which aims to capture the lending of foreign-resident banks, produces a similar total lending figure. Taken together with the Bank data, this suggests that lending from other foreign-resident banks is small.
 (2) This can be inferred by noting that CRE lending shown in Figure 3 is much larger than the debt held by listed property companies in balance sheets 13 and 14.
 (3) This recommendation was not strictly issued on a 'comply or explain' basis as the interim FPC does not yet have that power.

Differences in the timing of cycles in property prices across countries (see the box on page 52) support the idea of a different setting for macroprudential policy for the same exposures in different jurisdictions.⁽¹⁾ There is room for such national flexibility within the new Basel III capital framework. Under Basel III, the setting for an individual firm's CCB will depend on the product of a series of national CCB rates and the firm's exposures in each of those countries. Once Basel III's CCB provisions are implemented in the EU by the forthcoming revised Capital Requirements Directive (CRD4), the FPC will set the CCB rate applied to UK exposures.

In anticipation of the creation of the statutory FPC, the interim FPC recently published a draft policy statement setting out the circumstances in which it anticipates using these macroprudential tools, including a list of core indicators to which the Committee will refer in making decisions. These include the rate of growth of lending to commercial property companies, a measure of rental yield for commercial property and a measure of spreads on new lending to commercial property. These indicators would have given some warning of growing fragility in the commercial property lending ahead of the crisis, particularly in the case of the lending growth indicator. But a proper appreciation of the risks will require a more detailed understanding of the evolving structure of the commercial property industry and those that lend to it.

Had the authorities exercised a power to increase capital requirements on commercial property lending as debt grew rapidly in the years that preceded the crisis, banks would have

been better placed to withstand the downturn. Having set more capital aside, banks would have had more resources with which to absorb losses made on CRE lending. It is also possible that hikes in capital requirements during the boom years would have encouraged banks to moderate their lending growth by tightening the terms on new lending. Had fewer loans been made and/or LTV ratios been lower, the potential for losses in the bust would have been curbed. Alongside higher capital levels, that would also have underpinned the resilience of the banking system.

Conclusion

Commercial property played a significant role in causing destabilising losses for banks in the recent crisis. History suggests that this has occurred before in the United Kingdom and elsewhere. This article has examined the recent boom and bust episode in UK commercial property in some detail. It has argued that while long-term interest rates and a variation in rents played a role in explaining the variation in commercial property prices, other factors were more important. While they cannot be identified individually, leverage, maturity mismatch and irrational exuberance on the part of both investors and lenders appear to have played important roles. This suggests that it is important for policymakers to monitor developments closely in commercial property lending and the commercial property market. Going forward the FPC will have powers to recommend, or direct, regulators to take action where it identifies threats to stability.

(1) See Dombret and Tucker (2012).

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The Agents' company visit scores

By Jon Relleen of the Bank's Greater London Agency and David Copple, Matthew Corder and Nicholas Fawcett of the Bank's Structural Economic Analysis Division.⁽¹⁾

The Bank's Agents collect economic intelligence from the business community around the United Kingdom, enriching the range of information available to the Monetary Policy Committee (MPC). The intelligence is largely qualitative, but Agents also make quantitative judgements in the form of scores. The Bank has published Agents' macroeconomic scores each month since 2006. In addition, since 2007, Agents have assigned 'company visit scores' based on information gathered from their confidential meetings with individual UK firms. This internal data set covers a broad cross-section of UK companies and has become helpful to the MPC when considering business conditions and particularly for considering differences across companies. The scores have been used recently to try to understand better trends both in productivity and in the level of spare capacity within firms, on which there is a paucity of alternative data sources.

The Bank has twelve Agencies spread across the United Kingdom, whose role is to gather economic intelligence to inform the Monetary Policy Committee's (MPC's) assessments of business conditions.⁽²⁾ This is primarily achieved by conducting bilateral meetings with senior executives at UK companies. The Agents then seek to draw out trends and themes for the MPC in a monthly *Summary of Business Conditions*, which since 2006 has included a series of 'macroeconomic scores' to represent the Agents' collective judgement about various economic factors.⁽³⁾ Alongside this, the MPC regularly asks the Agents to conduct surveys on specific issues.⁽⁴⁾

Since 2007, the Agents have also assigned company visit scores (CVS) based on information gathered in meetings with individual UK companies. The initial aim was to help Agents marshal qualitative intelligence more systematically and thus to help assign the monthly macroeconomic scores. But CVS have also become useful in their own right within the Bank. In particular, they can be used to consider the diversity of business conditions across firms, helping to provide insights not available from other data sources.

This article outlines the usefulness of the CVS data set. The first section sets out the scoring process, and the second shows two examples of how CVS have been used recently to help the MPC assess UK business conditions. In the first example, CVS are used to try to explain the sharp rise in employment seen over the past two and a half years. The second example considers the average amount of spare capacity within companies across the economy as a whole,

and how this might affect inflation. In each case, the range of conditions observed across firms interviewed offers greater insight into economic conditions than aggregate measures by themselves would allow.

The Bank places the utmost importance on the confidential nature of discussions between Agents and company contacts. Qualitative intelligence provided by Agents to the MPC relates to general trends and themes rather than individual firms: analysis using CVS is based on aggregated and anonymised data.

From qualitative intelligence to quantitative judgements

To gain insights into trends and developments across the economy, the Bank's Agents maintain regular contact with a broad range of firms, representative bodies and public organisations around the United Kingdom. Collectively, the Agents conduct about 5,500 bilateral meetings each year, as well as attending numerous business groups and other fora.

The Agents have face-to-face meetings with key decision-makers in these organisations in order to obtain a

(1) The authors would like to thank Sebastien Cross, Lizzie Peck, Lorna Pringle and Conor Sacks for their help in producing this article.

(2) For more information, see Beverly (1997), Eckersley and Webber (2003) and www.bankofengland.co.uk/monetarypolicy/Pages/agencies/default.aspx.

(3) Ellis and Pike (2005) describe the introduction of the Agents' scores and their comparability with ONS data. Dwyer (2008) reviews these scores in the light of ten years of data.

(4) For a review of Agents' Surveys since the start of the financial crisis see Belsham, Caunt and Duff (2012).

timely, detailed and well-informed picture of economic conditions. Their conversations cover recent business conditions and expectations for the future as well as specific issues of interest to the Bank, which can involve a survey commissioned by the MPC.

Much of the Agents' intelligence is qualitative. Each month, the Agents draw out trends and themes for the MPC in their *Summary of Business Conditions*.⁽¹⁾ And whereas official data play the most prominent role in the MPC's assessment of economic conditions, there are significant benefits from having up-to-date descriptive information about business conditions and firms' strategic responses to those conditions. This is especially the case for topics for which there is a lack of data, where data are published with a lag, or there are difficulties in interpreting underlying trends.

Alongside qualitative information, the Agents developed a set of scores to capture their quantitative judgements about various macroeconomic factors. The main added value of these macroeconomic scores for monetary policy is that movements in scores over time can help indicate how economic conditions are evolving. Each month since 1997, the Agents have assigned scores for a range of variables covering UK demand, output, labour market conditions, capacity pressures and costs and prices. The scores are published in an annex to the *Agents' Summary of Business Conditions*, and have been found to be useful in capturing, among other things, turning points in macroeconomic activity.⁽²⁾

The company visit scores

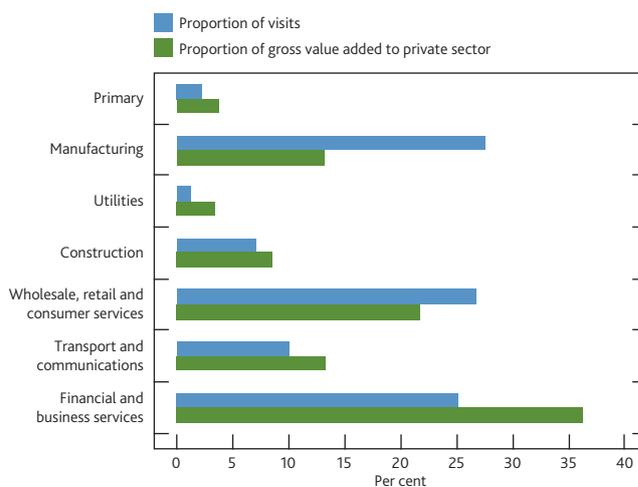
Partly to help them assign these monthly scores, the Agents also started assigning company visit scores (CVS) during 2007 as a way of marshalling the intelligence gathered from firms more systematically.⁽³⁾ CVS are based on information from meetings with individual firms and cover eleven variables, which are analogous to the macroeconomic scores.

CVS cover demand and output (sales turnover, exports and investment); factor utilisation (capacity utilisation, employment and recruitment conditions); and costs and prices (labour costs, non-labour costs, output prices and profits). Each variable is scored on a scale of -5 to +5. The box on page 61 outlines the scoring methodology in more detail. Importantly, a considerable element of judgement is involved.

Over time, the number of meetings for which Agents have assigned scores has steadily increased. In total, the CVS data set now reflects information from nearly 17,000 company visits. And these companies reflect a broad cross-section of UK firms (**Chart 1**).

As the CVS data set has grown, it has become increasingly useful as an internal Bank analytical tool. There are three

Chart 1 Distribution of private sector firms covered by the CVS data set^(a)



Sources: ONS and Bank calculations.

(a) Proportion of visits and gross value added are both measured as a share of private sector totals. Many companies are recorded in the data set more than once as Agents typically visit firms at roughly twelve-month intervals.

benefits of the data set: first, its disaggregated nature, which allows the Bank to analyse differences in business conditions across UK firms; second, the scores are available very quickly following a company visit, providing timely data for use when briefing the MPC; and third, some scores cover variables for which there are no aggregate data.

However, analysis using CVS will only be useful for monetary policy if the data are robust, and if aggregated CVS data track trends in official data sources. The box on pages 64–65 outlines a simple 'sense check' on the aggregated CVS series. It finds evidence that aggregate CVS follow trends that are broadly consistent with macroeconomic data — although the extent of this varies across CVS variables.

In most cases, CVS variables are not perfectly comparable to official data series. And CVS series would not be expected to match exactly even perfectly comparable macroeconomic data. For example, there may be a 'survivorship bias', as struggling firms are more likely to fall out of the sample. Scoring judgements made by Agents may also vary slightly. Nevertheless, there is evidence that aggregate CVS capture broad economic trends and hence are a potentially useful tool for economic analysis.

(1) The summaries are published each month on the Bank's website at www.bankofengland.co.uk/publications/Pages/agentssummary/default.aspx.

(2) See Dwyer (2008).

(3) The development of CVS benefited from ideas pioneered at the Reserve Bank of Australia, which conducts a business liaison programme and assigns scores based on information gathered from firms.

Scoring based on company visits

After visiting companies, Agents assign company visit scores (CVS) based on information gathered during the meeting. The emphasis is on scoring economic variables based on information from firms, rather than scoring company financial performance. Guidelines for the Agents help ensure that judgements about scores are as comparable as possible. And these guidelines are regularly reviewed by the Agents to ensure the quality and consistency of scoring. Nevertheless there is inherently scope for differences in interpretation from Agent to Agent.

Variables scored

The economic variables scored for each company visit mostly correspond with equivalent variables used in the Agents' monthly macroeconomic scores. There are currently eleven CVS variables:

Demand and output

- Total demand (nominal turnover)
- Exports (nominal export sales)
- Investment (capital expenditure)

Factor utilisation

- Capacity utilisation (versus all productive factors)
- Employment (actual headcount)
- Recruitment conditions (hiring difficulties)

Costs and prices

- Total labour costs (salaries, pensions and bonuses per employee)
- Pay (salaries per employee)
- Non-labour costs (value of other operating costs)
- Output prices (retail or business prices)
- Profits (pre-tax profit as a share of turnover)

Moreover, for each variable there is a score for past experience as well as one for expectations. So a maximum of 22 scores may be entered for each company visit, although the Agent only assigns scores for variables where he/she has sufficient information.

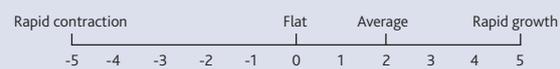
The majority of scores describe a change in the level of that variable; either the past three months relative to a year ago, or the past three months relative to the expected level one year forward. So these scores are essentially measuring annual growth rates (with annual comparisons helping to control for seasonality). The exceptions are recruitment difficulties and capacity constraints, which are scored according to the level of the variable in the past/next three months relative to what is considered 'normal' for that firm.

The scoring scale

Each variable is scored on a symmetric scale that ranges from -5 to +5, the same as for the Agents' macroeconomic scores. For growth variables, a score of +5 indicates a rapidly rising level, 0 indicates an unchanged level and -5 a rapidly falling level. For capacity utilisation and recruitment difficulties, +5 indicates extremely tight capacity constraints or hiring conditions, -5 indicates plenty of slack in supply conditions or the labour market, and 0 represents normal conditions.

Scores of +5 or -5 are reserved for extreme cases; they are usually associated with unprecedented conditions facing a firm. Assigning a non-zero score between +5 and -5 requires judgement. But for growth scores a rule of thumb is that a score of +2 is at the mid-point of the range of normal growth, and can be interpreted as the usual or average rate of growth for the firm in that variable over previous years.

