Markets and operations

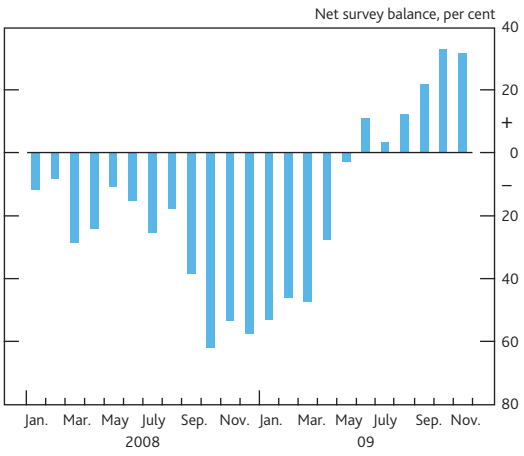
This article reviews developments in sterling financial markets since the 2009 Q3 *Quarterly Bulletin* up to end-November 2009. The article also reviews the Bank's official operations.

Sterling financial markets(1)

Overview

Echoing developments globally, conditions in sterling capital markets improved further since the previous *Bulletin*. Despite temporary bouts of investor nervousness, for example following the release of weaker-than-expected Q3 UK GDP data, asset prices continued their recovery from the lows in March. Financial market activity also picked up, including some public issuance in markets that were previously closed, such as the market for UK residential mortgage-backed securities. More generally, liquidity conditions improved according to contacts and survey evidence (**Chart 1**).

Chart 1 Fund manager survey of market liquidity conditions(a)



Source: Bank of America/Merrill Lynch Global Fund Manager Survey.

(a) Net respondents to the survey question: 'How would you rate liquidity conditions (eg depth of markets, narrowness of bid-offer spreads, ease of execution etc) at this time?'.

The increases in asset prices and financial market activity seemed to reflect perceptions of a gradual improvement in the economic outlook in the United Kingdom and overseas. At the same time, continued accommodative monetary and fiscal policies may have underpinned asset prices as worries about the prospects of extreme downside risks, such as a collapse in aggregate demand and/or financial system gridlock, subsided further. Asset purchases by the Bank are also likely to have boosted asset prices by encouraging portfolio rebalancing towards riskier assets and reducing required risk premia.

Nonetheless, sentiment in financial markets remained fragile. Indeed, after the data cut-off for this article there was a renewed period of market volatility linked to worries about the possible wider implications of the potential default of the Dubai World investment company.

Recent developments in sterling capital markets

Monetary policy

The Bank of England's Monetary Policy Committee (MPC) continued to implement unconventional measures aimed at supporting nominal demand in the economy. Specifically, alongside leaving Bank Rate unchanged at 0.5%, on 5 November the MPC voted to increase the scale of its programme of asset purchases financed by the issuance of central bank reserves by £25 billion to £200 billion. Those purchases are due to be completed by the time of the MPC's February 2010 meeting. More details of asset purchases made to date and the Bank's other operations are provided on pages 266–71.

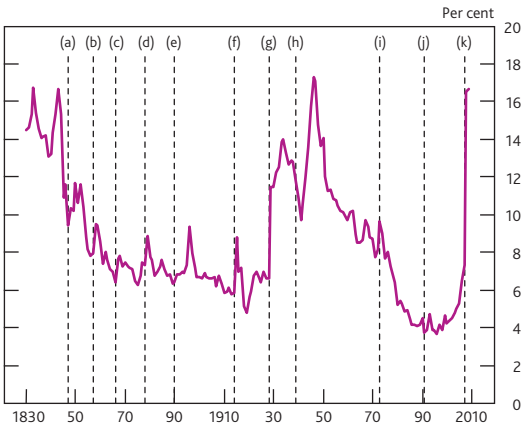
These unconventional policy measures — alongside those to provide liquidity insurance — have led to a significant increase in the size of the Bank's balance sheet over the past year. **Chart 2** puts that expansion in a historical context: relative to annual GDP, the Bank's balance sheet has become about as large as at any point in the past two centuries.(2)