Scale for growth variables



Scale for non-growth variables



The role of judgement

When assigning scores, Agents draw on a range of information, both qualitative and quantitative, from the interview about recent activity as well as gauging the company's expectations for the future. A benefit of face-to-face meetings is that they provide scope for dialogue and clarification of the information reported. However, there remains a considerable element of judgement involved. Although the Agents make every effort to ensure consistency in their approach it remains possible, or even likely, that information is interpreted differently by different Agents.

Confidentiality

The detailed content of each interview and the scores assigned after each company visit are treated as strictly confidential by the Bank. Analysis using CVS looks at aggregated series or the distribution of scores, rather than referencing specific companies.

Using the CVS to understand employment and inflation

Despite weak output growth over the past three years, private sector employment has risen by over one million. In recent meetings, the MPC has commented on the difficulty of reconciling the strength of employment with the weakness in output.⁽¹⁾ The implication for measured private sector productivity is that output per hour is around 15% lower than it would have been had it continued to grow at its pre-2008/09 recession average rate.

Several factors are likely to lie behind this productivity puzzle. The November 2012 *Inflation Report* sets out the most likely explanations. These can be grouped into three categories: first, data measurement issues; second, the direct impact on *measured* productivity of the weakness in demand itself; and third, weak growth in *underlying* productivity, which is the amount that a given labour force could produce if demand were not a constraint on output.⁽²⁾ The MPC has attached some weight to each explanation.

This section shows how CVS data have been used to shed light on the productivity puzzle. Two aspects are covered: first, companies' hiring and firing decisions since the crisis; and second, the margin of spare capacity within companies that opened up at the onset of the crisis, and how this has evolved since.

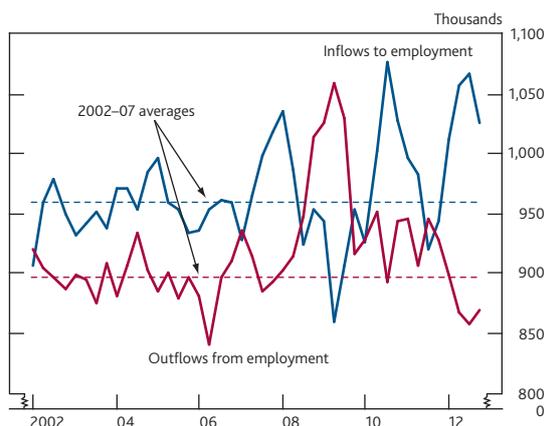
Explaining trends in employment

The aggregate employment figures mask a wide variety of experiences at the individual company level. For example, faced with weakness in demand, some companies — especially smaller ones — will have needed to retain a minimum level of staffing to continue operating. Others may have retained staff in anticipation of a future return to more normal demand growth. Gross flows into and out of employment in a quarter are extremely large (**Chart 2**), averaging just under one million. So even small changes in companies' hiring and firing decisions could have a substantial impact on aggregate net employment figures.

The differences across companies in the CVS data set are shown in **Chart 3**. This compares the employment scores of firms interviewed in 2009 to those interviewed in 2012. Even during the depths of the recession in 2009, while many firms may have been shrinking their workforce, others were expanding employment.

Chart 3 also shows that the distribution of firms' employment scores has changed over time. For example, a typical firm in 2012 is more likely to have had a 'neutral' employment experience — with employment broadly unchanged — than in 2009, when most firms were reporting a net fall in the number

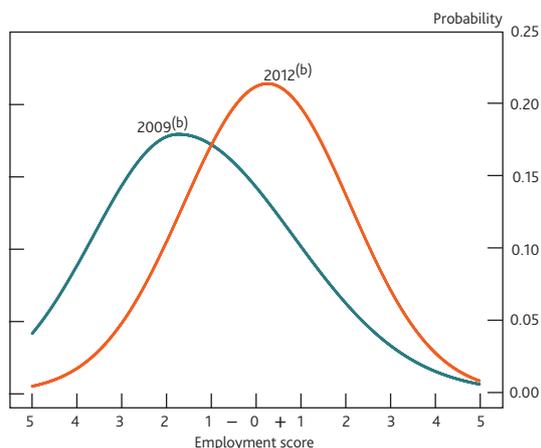
Chart 2 Inflows to and outflows from employment^(a)



Sources: ONS and Bank calculations.

(a) Two-quarter moving averages.

Chart 3 Distribution of CVS employment scores^(a)



Source: Bank calculations.

(a) The CVS have been fitted to a distribution, to smooth some of the volatility in the underlying data. This helps to highlight changes in the mean, spread and skew of scores.
(b) All scores collected over each calendar year.

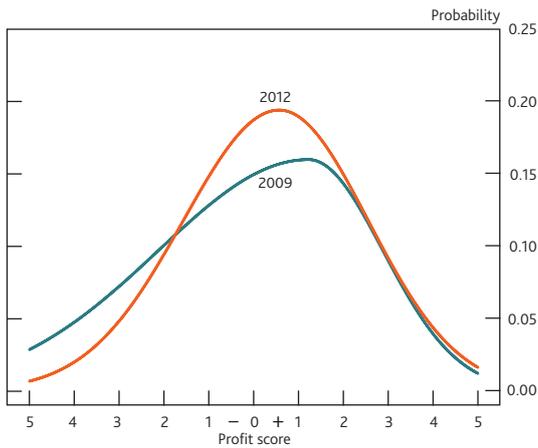
of employees. **Chart 4** shows a similar comparison, but for profit scores. This, too, reveals substantial variation in companies' experiences, with the distribution of profit scores having narrowed somewhat since 2009.

CVS data shed light on the relationship between firms' profitability and their employment decisions, at a company level. **Chart 5** groups firms together according to their profit scores, from -5 to +5, and calculates the average employment score for each group. This is shown by the 'bubbles' in the chart. The area of each bubble indicates the proportion of firms reporting a given profit score and the colours relate to the timing of data used: red scores for 2009–10 and blue for 2011–12.

(1) For example, in the minutes of the January 2013 meeting, the MPC observed that the productivity shortfall was 'outside past experience', and that understanding it was a key challenge.

(2) See the box on page 33 of the November 2012 *Inflation Report*.

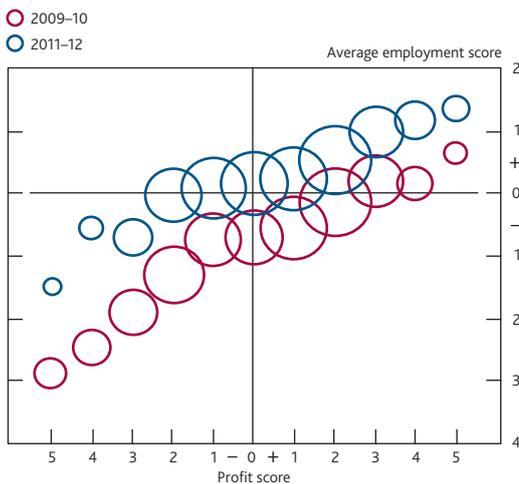
Chart 4 Distribution of CVS profit scores^(a)



Source: Bank calculations.

(a) See footnotes to Chart 3.

Chart 5 Average score for expected employment for a given profit score^{(a)(b)}



Source: Bank calculations.

(a) The area of each bubble indicates the proportion of firms reporting the corresponding profit score.
 (b) All scores collected over these calendar years.

Chart 5 suggests that the relationship between profitability and employment is not linear. Whereas a higher profit score is typically associated with an increase in employment, and vice versa, there is an area of 'inaction' between profit scores of -1 and +1: within this range, the reported level of employment is unchanged. Firms within this range appear to be relatively unlikely to change employment in response to small variations in profitability. This could be due to hiring and firing costs.

This is relevant to the MPC's analysis of the productivity puzzle, as it could partly explain why employment has risen since 2010. **Chart 5** shows that, relative to 2009–10, more firms in 2011–12 were hiring staff (top-right corner of **Chart 5**) than shedding staff (bottom-left corner). The blue bubbles for profit scores below -2 are smaller than the corresponding red bubbles. The proportion of firms that had very low profit scores has fallen, with more now in the area of inaction: these

firms may find it more costly to reduce employment than to keep it unchanged. This reduction in gross flows out of employment can account for part of the sharp rise in net flows into employment.

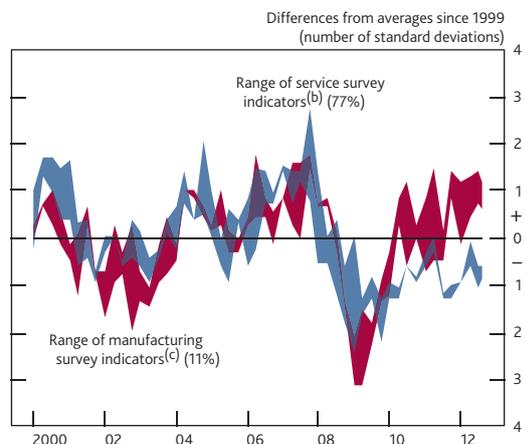
Chart 5 also shows a shift in the relationship between employment and profit scores between 2009–10 and 2011–12. For a given profit score (on the horizontal axis), the average employment score across firms is higher in the 2011–12 period. This shift reflects movements in other firm-level characteristics. For example, some Agents' contacts reported that they had started hiring workers in anticipation of a recovery in demand. This is echoed by a substantial rise in both firms' actual and expected demand scores in the CVS data set between the periods 2009–10 and 2011–12. Taken together, these data provide some explanation for why employment has risen.

Spare capacity and inflation

One illustration of the productivity puzzle has been in surveys of spare capacity. Spare capacity measures how far firms are operating above or below 'normal' levels of supply capacity, given their existing resources. Estimates of capacity utilisation can be useful in assessing the balance between demand and supply in the economy, and therefore pressure on costs and prices.

Existing surveys suggest that the degree of spare capacity in the economy widened in 2008–09, but by less than might have been expected given the scale of the fall in output. Since then, surveys have suggested a marked reduction in the degree of spare capacity, despite the slow growth in output. **Chart 6** shows a range of survey indicators of capacity utilisation by sector (a more negative value represents a larger margin of

Chart 6 Survey indicators of capacity utilisation by sector^(a)



Sources: British Chambers of Commerce (BCC), Confederation of British Industry (CBI), CBI/PricewaterhouseCoopers, ONS and Bank calculations.

(a) The figures in parentheses show 2009 weights in whole-economy gross value added.
 (b) Includes measures of services capacity utilisation from the BCC and CBI. The CBI measure weights together financial services, business/consumer services and distributive trade surveys using shares in nominal value added. The BCC data are not seasonally adjusted.
 (c) Includes measures of manufacturing capacity utilisation from the CBI, and a measure of non-services capacity utilisation from BCC. The BCC data are not seasonally adjusted.

Comparing aggregate company visit scores with economic trends

The key benefit of the company visit scores (CVS) data set is its disaggregated nature, which allows analysis of business conditions across UK firms. But analysis using CVS will only be useful for macroeconomic policy makers if the data are robust and if aggregate CVS broadly track trends across the economy.

This box provides a simple 'sense check' on that, by comparing aggregated CVS series with UK economic trends. It shows that many aggregate CVS series follow trends that are broadly consistent with trends in the economy.

Reasons to expect some differences between CVS and official economic data

CVS series are not expected to match official data perfectly. In part this is because the information incorporated into CVS may not be exactly the same as for official economic data series. For example, CVS demand scores reflect annual growth in firms' turnover, which is not perfectly comparable with official data for private sector nominal output growth.

Moreover, CVS series would not be expected to match even perfectly comparable macroeconomic data exactly, for two broad reasons. First, there is likely to be a sample bias. The CVS data set has a higher proportion of large firms, by number, than the economy. Moreover, there may be a 'survivorship bias', because firms that go bust fall out of the sample, and struggling firms may be less able to spare the time for a visit. Second, assigning scores requires judgements (as explained in the box on page 61) and while there are regularly reviewed guidelines to help consistency, judgements made by different Agents will vary slightly. This may be particularly relevant for variables that can be difficult to score; for example, if contacts are less familiar with certain metrics for their firm. And judging 'normal' conditions or trend growth rates has been difficult in recent years given a persistent slowdown in economic growth.

Comparisons between CVS and official data

Nevertheless, there is evidence of aggregate CVS following trends that are broadly consistent with trends in the economy. And this offers some support for CVS being a useful tool for economic analysis. For example, **Chart A** shows that aggregate CVS demand scores (which reflect annual growth in firms' turnover) follow a broadly similar trend to official data for private sector nominal output growth.

Similarities between time series of CVS and comparable official data vary across CVS variables. Consistent with this, Agents report that collecting information on changes in firms' turnover and employment, for instance, is often easier than for some other variables, where the information given can be more complex or ambiguous.

Chart A CVS for demand and official data for private sector nominal output growth^{(a)(b)}



Sources: ONS and Bank calculations.