Short-term interest rates

Since the previous *Bulletin*, sterling overnight interest rates traded within 10 basis points of Bank Rate (**Chart 3**). As noted in previous *Bulletins*, banks might usually be expected to charge a premium for the credit risk associated with unsecured interbank lending compared to secured transactions of equivalent maturity. So the fact that for much of the period secured interest rates traded slightly above unsecured interest

(1) The data cut-off for this section is 20 November.
(2) Fisher (2009), available at www.bankofengland.co.uk/publications/speeches/2009/speech413.pdf, provides a detailed discussion of the Bank's operations and how the Bank's balance sheet has expanded during the financial crisis.

Chart 2 Bank of England balance sheet as a percentage of annual nominal GDP



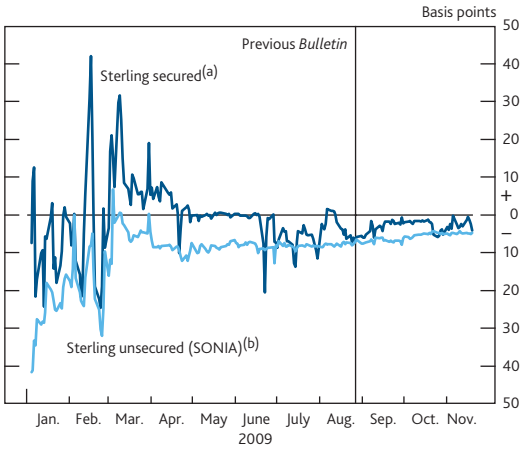
Note: The balance sheet observations are end-February for 1830–1966, end-year for 1967–2008 and November 2009.

Sources: Consensus Economics Inc., ONS, www.measuringworth.org/datasets/ukgdp/result.php# and Bank calculations.

(a) Famine/end of railroad boom (1847).
(b) Overextension of credit from 1855–66 (1857).
(c) Failure of Overend Gurney (1866).
(d) Failure of City of Glasgow Bank (1878).
(e) Support for Barings (1890).
(f) First World War (1914).
(g) Amalgamation of Treasury and Bank note issues (1928).
(h) Second World War (1939).
(i) Secondary Banking Crisis (1973).
(j) Small Banks Crisis (1991).
(k) Current crisis (2007).

The y-axis scale has been corrected since initial publication.

Chart 3 Spread to Bank Rate of overnight interest rates



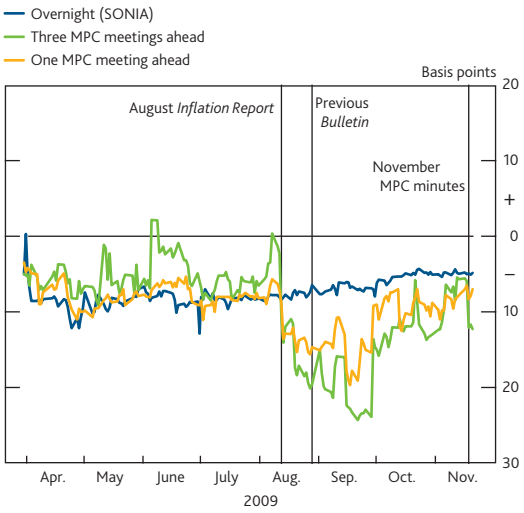
Sources: BrokerTec, Wholesale Market Brokers' Association and Bank calculations.

(a) Spread of weighted average secured overnight rate to Bank Rate.
(b) Spread of weighted average unsecured overnight rate to Bank Rate.

rates (as measured by sterling overnight index average (SONIA) rates) probably reflected continued fragmentation in money markets. However, consistent with feedback from market contacts that some money market participants shifted from providing unsecured to secured lending, the spread between secured and unsecured overnight interest rates had narrowed by the end of the period.

Interest rates on meeting-to-meeting overnight index swaps (OIS), which are indicative of expectations of future overnight interest rates, were volatile (**Chart 4**). Market contacts noted that this was not related to expectations about a change in Bank Rate over the next few months. Instead, the volatility at these short horizons was likely to have reflected speculation following comments at the August *Inflation Report* press conference that the Bank might review whether all reserves balances held by commercial banks at the Bank should continue to be remunerated at Bank Rate.

Chart 4 Spread to Bank Rate of sterling short-term interest rates(a)



Sources: Bank of England and Bloomberg.

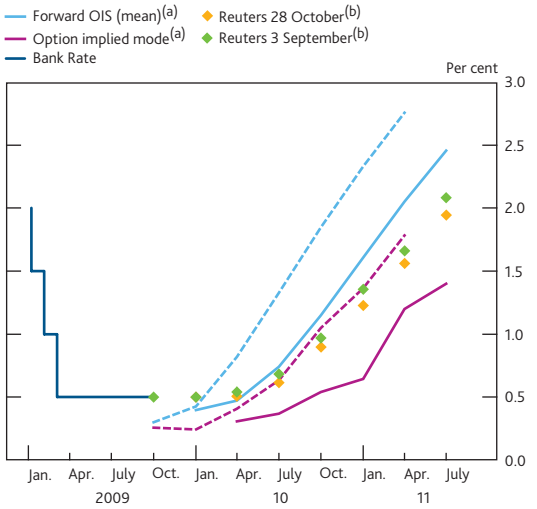
(a) For more details on these and other measures of market expectations of future Bank Rate, see Joyce, M and Meldrum, A (2008), 'Market expectations of future Bank Rate', *Bank of England Quarterly Bulletin*, Vol. 48, No. 3, pages 274–82.

At its November meeting, the MPC discussed the merits of changing the structure of remuneration on commercial bank reserves. The Committee concluded that such an action would be unlikely to have a significant impact on the economic outlook given the already low levels of short-term market rates, and that asset purchases were likely to be a more effective instrument for affecting monetary conditions at that time. While the MPC agreed not to make use of this option in November, the Committee agreed that it might be a useful policy tool in some circumstances and therefore should be available in the future.

At longer horizons, market-based expectations of short-term interest rates as measured by forward OIS rates fell (**Chart 5**), consistent with a reappraisal by market participants about the timing of the beginning of the withdrawal of the exceptional degree of monetary stimulus. Nevertheless, relative to the Reuters poll of economists' forecasts for Bank Rate, OIS rates remained higher. This divergence has persisted for several months and could reflect the difference between mean and modal expectations rather than differences in the expected pace of monetary policy tightening. Reuters surveys economists' views of the most likely outcome for future policy rates (ie the poll reflects an average of modal expectations) whereas OIS rates reflect mean expectations. **Chart 5** plots an

estimated modal path for OIS rates derived from options on futures contracts that settle on the London interbank offered rate (Libor).[1] This estimate of the modal path for OIS rates indicated that market participants anticipated no increase in policy rates until at least the second half of 2010.

Chart 5 Bank Rate, forward market interest rates and survey expectations

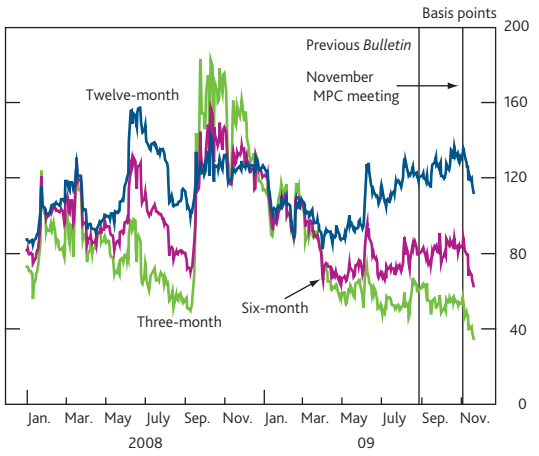


Sources: Reuters and Bank calculations.

(a) Solid lines are as at 20 November. Dashed lines are as at 28 August.
(b) Simple averages of poll contributors' modal expectations of Bank Rate.

After the November MPC decision, the lower expected path for policy rates was accompanied by reduced uncertainty about future short-term sterling market interest rates (**Chart 6**). Because these implied volatility measures are derived from options on Libor futures they will, in addition to uncertainty about the future path of policy rates, also reflect uncertainty about the spread between Libor and OIS rates.