- (a) Quarterly averages of CVS and annual growth in quarterly data for private sector nominal output. Private sector output is used given the low proportion of CVS assigned to public sector bodies.
- (b) The CVS series is shifted back by half a quarter to be more consistent with ONS data. This is because, in a given meeting, Agents ask firms about their previous three months' activity (relative to the year before). Taking the average of CVS data from meetings in a given quarter therefore reflects a period covering six months in total. Hence CVS data are plotted between the two quarterly ONS observations covering this six-month period.

One way of comparing the various CVS series is to use statistical tests. **Table 1** summarises results for CVS variables where there is a reasonably comparable official data series. Because CVS have only been assigned for about five years, which is not a long period in the context of macroeconomic trends, these statistical results should be treated with caution.⁽¹⁾ Nevertheless, the ranking of the statistical correlations may offer some guide to the robustness of each CVS series when using them for analysis.

Table 1 Backward-looking CVS: correlations with official data^(a)

CVS variable	Related ONS variable	Correlation coefficient
Pay	Average weekly earnings (AWE) regular pay	0.872
Investment	Business investment	0.848
Demand	Private sector nominal output	0.847
Employment	Private sector employment	0.844
Total labour cost	AWE total pay	0.836
Exports	Exports	0.796
Pre-tax profit	Gross operating surplus	0.611

(a) The table reports correlation coefficients for quarterly data. See footnote (1) in this box on interpreting the results.

Forward-looking CVS series

Forward-looking CVS offer a potentially useful insight into the future evolution of business conditions and corporate activity. The Agents ask firms about expectations for one year ahead, as compared with the past three months, so this would correspond with activity three or four quarters in the future.

Statistically, most forward-looking CVS do not show strong relationships with official data one year ahead (**Table 2**). However, they do exhibit stronger relationships at shorter

Table 2 Forward-looking CVS series relationships with official data

CVS variable	Related ONS variable	Correlation one-year lag	Best CVS lag ^(a)	Highest correlation
Pay	AWE regular pay	0.394	1	0.865
Total labour cost	AWE total pay	0.389	2	0.834
Employment	Private sector employment	0.179	1	0.898
Investment	Business investment	-0.031	0	0.767
Pre-tax profit	Gross operating surplus	-0.135	1	0.596
Demand	Private sector nominal output	-0.315	1	0.907
Exports	Exports	-0.326	1	0.847

Note: See footnote (1) in this box on interpreting the results.

(a) Refers to the number of quarters that ONS data are lagged in order to achieve highest correlation with the CVS series.

horizons. This may suggest there is some predictive value in the forward-looking scores, but only for one or two quarters ahead. Indeed, this seems intuitive given that firms often have a reasonable feel for activity in the near future, for example based on recent orders. But conditions a year ahead are more difficult to predict, in large part due to unexpected economic shocks outside firms' control.

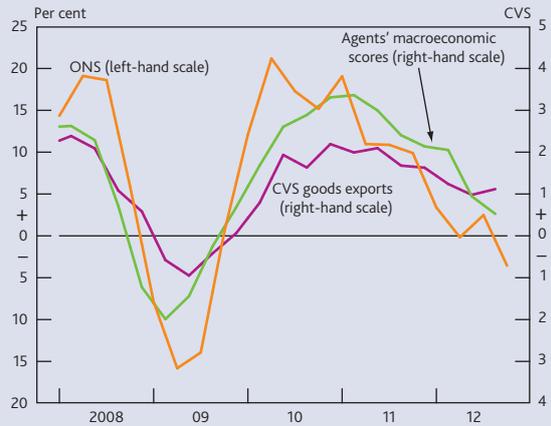
Sectoral comparisons

It is more difficult to find whole-economy data comparators for certain CVS variables: recruitment conditions; spare capacity; non-labour input costs; and output prices. However, one of the advantages of the CVS data set is that it is possible to construct series at a sectoral level. And at the sectoral level it is also possible to compare CVS series with the Agents' monthly macroeconomic scores. For example, **Chart B** compares exports CVS for manufacturing firms with official data for goods exports, as well as with the Agents' macroeconomic scores for manufacturing exports.

spare capacity). It suggests that a typical manufacturing firm is now operating slightly above normal capacity, whereas the typical service sector firm continues to report a degree of spare capacity.

Data from the CVS data set shed more light on capacity utilisation than existing surveys, in part because Agents try to assess the *degree* of spare capacity. That is, they provide a **quantitative** read of how far firms are operating above or below normal capacity. In contrast, most existing surveys are **qualitative**, asking simply *whether* firms have spare capacity.⁽¹⁾ An example helps to illustrate the difference between the two methods: suppose ten firms were operating at 10% below normal capacity and another ten firms of similar size were operating at 5% above normal capacity. In this case, a qualitative survey reporting the net balance of firms above and below spare capacity would report no spare capacity across

Chart B Scores for manufacturing exports and official goods exports data^{(a)(b)}



Sources: ONS and Bank calculations.

(a) Quarterly averages of CVS and Agents' macroeconomic scores, and annual growth in quarterly data for goods exports.
 (b) See footnote (b) to **Chart A**.

The chart shows that each series exhibits a roughly similar trend. Statistically, the Agents' published macroeconomic scores capture moves in the official data more closely than the CVS series. This is perhaps to be expected because the macroeconomic scores take into account a broader range of information, such as business surveys, trade body data, roundtable discussions and media reports. Moreover, looking at CVS data by sector markedly reduces the number of underlying data observations. One would expect the series to become less reliable as the sample size gets smaller.

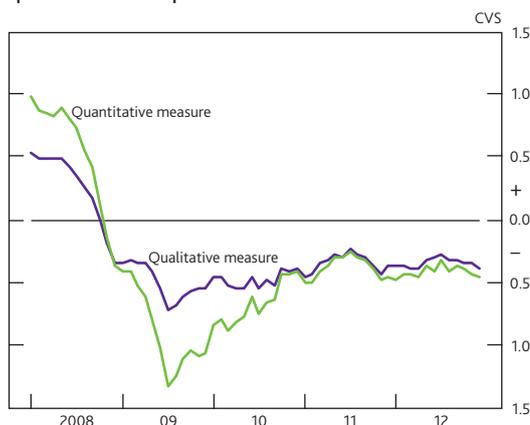
(1) Reported correlations may overstate the strength of the relationships due to overlapping observations: since CVS variables are based on annual growth rates, their comparators are also annualised rates, so quarterly observations contain overlapping periods. This should be borne in mind when interpreting the coefficients. Ideally, the overlapping observations would be discarded but, for this data set, that would leave only five observations (which is not enough for robust statistical analysis).

the economy as a whole. But a quantitative survey would — more accurately — show that across all firms, there was 2.5% spare capacity.

The CVS data illustrate the difference between quantitative and qualitative measures of capacity utilisation during the crisis. The purple line in **Chart 7** reports the CVS capacity utilisation score after it has been converted into a qualitative measure, similar to a survey net balance.⁽²⁾ The green line shows a quantitative measure, given by the average score across firms. During the depths of the crisis in 2009 and 2010,

(1) The CBI provides both quantitative and qualitative measures of manufacturing spare capacity. But since the manufacturing sector is only a small part of the UK economy, this only provides a partial view of the overall story.
 (2) The net balance measure is constructed by assigning each score above zero a value of +2 and each score below zero a value of -2. These values are suggested as representing the average variance above or below 'normal', according to the Agents' scoring guidance for their macroeconomic capacity utilisation scores.

Chart 7 CVS capacity utilisation data: comparison of qualitative and quantitative measures^{(a)(b)}



Source: Bank calculations.

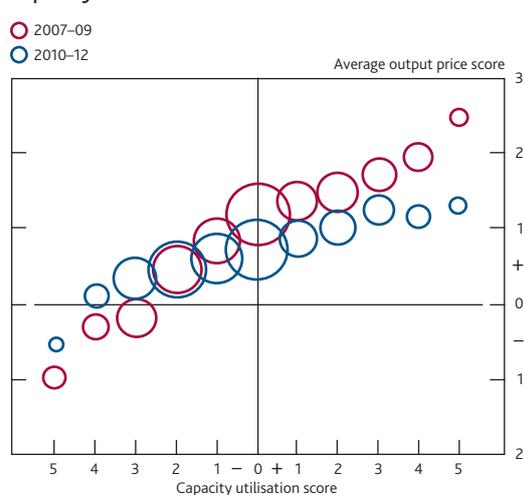
- (a) The qualitative measure is calculated by assigning a score of +2 to all positive company visit scores, -2 to all negative scores, and 0 to the remainder and taking the arithmetic mean of these over the preceding three months. A value of 2, above or below zero, is suggested as representing the average variance above or below 'normal', according to the Agents' scoring guidance for the scores that are recorded as levels.
- (b) The quantitative measure is the arithmetic average of the CVS (which lies between -5 and +5) over the preceding three months.

the quantitative measure pointed to a greater degree of spare capacity than the qualitative measure, although this gap has since narrowed. So while the CVS can help explain the apparent disparity between qualitative surveys of spare capacity and trends in output in the depths of the crisis, they are less helpful in explaining recent developments.

There is also tentative evidence that the relationship between capacity utilisation and output price inflation has become weaker since the height of the financial crisis. CVS data can be used to explore this at a company level, as the data set includes capacity utilisation scores and corresponding output price scores, matched by firm. This kind of analysis is not possible with existing published surveys. **Chart 8** shows the average change in prices set by firms, grouped by their capacity utilisation scores. The area of the bubbles indicates the proportion of firms reporting each capacity score. The chart shows that in the period from 2010 to 2012, firms, on average, changed their prices less at a given level of spare capacity than was the case in the earlier period from 2007 to 2009.

This apparent shift in the relationship between capacity utilisation and output prices may explain why spare capacity has not pulled down on inflation to such an extent over the recent past. Even firms reporting a large degree of spare capacity (shown by a score of -3 to -4) are now, on average, likely to have raised output prices, whereas in the earlier period of 2007–09, those firms would, on average, have reduced prices.

Chart 8 Average score for output prices for a given capacity utilisation score^{(a)(b)}



Source: Bank calculations.

- (a) The area of each bubble indicates the proportion of firms reporting the corresponding capacity score.
- (b) All scores collected over these calendar years.

Conclusion

The Bank's network of Agencies gathers intelligence across all regions of the United Kingdom. This information is qualitative in nature. In their assessment of economic conditions, the MPC routinely considers the descriptive information from Agents about companies' behaviour and expectations in addition to official data. Since 1997, the Agents have assigned scores to capture their judgements about various macroeconomic factors. And since 2007, they have also assigned individual company visit scores. These are anonymised to respect the confidentiality of the firms on which they are based.

The Agents' company-level data offer three distinct advantages over existing sources. First, they are updated continuously, offering the MPC access to more timely data than available elsewhere. Second, they shed light on a wide distribution of companies, allowing the MPC to consider differences in business conditions across firms and sectors. And third, the scores cover some variables where official data are unavailable.

Recent analysis within the Bank has used the CVS data to try to explain recent trends in employment and capacity utilisation within companies. In both cases, the disaggregated nature of the company data makes it possible to analyse relationships between several variables at a firm level.

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The Bank of England *Bank Liabilities Survey*

By Venetia Bell, Nick Butt and James Talbot of the Bank's Monetary Assessment and Strategy Division.⁽¹⁾

In order to improve understanding of the role of bank liabilities in driving credit and monetary conditions, the Bank of England began conducting a formal *Bank Liabilities Survey* last year. This survey is intended to supplement the data collected on the asset side of bank balance sheets by the Bank of England's quarterly survey of credit conditions, which was introduced in 2007. The first results of the *Bank Liabilities Survey* will be published on 26 March. This article introduces the survey.

Developments in banks' balance sheets are of key interest to the Bank of England in its assessment of the economy. Changes on the 'assets' side of the balance sheet, which includes bank loans to households and companies (**Figure 1**), have implications for the provision of credit within the economy. And changes in the price, quantity and composition of banks' 'liabilities' — which include bank deposits made by households and companies as well as funding raised by banks in wholesale debt and equity markets — may affect banks' willingness or ability to lend, and the price of their lending.

Monetary Policy Committee as well as being widely used by market participants and economic commentators.

An improved understanding of developments in banks' liabilities would supplement the data collected on the asset side of bank balance sheets by the CCS. It would allow for a fuller understanding of developments in monetary and credit conditions, which is vital for both the Bank's price stability and financial stability objectives.

There are several advantages to formalising the collection of information on developments in bank liabilities in a regular survey. By including a wide and consistent sample of banks over time, the survey should produce information that can be used in a range of analyses. By including questions on banks' expectations for the coming three months, the Bank will be better able to assess how developments in banks' liabilities unfold, relative to existing plans. And other survey questions will shed light on the factors driving current and expected developments in banks' liabilities.

The Bank of England consulted with the major UK lenders and industry bodies during 2012 about the introduction of a *Bank Liabilities Survey (BLS)*. Lenders and industry bodies were strongly supportive of the initiative. In November 2012, following a series of trial surveys, the Bank signalled its intention to begin publishing the data collected in a public notice.⁽³⁾ The first *Bank Liabilities Survey* report is due to be published on 26 March 2013.