Chart 6 Sterling short-term interest rate implied volatility

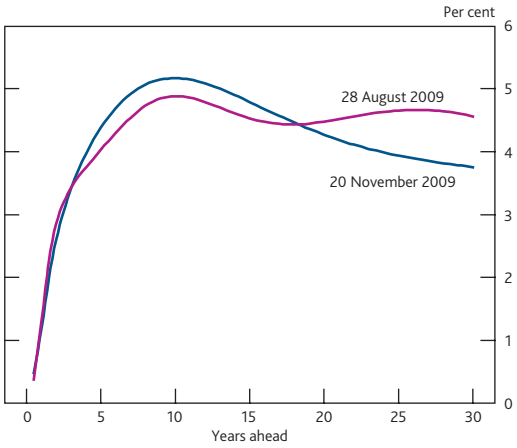


Sources: Euronext.liffe and Bank calculations.

Long-term interest rates

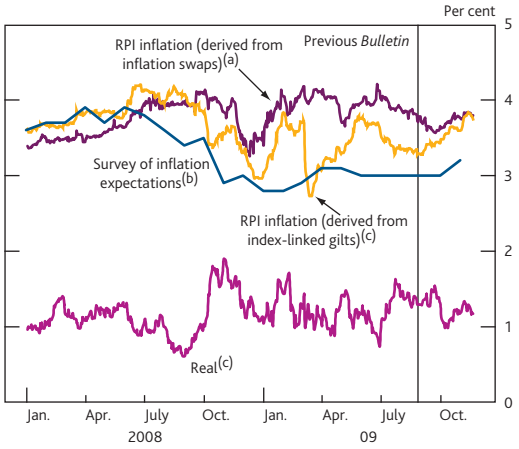
Long-term sterling nominal forward rates rose up to horizons of around 20 years but fell further out (**Chart 7**). **Chart 8** shows that at the five-year, five-year forward horizon this reflected a pickup in long-term inflation forwards (derived from the difference between yields on conventional and index-linked gilts). In contrast, real forward rates ended the period broadly unchanged.

Chart 7 Sterling nominal forward rates(a)



(a) Instantaneous forward rates derived from the Bank's government liability curve.

Chart 8 Sterling five-year real interest rates and inflation five years forward and long-run inflation expectations



Sources: Bank of England and YouGov/Citigroup.

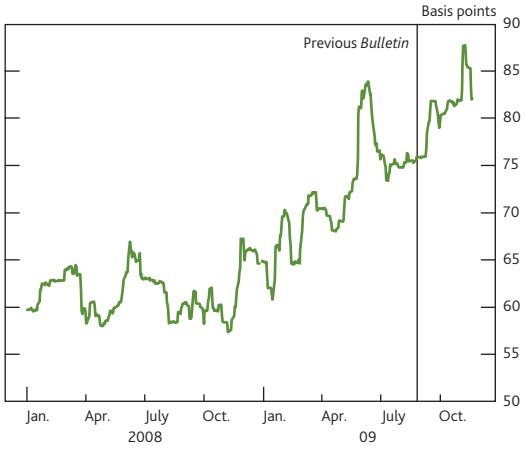
(a) Derived from the Bank's government swap liability curve.
(b) YouGov/Citigroup survey results of long-term public inflation expectations for five to ten years ahead.
(c) Derived from the Bank's government liability curve.

A number of factors might explain this increase in implied sterling inflation forward rates. First, it could have reflected a genuine rise in inflation expectations. The YouGov/Citigroup survey indicated that the UK public's inflation expectations over the five to ten-year horizon rose slightly in October, although they remained below levels in 2008.

(1) For a description of the method used to construct modal expectations for OIS rates see the box on pages 158–59 of the 2009 Q3 *Bulletin*, 'An indicative decomposition of the option-implied probability distribution for Libor'.

Second, it could be that it was associated with an increase in inflation risk premia — that is, an increase in the required compensation for uncertainty about future inflation. Contacts put more weight on this second explanation, linking it to uncertainty about the timing and pace at which the significant monetary policy stimulus would be withdrawn. Perhaps consistent with this, information from options on long-term interest rates suggested that implied volatility rose (**Chart 9**).

Chart 9 Sterling normalised swaption implied volatility (five-year, five years forward)



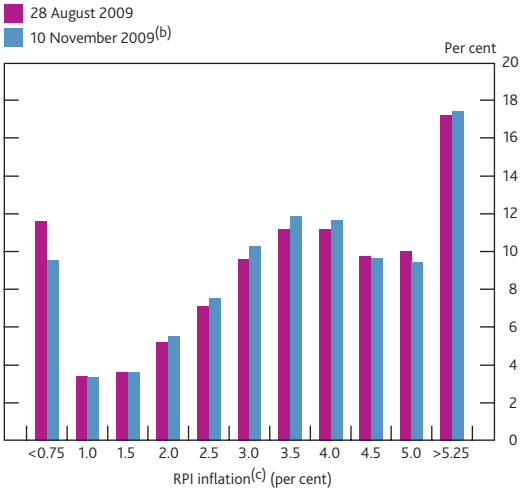
Source: Barclays Capital.

Contacts also noted that investors sought greater protection against upside risks to inflation. A distribution derived from RPI inflation options suggested that investors placed slightly more weight on very high outcomes for future RPI inflation relative to very low outcomes (**Chart 10**).(1)

An alternative explanation for the rise in nominal five-year, five-year forward rates is that it was related to factors specific to the gilt market. Consistent with this, measures of forward inflation rates derived from inflation swaps were little changed since the previous *Bulletin* (**Chart 8**). Moreover, at similar horizons, forward rates on OIS were little changed over the period (**Chart 11**).

The divergence between gilt and OIS forward rates may reflect changes in premia specific to UK government bonds. **Chart 12** shows that the gilt-OIS spread widened at horizons up to around 20 years but narrowed at longer horizons. This could reflect investors rebalancing their portfolios across different maturity segments of the gilt market, given that asset purchases conducted by the Bank have likely affected the mix of available gilts. To the extent that investors prefer to hold particular securities, bonds of different maturities may be imperfect substitutes. As a result, investors may be prepared to pay more for those bonds relative to others, which would affect their yields relative to OIS rates.

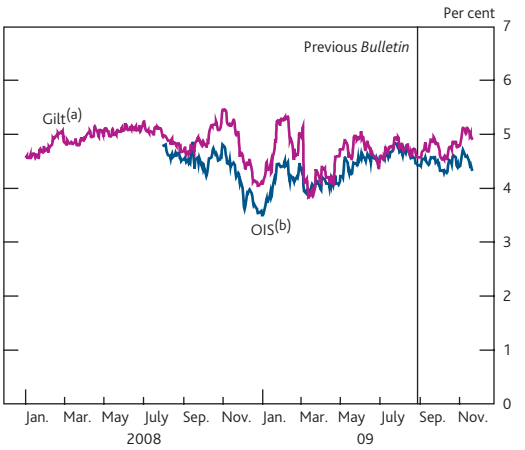
Chart 10 Average probability distribution of annual RPI inflation outturns for five to seven years ahead implied from options(a)



Sources: Royal Bank of Scotland and Bank calculations.

(a) Implied from prices of options on UK RPI inflation. For a more detailed discussion of RPI inflation options see the box 'UK RPI inflation options' in 2009 Q3 *Bank of England Quarterly Bulletin*, page 163.
(b) Latest date within the review period for which quotes for options at multiple strikes were available.
(c) Probability that RPI inflation will fall within a 0.5% range, centred on x-axis value (except for the distribution tails which extend for noted value onward).