Unlike surveys of credit conditions, there is little international precedent for a survey focused on the liability side of banks' balance sheets. The CCS and equivalent surveys of credit

Figure 1 Stylised bank balance sheet^(a)



(a) The figure is illustrative and is not based on balance sheet data.

The Bank of England introduced a regular survey of credit conditions in 2007 to improve its understanding of lending to households and firms by banks, building societies and other specialist lenders (henceforth referred to as 'banks').⁽²⁾ The introduction of such a survey followed international precedent, with similar exercises already undertaken by the Federal Reserve, the European Central Bank and the Bank of Japan. Since its introduction, the *Credit Conditions Survey (CCS)* has been a valuable source of information for the

(1) The authors would like to thank Matt Maxfield for his help in producing this article.

(2) See Driver (2007).

(3) See www.bankofengland.co.uk/publications/Pages/other/monetary/bls/default.aspx.

conditions from other central banks allow some partial identification of the influence of bank funding conditions on credit supply. But the information available is relatively limited.

This article discusses why a survey of bank liabilities may be useful in principle. It then goes on to describe the main features of the survey ahead of the publication of the first set of survey data.

Why launch the *Bank Liabilities Survey*?

The importance of banks' balance sheets

Developments in banks' balance sheets have important implications for the wider economy. The banking system's **assets** are of interest, as banks and building societies play a central role in the provision of credit to companies and households (**Figure 1**). For example, increases in the availability of credit — via lower interest rates charged on loans, looser terms or an increase in the quantity of credit — can help to boost housing market activity and business investment.

Banks' **liabilities** also have important implications for monetary policy and financial stability. Banks fund themselves by using different types of liabilities. First, they can raise retail deposits from households or companies. Second, they can borrow in wholesale markets from a range of investors including other banks, asset managers, hedge funds and sovereign wealth funds. Third, they can issue capital instruments of various types as a source of financing; this acts as a buffer against losses incurred on the asset side of their balance sheets. Banks' capital positions are also an important determinant of how investors perceive banks' resilience (**Figure 1**).

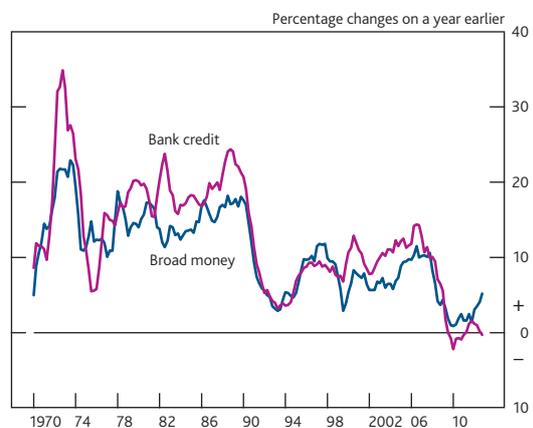
In some cases, changes in banks' liabilities have direct effects on economic activity. Higher deposit rates, for example, may lead households to save more. The price, quantity and composition of banks' liabilities will have important implications for the price, quantity and composition of their assets, and their willingness to lend. For example, if banks face higher funding costs, this will typically be passed on to households and corporates by setting higher interest rates on loans.

A better understanding of banks' liabilities therefore allows for a fuller analysis of a range of economic issues. The remainder of this section explores how the *Bank Liabilities Survey* could be used, with the aid of two examples. The first example looks at how banks' liabilities can be used to understand money and credit growth; the second looks at how the survey can improve the understanding of changes in bank funding conditions.

Understanding money and credit growth

The *BLS* should help to explain changes in money growth. For example, after falling markedly following the intensification of the financial crisis in 2007, money growth has picked up a little (**Chart 1**). There are a number of candidate explanations for that pickup, including: the influence of the Bank's asset purchase programme;⁽¹⁾ increased demand for deposits on the part of households and companies; and a strategic decision by banks to boost the share of deposits in their total liabilities, thereby reducing their reliance on wholesale funding, perhaps in part reflecting regulatory guidance. It is difficult to isolate the influence of each factor using publicly available data alone. So a key aim of a bank liabilities survey would be to improve understanding of the factors driving changes in deposits.

Chart 1 Broad money and credit^(a)



(a) The series are constructed using M4 and M4 lending growth (excluding securitisations) prior to 1998 Q4, and growth in M4 and M4 lending excluding intermediate other financial corporations thereafter.

The *BLS* should also supplement the *CCS* in explaining changes in credit provision. Growth in bank credit fell sharply in late 2008–09, and the subsequent pickup was muted (**Chart 1**). The *CCS* provides some indication of the extent to which those developments reflect demand or supply factors. For example, the survey responses suggest that credit availability contracted markedly in 2007–08 and that tighter wholesale funding conditions were a significant drag on secured credit availability during that period (**Table A**). It is not clear, however, the extent to which that reflects developments across different sources of funding, for example, across different currencies or maturities of funding. Nor is it possible to isolate the influence of the changing *cost* of funds relative to the *availability* of funds, including any non-price restrictions. The *BLS* would therefore help improve the Bank's understanding of the contributions from these different factors.

Understanding bank funding conditions

In addition to understanding how developments in bank liabilities affect the provision of credit, it is useful, more

(1) For a discussion of this issue, see Bridges, Rossiter and Thomas (2011) and Butt *et al* (2012).

Table A Credit Conditions Survey: household secured credit availability and factors driving availability^(a)

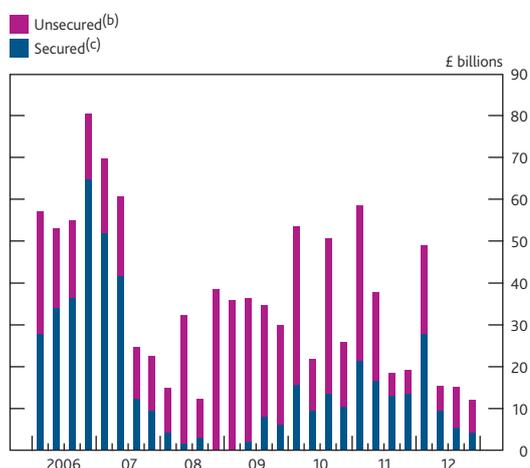
	Averages		
	2007–08	2009–10	2011–12
Credit availability	-26	2	8
Factors affecting credit availability			
Changing economic conditions	-23	-3	-2
Market share objectives	6	0	9
Changing appetite for risk	-21	-6	3
Tight wholesale funding conditions ^(b)	-29	-2	-8
House prices ^(b)	-52	1	-8

Source: Bank of England *Credit Conditions Survey*.

(a) Net percentage balances. Averages of quarterly data.
(b) Series began in 2008 Q1.

generally, to understand the reasons behind developments on the liability side of bank balance sheets. Such developments are of particular interest given the Bank's financial stability objective. For example, following robust bank funding issuance volumes in 2011 H1, strains within financial markets intensified in 2011 H2 amid euro-area concerns. At that time, banks' issuance of longer-term debt in wholesale public markets was subdued, with a trend towards an increased proportion of secured issuance, such as asset-backed securities and covered bonds (**Chart 2**).⁽¹⁾

Chart 2 Longer-term debt issued by the major UK lenders in public markets^(a)



Sources: Dealogic and Bank calculations.

(a) Data are as at 15 February 2013. Data are shown at a quarterly frequency. Includes debt issued by Bank of Ireland, Barclays, Co-operative Financial Services, HSBC, Lloyds Banking Group, National Australia Bank, Nationwide, Northern Rock, Royal Bank of Scotland and Banco Santander SA. Term issuance refers here to securities with an original contractual maturity or earliest call date of at least 18 months.

(b) Comprises medium-term notes, subordinated debt, unguaranteed senior debt and guaranteed senior debt issued under HM Treasury's Credit Guarantee Scheme.

(c) Comprises covered bonds, commercial mortgage-backed securities, residential mortgage-backed securities and other asset-backed securities.

Movements in the relative prices of funding are likely to be part of the explanation, and some data on market prices are available to help inform that assessment. But other factors that are less easy to assess may also be important, such as: investor demand for banks' debt; banks' access to funding markets; non-price terms such as market liquidity; changes to

the desired size of bank balance sheets; and regulatory influences. Similar issues affect the interpretation of changes in the volume of capital held by banks, as well as the type of capital instruments held. The *BLS* can help shed light on these issues.

The case for a survey of bank liabilities

One way to improve information in these areas is to ask market participants directly. The Bank's Markets area holds regular discussions with market participants as part of its Market Intelligence activities, as do Prudential Regulation Authority staff. And Bank staff have conducted regular biannual rounds of meetings with the largest UK banks and building societies for many years as part of the *CCS*, which have increasingly included some discussion of the role of funding conditions in driving lending decisions. The overall insights from these discussions have been highlighted regularly in the *MPC minutes*, *FPC records*, the *Inflation Report* and the *Financial Stability Report*.

But there are several advantages to complementing these discussions with more formal survey information on developments in bank liabilities:

- By including a wide and consistent sample of banks over time — and asking the same, structured set of questions — the survey should produce information that can be used in a range of analyses.
- By including questions on banks' expectations, and factors driving changes, the Bank of England will be better able to assess how developments in banks' liabilities unfold, relative to existing plans, and what affected them.
- And by publishing the aggregate results in a regular report, the survey should be useful for market participants, economists and commentators more widely.

Publication of the survey results will also improve the transparency of the monetary policy and financial stability policy processes. The survey will supplement the partial information from existing small-scale surveys, and therefore enhance the Bank's quantitative analysis of monetary and credit conditions.

Survey design

The survey will be conducted on a quarterly basis. That aligns with the frequency of the *CCS* and means that the results can be drawn upon in both the Bank's *Inflation Report* and the *Financial Stability Report*.

(1) These are debt instruments that are secured against assets. In the case of asset-backed securities, the security is issued by a special purpose vehicle, and is backed by, and cash flows come from, assets such as retail mortgages, commercial mortgages or credit card loans. In the case of covered bonds the security has an associated 'cover pool' of assets, such that the investor has dual recourse to both the issuer and the 'cover pool'.

The Bank ran the full survey for the first time in 2012 Q4. The survey was conducted between 21 November and 11 December 2012. The 2013 Q1 survey was conducted between 8 February and 1 March 2013. As previously announced, the Bank will publish the results of these two surveys together in order to aid interpretation of the results. The first report, covering both of these surveys, will be published on 26 March. Thereafter, the survey results will be published at the end of the relevant quarter, typically around a week before the CCS is published. The publication dates for the next two quarters will be released with the first report.

Which institutions does the survey cover?

Banks with a market share of 1% or more, in lending to UK households and companies, are invited to complete the survey.⁽¹⁾ In large part, that reflects a desire to ensure consistency across the BLS and the CCS. But there are two differences in the precise criteria used in each survey. First, in the CCS, the samples are selected on the basis of market share in three subsectors (household secured, household unsecured and corporate lending markets). As a result, while the major UK lenders complete all three questionnaires, smaller lenders may be invited to complete only a subset of the surveys. In contrast, the market shares for the BLS are based on total shares in lending to households and private non-financial corporations (PNFCs).⁽²⁾

A second difference in the choice of sample criteria across the two surveys is that the BLS sample includes a supplementary criterion on deposit volumes. That is because the motivation for the survey is improving understanding of developments in both monetary and credit conditions. So it would be important to capture any institutions that have a large share of deposits, regardless of their share in lending. In practice, the number of institutions that meet this criterion, but would not be included based on loan market share alone, is small.

Given the sample criteria, the Bank of England envisages that the survey would typically cover between 12 and 16 institutions. Based on the latest available market shares, that covers banks and building societies only, although other specialist lenders would be included should either of their market shares (in loans or deposits) rise above the 1% threshold. Together, the institutions captured by the survey cover around 85% of loans to households and PNFCs and a similar proportion of household and PNFC deposits.

What does the survey ask?

The survey has three sections: developments in funding; developments in capital; and implications for the provision of credit to UK households and companies. A full explanation of the intended interpretation of the survey questions can be found in the survey compilation guide.⁽³⁾

The section on developments in funding is the longest section of the survey. There are several questions on the volumes of different types of funding raised over the past three months as well as planned funding issuance. The aim of these questions is to provide more detail on the split between retail and wholesale funding as well as the maturity and currency of that funding. This section also includes a question on changes in the average cost of funding.

The section on funding also aims to provide insights into the role of various factors in driving movements in issuance. These are generally split into 'demand' and 'supply' factors, which are specified from the point of view of the issuer. For example, a 'demand' factor would include anything that had influenced the banks' need or desire for a particular volume of funding, holding constant any supply factors.⁽⁴⁾ The 'demand' factors typically include price terms, such as the interest rate paid, spread charged or yield. Some questions also ask about non-price terms or market liquidity. In addition, most questions ask respondents to identify the influence of any regulatory factors in driving changes. 'Supply' factors typically include market access and investor demand in the case of wholesale debt finance; and changes in the supply of deposits, unrelated to rates paid or other terms, in the case of retail funding.

The section on developments in capital includes similar questions to those on funding. It begins by asking about changes in the volume of total capital, and the average cost of that capital.⁽⁵⁾ Like the funding section, it aims to provide insights on the factors driving changes in capital including: how capital has been affected by profits, losses, deductions and other charges;⁽⁶⁾ the impact on banks' demand for capital of factors, such as regulation and the economic outlook; and the impact on capital of supply factors, such as market conditions and pressure from investors. The section also asks how such factors have affected the composition of banks' capital between common equity capital and other types of capital.

A key way in which developments on the liability side of bank balance sheets typically affect credit supply is via the

(1) To avoid volatility in the sample from quarter to quarter, the sample is selected based on average market shares over the previous twelve months. In general, banks will be invited to join the sample if this average market share remains above 1% for two consecutive quarters. Once they have been included, banks will continue to be surveyed until this average market share drops below 0.8%.

(2) The household CCS samples are based on shares in gross lending, whereas, due to data availability, the shares for PNFC lending are based on net lending data. For the BLS, shares in net lending are used.

(3) See www.bankofengland.co.uk/publications/Pages/other/monetary/bls/default.aspx.

(4) The options specified in the survey vary by question, although respondents have the option to include additional comments, which could include other factors, where relevant.

(5) Total capital is defined as common equity Tier 1 (CET1) capital, additional Tier 1 (AT1) capital and Tier 2 (T2) capital. Further details on capital are provided in the compilation guide: www.bankofengland.co.uk/publications/Documents/other/monetary/bls/blscomp080213.pdf.

(6) Changes in regulation may result in deductions to a bank's nominal capital position, such that its regulatory capital level is reduced.

cost of providing funds to business units set by banks' treasury departments.⁽¹⁾ For many lenders, that is done by the central treasury department charging a set amount for each additional (or marginal) unit of funding required by business units, often referred to as the 'transfer price'. The transfer price should affect the cost of borrowing for firms and households, which is covered in the Bank of England's *Credit Conditions Survey*. But pass-through of changes in funding costs often occurs with a lag. And evidence from the major lenders suggests that changes in funding costs may not map one-to-one into the transfer price.

Understanding how changes in funding affect the provision of credit is a key aim of the survey. Accordingly, the final section asks about changes in banks' transfer prices, how different funding instruments affect the transfer price and how frequently the transfer price is updated. It also includes a question on the average cost of providing funds to business units, which is the cost of funding the stock of loans, as opposed to cost of funding the flow of new loans which is captured in the transfer price.

Summarising the responses

Lenders are asked to provide a qualitative answer to each question. For example, when asked about trends in funding volumes, respondents are given five options in responding: 'up a lot', 'up a little', the 'same', 'down a little' or 'down a lot'. In presenting the aggregate results, individual banks' responses will be weighted together by their market shares in loans, and aggregated to produce net percentage balances.⁽²⁾ So, for example, a positive net percentage balance in response to a

question on funding volumes would mean that banks, on balance, had increased their funding volumes, all other factors being equal.

The report will include the weighted aggregate net percentage balances for each question along with a short descriptive summary of the results.

Conclusion

In order to meet its monetary and financial stability objectives, it is important for the Bank of England to understand developments in monetary and credit conditions. In an effort to improve its understanding in these areas, the Bank launched a quarterly *Bank Liabilities Survey* in 2012 Q4. The survey gathers information about past and expected trends in banks' liabilities and their drivers. The qualitative responses from the survey will be weighted together to produce aggregate quantitative net percentage balances. These balances, along with a short descriptive summary of the results, will be published on a quarterly basis. The first report, which will cover the results of the 2012 Q4 and 2013 Q1 surveys, will be published on 26 March. Thereafter, the Bank will publish the results of each survey at the end of the relevant quarter.

(1) 'Business units' of the bank are responsible for pricing and extending loans to households and corporates. For a discussion of how banks set the price of new lending, see Button, Pezzini and Rossiter (2010).

(2) Each bank is assigned a score based on its response. For example, banks that report that funding volumes have changed 'a lot' are assigned twice the score of those that report that volumes have changed 'a little'. The scores are weighted by banks' market shares, and the aggregate result is scaled to lie between ± 100 .

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Butt, N, Domit, S, Kirkham, L, McLeay, M and Thomas, R (2012), 'What can the money data tell us about the impact of QE?', *Bank of England Quarterly Bulletin*, Vol. 52, No. 4, pages 321–31.

Button, R, Pezzini, S and Rossiter, N (2010), 'Understanding the price of new lending to households', *Bank of England Quarterly Bulletin*, Vol. 50, No. 3, pages 172–82.

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Annex

Bank Liabilities Survey: survey questions

This annex lists the questions asked in the 2012 Q4 and 2013 Q1 *Bank Liabilities Survey*. Each question asks about developments over the past three months relative to the previous three months, and the next three months relative to the latest three-month period (an exception is Question 4 in Section C). For the purposes of this publication, the presentation of the survey has been adapted from the version on the internet, which, for example, also includes space for lenders to provide additional comments.

Section A: Developments in funding

Total funding

1. How have your funding volumes changed over the past three months? How do you plan to change funding volumes over the next three months?

- Total funding
- Retail deposit funding
- Other funding

2. How has the **average** cost of funding changed over the past three months? How do you expect it to change over the next three months?

- Retail deposit spreads relative to appropriate reference rate(s)
- Other funding spreads relative to appropriate reference rate(s)

Deposits

3. Which of the following demand and supply factors have been/are likely to be important reasons for changes in the volumes of **household** deposits that you have raised?

Demand factors:

- Rates paid relative to the cost of other liabilities
- Non-price terms
- Market share objectives
- Regulatory drivers
- Funding structure objective (excluding those driven by regulation)

Supply factors:

- Changing supply of deposits by households, unrelated to rates paid or non-price terms on those deposits

4. Which of the following demand and supply factors have been/are likely to be important reasons for changes in the volumes of **private non-financial corporations (PNFCs)** deposits that you have raised?

Demand factors:

- Rates paid relative to the cost of other liabilities
- Non-price terms
- Market share objectives
- Regulatory drivers
- Funding structure objective (excluding those driven by regulation)

Supply factors:

- Changing supply of deposits by PNFCs, unrelated to rates paid or non-price terms on those deposits

Wholesale funding

5. Which of the following demand and supply factors have been/are likely to be important reasons for changes in deposits from **other financial corporations (OFCs)**?

Demand factors:

- Rates paid relative to the cost of other liabilities
- Non-price terms
- Market share objectives
- Regulatory drivers
- Funding structure objective (excluding those driven by regulation)

Supply factors:

- Changing supply of deposits by OFCs, unrelated to rates paid on those deposits

6. How have the proportions of wholesale funding (excluding central bank operations) raised through the following sources changed over the past three months? What proportions do you plan to raise over the next three months?

- Proportion of private/public issuance
- Proportion of long-term/short-term issuance

Short-term funding:

- Certificates of deposit
- Commercial paper
- Short-term repo/securities lending
- Unsecured borrowing including deposits from OFCs and interbank deposits

Long-term funding:

- Long-term repo/securities lending
- Structured products: structured notes
- Structured products: other
- Senior unsecured debt
- Asset-backed securities (excluding covered bonds)
- Covered bonds

7. How has demand for your wholesale debt from the following investors changed over the past three months? How do you expect it to change over the next three months?

- All investors
- UK investors
- Non-UK investors
 - Retail investors
 - Other banks
 - Money market funds
 - Hedge funds
 - Sovereign wealth funds
 - Insurance companies and pension funds
 - Other asset managers

Maturity of wholesale debt funding

8. Which of the following factors have affected your issuance of **short-term** wholesale debt funding over the past three months? What factors are important reasons for planned issuance over the next three months?

Demand factors:

- Need or desire to change size of balance sheet
- Asset-liability matching
- Price/yield
- Non-price terms/liquidity
- Regulatory drivers

Supply factors:

- Market access
- Investor demand

9. Which of the following factors have affected your issuance of **long-term** wholesale debt funding over the past three months? What factors are important reasons for planned issuance over the next three months?

Demand factors:

- Need or desire to change size of balance sheet
- Asset-liability matching
- Price/yield
- Non-price terms/liquidity
- Regulatory drivers

Supply factors:

- Market access
- Investor demand

Currency of wholesale debt funding

10. How has your use of the following currency markets changed over the past three months? What are your plans for the next three months?

- Sterling
- US dollar
- Euro
- Other

11. Which of the following factors have affected your non-sterling issuance over the past three months? What factors are important reasons for your plans over the next three months?

- Changes in currency mix of assets
- Relative cost of funds: due to currency swap markets
- Relative cost of funds: due to other changes
- Availability of suitably rated currency swap counterparties
- Differences in regulation in different currency markets
- Differences in investor demand
- Differences in market access

Section B: Developments in capital

1. Has your total **level** of capital changed over the past three months? What are your plans for the next three months?

2. How has the **average** cost of capital changed over the past three months? How do you expect it to change over the next three months?

3. Which of the following factors have been/are likely to be important reasons for changes to total capital? Please consider both past changes and expectations of future changes.

Direct effects on your total capital:

- Direct effects of profits, losses, deductions and charges (UK-specific)
- Direct effects of profits, losses, deductions and charges (non-UK specific)

Factors that have affected your demand for capital:

- Changing economic outlook
- Strategic decisions to increase/reduce risk
- Regulatory drivers
- Change in size of balance sheet
- Change in riskiness of assets

Supply factors:

- Market conditions
- Investor pressure to change volume of capital

4. How has demand for total capital from the following investors changed over the past three months? How do you expect it to change over the next three months?

- All investors
- UK investors
- Non-UK investors
 - Retail investors
 - Other banks
 - Hedge funds
 - Sovereign wealth funds
 - Insurance companies and pension funds
 - Other asset managers

5. How have the following factors affected the proportion of total capital accounted for by additional Tier 1 and Tier 2 capital instruments (relative to common equity capital) over the past three months? What are your expectations for the next three months?

- Changing economic outlook
- Strategic decision to change mix of capital
- Regulatory drivers
- Market conditions
- Investor demand

Section C: Implications for the provision of credit to UK households and companies

1. How has the **average** absolute cost of providing funds to business units changed over the past three months? How do you expect it to change over the next three months?

2. How has the **marginal** absolute cost of providing funds to business units changed over the past three months (sometimes referred to as the 'transfer price')? How do you expect it to change over the next three months?

3. How have the following groups of instruments affected the **marginal** absolute cost of providing funds to business units (sometimes referred to as the 'transfer price') over the past three months? What are your expectations over the next three months?

- Common equity capital
- Debt capital
- Retail deposit spreads relative to appropriate reference rate(s)
- Short-term wholesale funding spreads relative to appropriate reference rate(s)
- Long-term **secured** wholesale funding spreads relative to appropriate reference rate(s)
- Long-term **unsecured** wholesale funding spreads relative to appropriate reference rate(s)
- Swaps or other reference rates

4. At what approximate frequency do you currently update the **marginal** absolute cost of providing funds to business units (sometimes referred to as the 'transfer price')?

Long and short-term effects of the financial crisis on labour productivity, capital and output

Summary of Working Paper No. 470 Nicholas Oulton and María Sebastián-Barriel

In the period before the Great Recession began in early 2008 the growth of labour productivity in the United Kingdom had been quite rapid and higher than in most other major economies. Labour productivity fell sharply during the recession proper (the period when output was falling) but this was not very surprising; the same pattern has been found in earlier recessions. What is much more surprising is that as the economy began to recover following the trough of the recession in 2009 Q2, labour productivity did not also recover. In 2012 Q1, four years after the onset of the recession, it was still below its previous peak in 2007 Q4 and well below the level expected on the basis of the pre-crisis trend.

Some insight into the puzzle comes from breaking down the economy into 17 sectors. Excluding sectors where measurement is problematic does not explain the slowdown. Nor can it be explained by a shift in the labour force towards sectors with a low level of productivity.

Two main hypotheses have been proposed to explain the productivity puzzle. First, firms may be hoarding labour in anticipation of a recovery in demand. If so, productivity growth will recover when demand recovers and eventually the *level* of labour productivity will get back to where it would have been if the recession could somehow have been avoided. The second hypothesis is that the financial crisis and the recession to which it gave rise have permanently damaged the productive capacity of the economy. According to this hypothesis, even if the productivity *growth rate* returns to its pre-crisis value, the productivity *level* will always lie below the path which it would have followed in the absence of the crisis. This paper is mainly devoted to the second hypothesis.

In testing the capacity damage hypothesis it is important to allow for the possibility that financial crises have both short-run and long-run effects and that these effects may be on both the level and the growth rate of productivity. It will then be an empirical issue how large or small these effects are. A model with these properties is set out and tested empirically on a panel of 61 countries over 1955–2010 by combining data from two sources. Data on productivity (GDP per worker) are from The Conference Board's Total Economy Database of national accounts. The number and duration of financial crises come from the data underlying *This time is different: eight centuries of financial folly*, by Carmen Reinhart and Kenneth Rogoff. Reinhart and Rogoff define six types of crises: currency, inflation, stock market, external debt, domestic debt, and banking. Interest

focuses on the last type, banking crises, since in the absence of a banking crisis the other types are found not to have significant effects on productivity.

The results suggest that banking crises as defined by Reinhart and Rogoff have on average a substantial and statistically significant effect on both the short-run *growth rate* and the long-run *level* of labour productivity. The short-run growth rate of labour productivity is typically reduced by between 0.6% and 0.7% per year for each year that the crisis lasts and the long-run level by between 0.84% and 1.1% (depending on the method of estimation). No such significant effects were found for the five other types of financial crisis distinguished by Reinhart and Rogoff.

One channel through which banking crises do their damage is through their effect on the long-run level of capital per worker. We find that this level is on average reduced by about 1% for each year of crisis. We also find that banking crises have a long-run, negative effect on the employment ratio (due to either higher unemployment or higher inactivity rates): the effect on GDP per capita is double the effect on GDP per worker.

Three qualifications should be noted. First, these results are for all countries combined — advanced, emerging and developing. If only advanced countries are considered then banking crises do not have a significant effect on the long-run productivity level. Second, the banking crisis variable is a zero/one dummy and there is no measure of the severity of any crisis, other than the circular one of looking at its consequences. Because of this second qualification, one should be cautious before taking too much comfort from the first one. It may be that the insignificant results found for the advanced countries just reflect the fact that advanced countries have up to now (and the data stop in 2010) not experienced crises severe enough to generate a statistically significant effect on productivity levels. And third, these are only average effects. No banking crisis is alike. In any particular country or particular period, the impacts may differ substantially from the mean.

Finally, even if the findings on the capacity damage hypothesis are accepted, this does not force automatic rejection of the rival labour hoarding hypothesis. The latter must be assessed on its own merits. However our finding of a *permanent* effect of banking crises on the labour productivity level cannot be attributed to labour hoarding.

Report



Monetary Policy Roundtable

On 11 December, the Bank of England and the Centre for Economic Policy Research hosted the ninth Monetary Policy Roundtable. These events provide a forum for economists to discuss key issues relevant to monetary policy in the United Kingdom.⁽¹⁾ As with previous Roundtable discussions, participants included a range of economists from private sector financial institutions, academia, public sector bodies and industry associations. There were two discussion topics:

- prospects for the UK housing market, and how important a role it can play in the recovery; and
- companies' pricing behaviours and the persistence of inflation.

This note summarises the main points made by participants.⁽²⁾ The Roundtables are conducted under 'Chatham House Rule' so opinions expressed at the meeting are not attributed to individuals. This summary does not represent the views of the Bank of England, the Monetary Policy Committee (MPC) or the Centre for Economic Policy Research.

What are the prospects for the UK housing market, and how important a role can it play in the recovery?

House prices in the United Kingdom fell sharply during the financial crisis, although by much less than in some other countries such as the United States and Ireland. The relevance of changes in house prices for consumer spending and the real economy has been keenly debated by central banks and academics. But there remains a lack of consensus on the importance of house prices for the macroeconomy. Moreover, it is unclear at the current juncture whether UK house prices are over or undervalued.

The 'life-cycle' theory of consumption suggests that the direct effect on consumer spending from housing wealth should be small. This theory maintains that consumer spending is determined by households' wealth over their lifetime. House price changes redistribute wealth across households but should not affect the aggregate level of wealth in the economy in any substantive way. But as one speaker highlighted, once the role housing collateral can play in relaxing credit constraints is taken into account, the influence of house prices on the macroeconomy may become

significantly more important. For example, higher house prices allow homeowners to borrow more against the value of their property, relaxing credit constraints. Empirical results presented by one of the speakers that tried to capture these types of credit channels in a traditional life-cycle model suggested that the sensitivity of consumption to housing wealth was significant and time varying. These results also suggested that a fall in the house price to income ratio may have amplified the effect of the recent financial crisis through a tightening of credit conditions.

Another speaker emphasised the link between house prices and wider economic stability. Housing equity withdrawal, whereby households borrow money against the value of their home but do not invest the proceeds in the housing stock, had increased substantially in the decade prior to the financial crisis. Based on household-level data, the speaker noted that during this period, housing equity withdrawal had increasingly acted as a financial buffer for households to meet short-term demands on their finances. The speaker suggested that this had increased the credit risk among households least well-placed to bear it. In aggregate, this led to increased risk in the financial system as a whole. The speaker emphasised the need for greater innovation in how house purchases are financed to tackle these problems.

The Roundtable participants also discussed whether UK house prices were currently over or undervalued, reflecting on various factors that might influence the supply of and demand for housing. While there was no consensus, most participants considered house prices likely to be a little overvalued. One speaker pointed to the rise in the house price to earnings ratio as evidence that UK house prices were currently overvalued, while recognising that an alternative interpretation was that the equilibrium level of the house price to earnings ratio may have increased over time. This speaker also pointed to the decline in the level of owner-occupation among younger cohorts and the lack of affordable housing for first-time buyers, numbers of which had been declining since 2000, as evidence that the current level of house prices is not sustainable over the medium term.

(1) This report was prepared by Katie Farrant, Alice Pugh and Sophie Stone of the Monetary Analysis area of the Bank. Roundtables are held twice a year. The next Roundtable is scheduled for Summer 2013.

(2) For both this and previous summaries, see www.bankofengland.co.uk/publications/Pages/other/monetary/roundtable/default.aspx.

Forbearance by lenders during the recent financial crisis might also be preventing UK house prices adjusting to a lower equilibrium level. But some other speakers suggested that house prices might be undervalued given the current low level of interest rates and a view that constraints relating to the supply of housing were unlikely to ease. For example, participants generally thought that there was unlikely to be a substantive increase in housing supply in the near term.

In discussing housing transactions, participants noted that housing demand had been held back by constraints on the availability of credit. For example, mortgage providers were limiting the volume of mortgages available, particularly to first-time buyers, by reducing loan to value ratios. Speakers agreed that high levels of stamp duty and council tax were also affecting demand, especially from lower-income households. In certain regions such as London and the South East, one participant believed house prices may have been inflated by safe-haven capital flows in response to the euro-area crisis. One speaker noted that a rise in nominal interest rates as the economy recovers would increase the cost of mortgage borrowing, so that transactions volumes may rise only slowly.

The Funding for Lending Scheme (FLS) attempts to help ease credit conditions, by allowing lenders to access cheaper funding and incentivising them to increase their lending volumes.⁽¹⁾ There were mixed views on how effective this Scheme would be in supporting mortgage lending, although the preliminary evidence on the number of banks and building societies that had signed up to the Scheme was promising and there had been a decline in banks' wholesale funding costs.

One speaker asked whether the Bank could intervene directly in the housing market — for example, in a similar way to the Federal Reserve, which purchases mortgage-backed securities (MBS) as part of its asset purchase programme. In general, speakers considered there to be less scope for such a policy to be effective in the United Kingdom given the small size of the MBS market in the United Kingdom and therefore its potential to influence mortgage rates. And it was unclear why such a policy was needed in addition to the FLS, which was already designed to reduce borrowing rates for households.

In conclusion, most participants agreed that house prices do have a role to play in influencing the real economy. While most participants thought house prices likely to be a little overvalued at the time of the meeting, they did not expect any substantive downward adjustment in house prices in the near term given that the supply of housing was constrained and demand was expected to pick up. But there was considerable uncertainty over how house prices would evolve.

Companies' pricing behaviours and the persistence of inflation

At the time of the Roundtable discussion, consumer price inflation had fallen significantly from its peak of 5.2% in September 2011. But it had been above the MPC's 2% target since late 2009, averaging 3.3% over the past five years. In the November 2012 *Inflation Report*, the MPC judged that inflation was likely to remain a little above target during 2013, before falling back to around target. But if productivity growth remained exceptionally weak and companies did not respond by adjusting nominal wages commensurately then company cost pressures could intensify. Companies might then respond by pushing through price rises, particularly if expectations of future inflation became less well anchored.

Much of the Roundtable discussion focused on what we can learn from observing companies' price-setting behaviours. One speaker discussed time-dependent models, such as the Calvo (1983) model,⁽²⁾ that try to account for the apparent infrequency with which companies adjust prices, and examined whether the models match data from a Bank of England survey of how companies set prices, conducted between December 2007 and February 2008. The speaker concluded that these models were consistent with the survey result that companies adjust their prices relatively infrequently (around 1–2 times per year). One participant suggested that this may partly reflect 'rational inattention': reviewing prices may be costly for companies and so it was rational for them to be inattentive to relatively modest changes in their circumstances. Nonetheless, it was observed that companies review prices more frequently than they adjust them: the median company in the Bank of England survey reviewed prices twice per year, but only adjusted them once per year.

The micro-level survey data also indicated that the frequency at which companies adjust prices can vary greatly from sector to sector. For example, companies selling goods appear to adjust prices more frequently than companies providing services. It was suggested that this might reflect the greater labour intensity of services, the intuition being that persistence in wage growth may be a factor behind sluggish price adjustment. Empirical evidence was presented that suggested that it takes around two years on average for changes in unit labour costs (ULCs) to filter through to services inflation. And since 2007, the lag between changes in ULCs and services inflation appears to have lengthened further (although the correlation between these series has weakened). By contrast, there was evidence of a speedy pass-through from wholesale to retail food prices, and from Brent oil prices to retail petrol

(1) See Churm, R, Leake, J, Radia, A, Srinivasan, S and Whisker, R (2012), 'The Funding for Lending Scheme', *Bank of England Quarterly Bulletin*, Vol. 52, No. 4, pages 306–20.

(2) Calvo, G A (1983), 'Staggered prices in a utility-maximizing framework', *Journal of Monetary Economics*, Vol. 12(3), pages 383–98.

prices. But the overall implications for inflation persistence of this heterogeneity among sectors' responses to shocks were not clear.

Another speaker examined price-setting behaviour in the retail sector in more depth and argued that companies' responses to cost shocks again varied markedly even within the retail sector. For example, relative to some companies in the sector, the pricing decision-making process for petrol retailers was more straightforward because they focused on pricing just one product — petrol. So changes in wholesale costs were likely to lead to changes in the price of petrol at the pump, usually in a matter of weeks. By contrast, supermarkets, which stock and price thousands of products, may find it more difficult to measure the profitability of any one individual product. So changes in costs may not be passed on as quickly: supermarkets may adopt pricing strategies for particular categories of products, which then interact with an overarching pricing strategy, making a direct mapping between cost changes and prices harder to identify.

Evidence of price-setting heterogeneity between sectors led to a discussion of how changes in the consumer basket may affect CPI inflation. In particular, services now account for a greater share of the CPI basket than they have in the past. If the prices of services are adjusted less frequently than goods prices, then a higher weight on services could increase the persistence of measured CPI inflation. And the degree of inflation persistence could be increased further if companies that set prices infrequently are more likely to be forward looking and take inflation expectations into account when making their pricing decisions.

Participants also discussed whether there was heterogeneity in companies' methods of price discounting. One speaker presented evidence of aggressive price discounting in the retail sector. Another speaker argued that retailers are increasingly relying on promotions to generate sales. Following this observation, some participants expressed concern that methods of discounting that have become popular in particular sectors, such as 'multi-buy' discounts and the use of coupons in the retail sector, may not be captured in the CPI. One participant also commented that a shift in consumer preferences towards lower-quality brands may also not be captured adequately in the CPI.

One speaker considered whether the level of spare capacity in the economy — and specifically an estimate of the output gap — may be having less effect on inflation than had been the case in the past. A couple of factors were identified as contributing to this change. First, the increased openness of the UK economy, which meant that the level of spare capacity in the rest of the world was more important in determining UK inflation than in the past. And second, well-anchored inflation expectations, which meant that a larger change in spare capacity was needed to influence inflation. Empirical evidence presented for the United States, euro area and Japan that compared the experience of the 2000s to the 1990s suggested that the *level* of the output gap had become less important in influencing inflation, consistent with (but not sufficient for) the first factor, but that the *change* in the output gap had become more important.⁽¹⁾ It was recognised, however, that output gaps are difficult to measure.

Finally, there was a general discussion on recent movements in inflation expectations. A couple of participants expressed concern that outturns of CPI inflation persistently above the MPC's target may have resulted in inflation expectations becoming less well anchored by monetary policy than in the past. One speaker pointed to Consensus forecasts for CPI inflation in 6–10 years' time, which he noted were almost 3%, and suggested that this raised questions about the MPC's credibility. However, many were unsure whether these expectations of professional forecasters were sufficient to imply that inflation expectations of companies and consumers were necessarily less well anchored than in the past. One speaker argued that higher inflation expectations could also have a beneficial impact on the economy in the short run because they lower the real interest rate, although others noted that this would not be desirable if there were also a more permanent upward shift in inflation expectations.

In conclusion, most participants considered that there was not enough evidence from companies' pricing behaviours to suggest inflation had become inherently more persistent. But the nature of the data meant that it was difficult to assess such risks.

(1) The exact periods referred to were 1991 Q1–2000 Q4 and 2001 Q4–2010 Q4.

Speeches



Bank of England speeches

A short summary of speeches and *ad hoc* papers made by Bank personnel since publication of the previous *Bulletin* are listed below.

[What should monetary policy do?](#)

David Miles, Monetary Policy Committee member, February 2013.

www.bankofengland.co.uk/publications/Documents/speeches/2013/speech636.pdf

In this speech at the University of Bath, Professor Miles discussed what the optimal monetary policy in the United Kingdom is today. He explained that due to the uncertainties surrounding economic forecasts and the effectiveness of monetary policy tools, monetary policy needs to take calculated risks. He stressed that focusing on the most likely outcomes conditional on unchanged policy does not tell us what the right monetary policy is.

Professor Miles developed a simple model to explore how some of the most significant sources of uncertainty affect monetary policy under the flexible inflation-targeting regime defined by the Monetary Policy Committee's remit. Based on plausible ranges for the degree of spare capacity, the sensitivity of productivity to demand, the effectiveness of monetary policy and the strength of a recovery conditional on unchanged policy, he found that a strong case can be made for more expansionary monetary policy.

[The balance of payments](#)

Martin Weale, Monetary Policy Committee member, February 2013.

www.bankofengland.co.uk/publications/Documents/speeches/2013/speech635.pdf

In a speech delivered at the Warwick Economics Summit, Martin Weale discussed the United Kingdom's balance of payments position. He suggested that the full benefits of the 2007/08 depreciation may yet to be realised; high levels of uncertainty may have prevented exporters from seeking new markets and domestic producers from displacing imports. However, he noted that the United Kingdom's external account has historically recorded a net surplus of investment income, but that as this has eroded, the overall deficit had increased to around 3½% of GDP, higher than before the depreciation. Unless capital gains continue to accrue, he suggested that this points to a marked increase in UK net external debt at the current exchange rate. Martin Weale concluded that the likely outcome of this would be a lower real

exchange rate which, while unwelcome in terms of its effect on inflation, would go some way to redress what is probably, at present, a substantial external imbalance.

[The evolution of insurance regulation: a shifting scope and new frontiers](#)

Andrew Bailey, Executive Director, February 2013.

www.bankofengland.co.uk/publications/Documents/speeches/2013/speech634.pdf

In a speech delivered at the Market Force and the Chartered Insurance Institute's Nicholas Barbon Lecture on 6 February, Andrew Bailey reviewed the Prudential Regulation Authority's (PRA's) approach towards supervising insurers. Andrew's speech centred on three themes: why it makes sense to place the prudential supervision of insurance in the PRA; how the PRA's supervision style will affect insurers; and whether insurers can pose systemic risk.

Andrew discussed the PRA's objective to ensure an appropriate degree of protection for policyholders, in particular issues relating to insurers' resolvability and the risks and complexities inherent to some insurance products.

Turning to the new supervisory style, Andrew Bailey said that the PRA will focus on the key risks to its objectives. Andrew illustrated this new approach in the context of insurance with the way the Financial Services Authority has dealt with the delay and uncertainty surrounding Solvency II directive negotiations.

Finally, Andrew Bailey discussed whether some insurers are of systemic importance. Although some insurance firms, including UK ones, are large, complex and highly interconnected, it is not clear at this stage that the appropriate prudential response should be similar to that taken for banks.

[Remarks to the London Money Market Association Executive Committee Meeting](#)

Chris Salmon, Executive Director for Banking Services and Chief Cashier, January 2013.

www.bankofengland.co.uk/publications/Documents/speeches/2013/speech632.pdf

In this speech to the London Money Market Association (LMMA) Executive Committee, Chris Salmon provided a progress report on key changes the Bank has been promoting in core sterling money markets.

In unsecured money markets, he highlighted the Bank's ongoing efforts to encourage greater membership of the core high-value payments system, CHAPS; and to address risks from changing payments behaviour, arising from changes to liquidity regulation, through reform of CHAPS 'throughput' rules and the planned introduction of a Liquidity Saving Mechanism in 2013.

In secured money markets, he outlined how the Bank, LMM, Euroclear UK & Ireland Limited and LCH.Clearnet are promoting the adoption of the 'term DBV' settlement model, whereby term transactions conducted on an overnight Delivery-by-Value (DBV) basis move to a term DBV basis, minimising daily operational and liquidity risks.

Chris Salmon finished by stating that the Bank would welcome the development of London as an offshore centre for renminbi-denominated activity and is ready, in principle, to establish a sterling-renminbi swap line with the People's Bank of China.

[Speech by the Governor given at the CBI Northern Ireland Mid-Winter Dinner, Belfast](#)

Sir Mervyn King, Governor, January 2013.

www.bankofengland.co.uk/publications/Documents/speeches/2013/speech631.pdf

In his final regional speech as Governor, the Governor began by noting the challenging prospects for UK economic growth. Growth had been much weaker than expected, reflecting the deep and protracted squeeze on real take-home pay, the impact of bank deleveraging on the willingness by banks to lend, and the intensification of the euro-area crisis.

With a disappointingly slow recovery, the main aim of economic policy over the crisis had been to generate a recovery and a rebalancing of the economy, and to bring unemployment down without putting at risk medium-term price stability. The Bank of England had played its part, via lower Bank Rate, asset purchases, and the Funding for Lending Scheme, which had already eased the availability and price of credit for borrowers.

The Bank would, if needed, do more. But relying on generalised monetary stimulus was not a panacea, and could have undesirable side effects on financial stability. Other policies were also needed. These included measures to fix the banking sector, supply-side reforms to raise future potential supply, and co-ordinated action to help the global economy rebalance.

Looking ahead, the Governor noted that there were good reasons to believe that a gentle recovery was under way. Inflation was set to remain above target for much of 2013 as a

result of unusually strong upward pressure from administered and regulated prices. But the Monetary Policy Committee (MPC) could respond flexibly by looking through temporarily higher inflation as long as market-generated inflation pressures remained subdued.

Recent actions by central banks and governments in a number of industrialised countries had raised questions about the framework of monetary policy. The Governor argued that now would be a sensible time to review those arrangements, noting that the Bank's remit did not specify how the MPC should strike a balance between growth and inflation in the short run. In assessing the current framework, however, there were two factors that should not be ignored. First, the primary responsibility of any central bank was to ensure stability of the price level in the long run. Second, the inflation target had not prevented the MPC from combating the recession and was not an impediment to achieving recovery. Instead the challenge we faced was that recoveries from banking crises tend to be protracted.

[Monetary policy in a changing economy](#)

Ian McCafferty, Monetary Policy Committee member, January 2013.

www.bankofengland.co.uk/publications/Documents/speeches/2013/speech627.pdf

In his first speech as an MPC member, Ian McCafferty reflected on the changing nature of the labour market, the state-contingency of monetary policy and the risks to the inflation outlook. He argued that part of the weakness of measured productivity stemmed from companies' decisions, in the face of weak demand, to retain staff for their firm-specific skills. As such, the weakness of productivity was cyclical and productivity would recover alongside demand. But the implications for inflation of further monetary stimulus would not necessarily be benign. First, the ability of additional monetary easing to stimulate demand was currently limited by the high level of uncertainty among households and companies. Second, as the recovery took hold, companies may well increase wages in excess of productivity to compensate staff for their restraint of recent years — especially if persistent increases in administered and food prices delayed the fall of inflation back to target this year and next.

Talk to the Economic Club of New York

Sir Mervyn King, Governor, December 2012.

www.bankofengland.co.uk/publications/Pages/speeches/2012/626.aspx

The Governor began by noting the challenging prospects for UK economic growth. Output remained below its pre-crisis peak, and inflation was above target. In the wake of the crisis the budget deficit had risen to 11% of GDP, prompting the authorities to embark on a programme of fiscal consolidation. Monetary policy had played a vital, accommodative role. But economic output had stayed broadly flat, owing in part to a sharp pickup in energy and commodity prices, and the euro-area crisis.

The Governor summarised the Bank's policy responses. The MPC had eased monetary policy further, via its £375 billion programme of asset purchases. In addition, the Bank had introduced the Funding for Lending Scheme, designed to increase the supply of net lending to the real economy. And the Financial Policy Committee had recommended that UK banks and building societies increase their capital in ways that did not hinder lending to the real economy.

The Governor noted that, notwithstanding a number of salient differences between the US and UK economies — including the size of the banking sector, the impact of the housing crisis, and the degree of openness of the economy — the immediate priority for both countries was to continue to rebalance their economies. This implied that other countries would also need to rebalance. The risk was that, in the absence of an agreement between deficit and surplus countries on how best to rebalance the world economy, 2013 could see the growth of actively managed exchange rates as an alternative to the use of domestic monetary policy.

The Governor concluded by identifying a broader challenge we face following the financial crisis. The legitimacy of, and support for, market economies depends on a sense of fairness. The perception that so many people who had benefited little from the upswing had borne the cost of the financial crisis risked undermining support for market economies. Our challenge, in defending the market economy, is to ensure that rewards and opportunities are spread fairly.

Bank share rating: buy!

Robert Jenkins, Financial Policy Committee member, December 2012.

www.bankofengland.co.uk/publications/Documents/speeches/2012/speech624.pdf

In a speech delivered at the ABI annual investment conference, Robert Jenkins portrayed a transformed vision of

major global bank behaviour. In this world, bank CEOs, backed by their shareholders, committed to: inviting independent specialists to review valuations; provisioning prudently; abandoning short-term return on equity targets; cutting the share of annual earnings that flowed to employees; and raising any required equity within twelve months. In response, the bank's share price soared, as the market rewarded balance sheet strength, greater transparency, lower volatility and a predictable dividend with a higher earnings multiple.

Household behaviour and policy analysis

Martin Weale, Monetary Policy Committee member, December 2012.

www.bankofengland.co.uk/publications/Documents/speeches/2012/speech623.pdf

In a speech delivered at the New Zealand Economists' Network 2nd Annual Conference, Martin Weale discussed economic modelling and policy analysis with particular reference to the limitations of analysis based on the concept of a representative agent. He focused on disaggregate models which represent the economy as a collection of individual households in different circumstances, and the use of such models to address important policy questions. In particular, he described the way in which such models can be used to address a heterogeneous range of topics: the effects of credit constraints and fears about credit availability; tax structure; social security and pension arrangements; and influences on the take-up of education by mature students. While conceding that these analyses are partial, Martin Weale concluded by reflecting that disaggregated models provide interesting ways of looking at the world, and warned against putting too much weight on findings from analysis based on a representative agent.

Sticky inflation

Spencer Dale, Executive Director and Chief Economist, December 2012.

www.bankofengland.co.uk/publications/Documents/speeches/2012/speech622.pdf

In a speech at Market News, Spencer Dale addressed two issues: the persistence of above-target inflation in the United Kingdom; and the decision to transfer coupon payments from the Asset Purchase Facility to Her Majesty's Treasury.

Spencer Dale expressed his belief that the massive real adjustments required of the UK economy in response to extremely weak labour productivity growth and sharp increases in sterling import prices had been major factors behind the stickiness of inflation. While the extraordinary

flexibility displayed by the UK labour market meant that much of the required adjustment in real wages had come about through pay moderation, the sheer scale of this adjustment meant that above-target inflation had been the only alternative to a much deeper recession.

Spencer Dale emphasised that while the transfer of coupon payments did affect monetary conditions in the

United Kingdom, so too did many other factors not under the direct control of the MPC. The MPC did, however, have the power to intervene to respond to such developments, and so remained in control of the stance of monetary policy. Spencer Dale also noted that under plausible assumptions much of this transfer would eventually need to be reversed in the future.

Appendices



Contents of recent Quarterly Bulletins

The articles and speeches that have been published recently in the *Quarterly Bulletin* are listed below. Articles from May 1994 onwards are available on the Bank's website at:

www.bankofengland.co.uk/publications/Pages/quarterlybulletin/default.aspx.

Articles and speeches

Speeches are indicated by (S)

2008 Q3

- Market expectations of future Bank Rate
- Globalisation, import prices and inflation: how reliable are the 'tailwinds'?
- How has globalisation affected inflation dynamics in the United Kingdom?
- The economics of global output gap measures
- Banking and the Bank of England (S)
- The Governor's speech at the Mansion House (S)
- A tale of two cycles (S)
- The financial cycle and the UK economy (S)
- The credit crisis: lessons from a protracted 'peacetime' (S)
- Financial innovation: what have we learnt? (S)
- Global inflation: how big a threat? (S)
- Remarks on 'Making monetary policy by committee' (S)

2008 Q4

- The financial position of British households: evidence from the 2008 NMG Research survey
- Understanding dwellings investment
- Price-setting behaviour in the United Kingdom
- Monetary Policy Roundtable

2009 Q1

- Price-setting behaviour in the United Kingdom: a microdata approach
- Deflation

2009 Q2

- Quantitative easing
- Public attitudes to inflation and monetary policy
- The economics and estimation of negative equity
- A review of the work of the London Foreign Exchange Joint Standing Committee in 2008

2009 Q3

- Global imbalances and the financial crisis
- Household saving
- Interpreting recent movements in sterling

- What can be said about the rise and fall in oil prices?
- Bank of England *Systemic Risk Survey*
- Monetary Policy Roundtable

2009 Q4

- The financial position of British households: evidence from the 2009 NMG survey
- Accounting for the stability of the UK terms of trade
- Recent developments in pay settlements

2010 Q1

- Interpreting equity price movements since the start of the financial crisis
- The Bank's balance sheet during the crisis
- Changes in output, employment and wages during recessions in the United Kingdom
- Monetary Policy Roundtable

2010 Q2

- Collateral risk management at the Bank of England
- The impact of the financial crisis on supply
- Public attitudes to inflation and monetary policy
- A review of the work of the London Foreign Exchange Joint Standing Committee in 2009

2010 Q3

- Understanding the price of new lending to households
- Interpreting the world trade collapse
- What can we learn from surveys of business expectations?
- Residential property auction prices
- Chief Economists' Workshop: state-of-the-art modelling for central banks
- Monetary Policy Roundtable

2010 Q4

- The history of the *Quarterly Bulletin*
- Index of articles 1960–2010
- The UK recession in context — what do three centuries of data tell us?
- The Bank's money market framework
- Managing the circulation of banknotes
- Understanding the weakness of bank lending
- Evolution of the UK banking system
- The financial position of British households: evidence from the 2010 NMG Consulting survey
- The foreign exchange and over-the-counter interest rate derivatives markets in the United Kingdom
- Global finance after the crisis

2011 Q1

- Understanding the recent weakness in broad money growth
- Understanding labour force participation in the United Kingdom
- Global imbalances: the perspective of the Bank of England
- China's changing growth pattern
- Monetary Policy Roundtable

2011 Q2

- Assessing the risk to inflation from inflation expectations
- International evidence on inflation expectations during Sustained Off-Target Inflation episodes
- Public attitudes to monetary policy and satisfaction with the Bank
- The use of foreign exchange markets by non-banks
- Housing equity withdrawal since the financial crisis
- Using internet search data as economic indicators
- A review of the work of the London Foreign Exchange Joint Standing Committee in 2010

2011 Q3

- The United Kingdom's quantitative easing policy: design, operation and impact
- Bank resolution and safeguarding the creditors left behind
- Developments in the global securities lending market
- Measuring financial sector output and its contribution to UK GDP
- The Money Market Liaison Group Sterling Money Market Survey
- Monetary Policy Roundtable

2011 Q4

- Understanding recent developments in UK external trade
- The financial position of British households: evidence from the 2011 NMG Consulting survey
- Going public: UK companies' use of capital markets
- Trading models and liquidity provision in OTC derivatives markets

2012 Q1

- What might be driving the need to rebalance in the United Kingdom?
- Agents' Special Surveys since the start of the financial crisis
- What can the oil futures curve tell us about the outlook for oil prices?
- Quantitative easing and other unconventional monetary policies: Bank of England conference summary
- The Bank of England's Special Liquidity Scheme
- Monetary Policy Roundtable

2012 Q2

- How has the risk to inflation from inflation expectations evolved?

- Public attitudes to monetary policy and satisfaction with the Bank
- Using changes in auction maturity sectors to help identify the impact of QE on gilt yields
- UK labour productivity since the onset of the crisis — an international and historical perspective
- Considering the continuity of payments for customers in a bank's recovery or resolution
- A review of the work of the London Foreign Exchange Joint Standing Committee in 2011

2012 Q3

- RAMSI: a top-down stress-testing model developed at the Bank of England
- What accounts for the fall in UK ten-year government bond yields?
- Option-implied probability distributions for future inflation
- The Bank of England's Real-Time Gross Settlement infrastructure
- The distributional effects of asset purchases
- Monetary Policy Roundtable

2012 Q4

- The Funding for Lending Scheme
- What can the money data tell us about the impact of QE?
- Influences on household spending: evidence from the 2012 NMG Consulting survey
- The role of designated market makers in the new trading landscape
- The Prudential Regulation Authority

2013 Q1

- Changes to the Bank of England
- The profile of cash transfers between the Asset Purchase Facility and Her Majesty's Treasury
- Private equity and financial stability
- Commercial property and financial stability
- The Agents' company visit scores
- The Bank of England *Bank Liabilities Survey*
- Monetary Policy Roundtable

Bank of England publications

The Bank of England publishes information on all aspects of its work in many formats. Listed below are some of the main Bank of England publications. For a full list, please refer to our website:

www.bankofengland.co.uk/publications/Pages/default.aspx.

Working papers

An up-to-date list of working papers is maintained on the Bank of England's website at:

www.bankofengland.co.uk/publications/Pages/workingpapers/default.aspx

where abstracts of all papers may be found. Papers published since January 1997 are available in full, in portable document format (PDF).

No. 458 A network model of financial system resilience (July 2012)

Kartik Anand, Prasanna Gai, Sujit Kapadia, Simon Brennan and Matthew Willison

No. 459 Inflation and output in New Keynesian models with a transient interest rate peg (July 2012)

Charles T Carlstrom, Timothy S Fuerst and Matthias Paustian

No. 460 Too big to fail: some empirical evidence on the causes and consequences of public banking interventions in the United Kingdom (August 2012)

Andrew K Rose and Tomasz Wieladek

No. 461 Labour market institutions and unemployment volatility: evidence from OECD countries (August 2012)

Renato Faccini and Chiara Rosazza Bondibene

No. 462 Reputation, risk-taking and macroprudential policy (October 2012)

David Aikman, Benjamin Nelson and Misa Tanaka

No. 463 The international transmission of volatility shocks: an empirical analysis (October 2012)

Haroon Mumtaz and Konstantinos Theodoridis

No. 464 International policy spillovers at the zero lower bound (October 2012)

Alex Haberis and Anna Lipińska

No. 465 Size and complexity in model financial systems (October 2012)

Nimalan Arinaminpathy, Sujit Kapadia and Robert May

No. 466 QE and the gilt market: a disaggregated analysis (October 2012)

Martin Daines, Michael A S Joyce and Matthew Tong

No. 467 Factor adjustment costs: a structural investigation (October 2012)

Haroon Mumtaz and Francesco Zanetti

No. 468 Using Shapley's asymmetric power index to measure banks' contributions to systemic risk (October 2012)

Rodney J Garratt, Lewis Webber and Matthew Willison

No. 469 High-frequency trading behaviour and its impact on market quality: evidence from the UK equity market (December 2012)

Evangelos Benos and Satchit Sagade

No. 470 Long and short-term effects of the financial crisis on labour productivity, capital and output (January 2013)

Nicholas Oulton and María Sebastián-Barriel

External MPC Unit discussion papers

The MPC Unit discussion paper series reports on research carried out by, or under supervision of, the external members of the Monetary Policy Committee. Papers are available from the Bank's website at:

www.bankofengland.co.uk/publications/Pages/externalmpcpapers/default.aspx.

The following papers have been published recently:

No. 38 Estimation of short dynamic panels in the presence of cross-sectional dependence and dynamic heterogeneity (December 2012)

Robert Gilhooly, Martin Weale and Tomasz Wieladek

No. 39 Fiscal multipliers and time preference (January 2013)

Gilberto Marcheggiano and David Miles

Monetary and Financial Statistics

Monetary and Financial Statistics (Bankstats) contains detailed information on money and lending, monetary and financial institutions' balance sheets, banks' income and expenditure, analyses of bank deposits and lending, external business of banks, public sector debt, money markets, issues of securities, financial derivatives, interest and exchange rates, explanatory notes to tables and occasional related articles.

Bankstats is published on a monthly basis, free of charge, on the Bank's website at:

www.bankofengland.co.uk/statistics/Pages/bankstats/default.aspx.

Further details are available from: Leslie Lambert, Statistics and Regulatory Data Division, Bank of England: telephone 020 7601 4544; fax 020 7601 5395; email leslie.lambert@bankofengland.co.uk.

Articles that have been published in recent issues of *Monetary and Financial Statistics* can also be found on the Bank's website at:

www.bankofengland.co.uk/statistics/Pages/ms/articles.aspx.

Financial Stability Report

The *Financial Stability Report* is published twice a year under the guidance of the interim Financial Policy Committee (FPC). It covers the Committee's assessment of the outlook for the stability and resilience of the financial sector at the time of preparation of the *Report*, and the policy actions it advises to reduce and mitigate risks to stability. The Bank of England intends this publication to be read by those who are responsible for, or have interest in, maintaining and promoting financial stability at a national or international level. It is of especial interest to policymakers in the United Kingdom and abroad; international financial institutions; academics; journalists; market infrastructure providers; and financial market participants. The *Financial Stability Report* is available at:

www.bankofengland.co.uk/publications/Pages/fsr/default.aspx.

Payment Systems Oversight Report

The *Payment Systems Oversight Report* provides an account of how the Bank is discharging its responsibility for oversight of recognised UK payment systems. Published annually, the *Oversight Report* identifies the most significant payment system risks to financial stability and assesses progress in reducing these risks. Copies are available on the Bank's website at:

www.bankofengland.co.uk/publications/Pages/psor/default.aspx.

Handbooks in central banking

The series of *Handbooks in central banking* provide concise, balanced and accessible overviews of key central banking topics. The *Handbooks* have been developed from study materials, research and training carried out by the Bank's Centre for Central Banking Studies (CCBS). The *Handbooks* are therefore targeted primarily at central bankers, but are likely to be of interest to all those interested in the various technical and analytical aspects of central banking. The *Handbook* series also includes '*Technical Handbooks*' which are aimed more at specialist readers and often contain more methodological material than the *Handbooks*, incorporating the experiences and expertise of the author(s) on topics that address the problems encountered by central bankers in their day-to-day work. All the *Handbooks* are available via the Bank's website at:

www.bankofengland.co.uk/education/Pages/ccbs/handbooks/default.aspx.

The framework for the Bank of England's operations in the sterling money markets (the 'Red Book')

The 'Red Book' describes the Bank of England's framework for its operations in the sterling money markets, which is designed to implement the interest rate decisions of the Monetary Policy Committee while meeting the liquidity needs, and so contributing to the stability of, the banking system as a whole. It also sets out the Bank's specific objectives for the framework, and how it delivers those objectives. The framework was introduced in May 2006. The 'Red Book' is available at:

www.bankofengland.co.uk/markets/Documents/money/publications/redbookjune2012.pdf.

The Bank of England Quarterly Model

The Bank of England Quarterly Model, published in January 2005, contains details of the new macroeconomic model developed for use in preparing the Monetary Policy Committee's quarterly economic projections, together with a commentary on the motivation for the new model and the economic modelling approaches underlying it.

www.bankofengland.co.uk/publications/Pages/other/beqm/default.aspx.

Cost-benefit analysis of monetary and financial statistics

The handbook describes a cost-benefit analysis (CBA) framework that has been developed within the Bank to ensure a fair balance between the benefits derived from good-quality statistics and the costs that are borne by reporting banks. Although CBA is a well-established approach in other contexts, it has not often been applied to statistical provision, so techniques have had to be adapted for application to the Bank's monetary and financial statistics. The handbook also discusses how the application of CBA has enabled cuts in both the amount and the complexity of information that is required from reporting banks.

www.bankofengland.co.uk/statistics/Pages/about/cba.aspx.

Credit Conditions Survey

As part of its mission to maintain monetary stability and financial stability, the Bank needs to understand trends and developments in credit conditions. This survey for bank and non-bank lenders is an input to this work. Lenders are asked about the past three months and the coming three months. The survey covers secured and unsecured lending to households and small businesses; and lending to non-financial corporations, and to non-bank financial firms. Copies are available on the Bank's website at:

www.bankofengland.co.uk/publications/Pages/other/monetary/creditconditions.aspx.

Trends in Lending

This quarterly publication presents the Bank of England's assessment of the latest trends in lending to the UK economy. The report draws mainly on long-established official data sources, such as the existing monetary and financial statistics collected by the Bank of England. These data have been supplemented by the results of a new collection, established by the Bank in late 2008, to provide more timely data covering aspects of lending to the UK corporate and household sectors. The report also draws on intelligence gathered by the Bank's network of Agents and from market contacts, as well as the results of other surveys. Copies are available on the Bank's website at:

www.bankofengland.co.uk/publications/Pages/other/monetary/trendsinlending.aspx.

Quarterly Bulletin

The *Quarterly Bulletin* provides regular commentary on market developments and UK monetary policy operations. It also contains research and analysis and reports on a wide range of topical economic and financial issues, both domestic and international. The *Quarterly Bulletin* is available at:

www.bankofengland.co.uk/publications/Pages/quarterlybulletin/default.aspx.

Inflation Report

The Bank's quarterly *Inflation Report* sets out the detailed economic analysis and inflation projections on which the Bank's Monetary Policy Committee bases its interest rate decisions, and presents an assessment of the prospects for UK inflation. The *Inflation Report* is available at:

www.bankofengland.co.uk/publications/Pages/inflationreport/default.aspx.

The *Report* starts with an overview of economic developments; this is followed by five sections:

- analysis of money and asset prices;
- analysis of demand;
- analysis of output and supply;
- analysis of costs and prices; and
- assessment of the medium-term inflation prospects and risks.

Publication dates

Publication dates for 2013 are as follows:

<i>Quarterly Bulletin</i>		<i>Inflation Report</i>	
Q1	14 March	February	13 February
Q2	13 June	May	15 May
Q3	17 September	August	7 August
Q4	17 December	November	13 November

Financial Stability Report

26 June
28 November

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