Chart 11 Sterling nominal five-year interest rates, five years forward

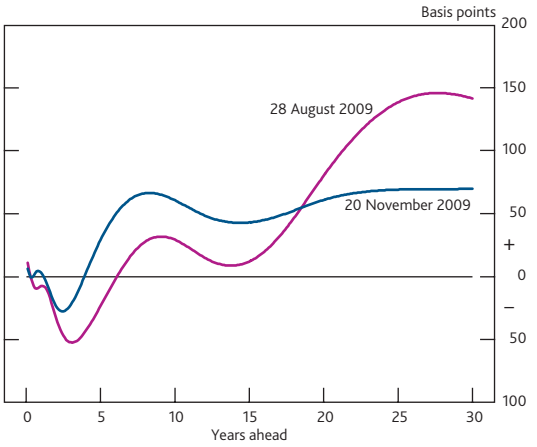


(a) Derived from the Bank's government liability curve.
(b) Derived from overnight index swaps (OIS).

In addition, contacts noted that gilt yields were affected by concerns about how the gilt market would absorb the scale of prospective issuance by the UK Debt Management Office and/or potential gilt sales by the Bank. Similarly, because of the projected UK government debt position, investors might also have become more concerned about the United Kingdom's credit standing and demanded additional compensation to hold gilts. The premia on long-horizon UK sovereign credit default swaps (CDS) rose both in absolute terms and relative to other triple-A rated sovereign borrowers, but remained below their peaks earlier in the year (**Chart 13**).

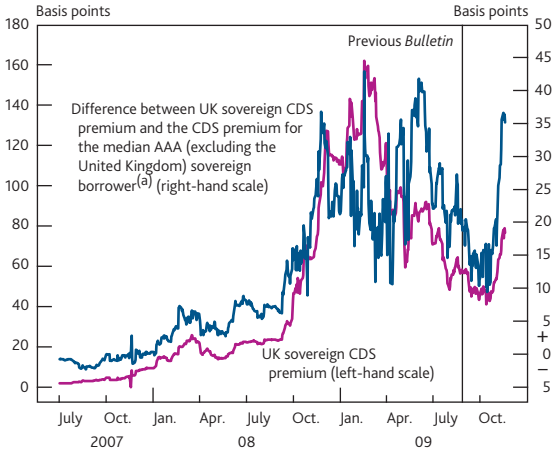
(1) For more discussion of RPI options see the box 'UK RPI inflation options' on page 163 of the 2009 Q3 *Bulletin*.

Chart 12 Sterling gilt-OIS forward spreads[a]



(a) Instantaneous forward rates derived from the Bank's government liability curve and overnight index swaps.

Chart 13 UK sovereign ten-year CDS premium



Sources: Markit Group Limited and Bank calculations.

(a) Calculated using ten-year sovereign CDS premia for: Australia, Austria, Canada, Denmark, Finland, France, Germany, Netherlands, New Zealand, Norway, Singapore, Spain, Sweden and the United States.

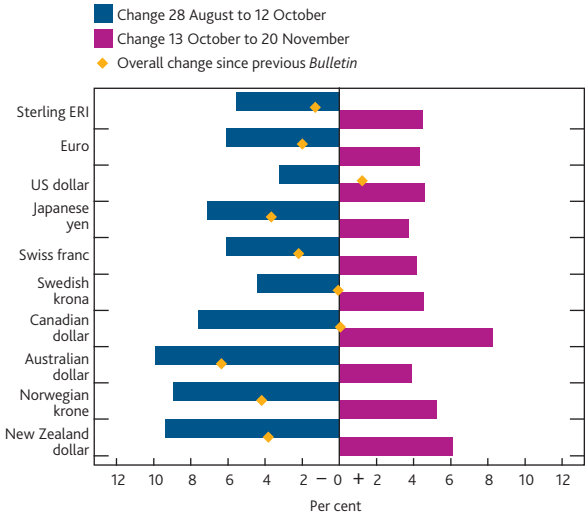
Foreign exchange

The sterling effective exchange rate index (ERI) depreciated by 1.3% compared with its value at the time of the previous *Bulletin*. But this masked a sharper depreciation in sterling against the major currencies during September and early October followed by a subsequent appreciation (**Chart 14**). Over the period as a whole, sterling appreciated by 1.2% against the US dollar and depreciated by around 2% against the euro.

In light of these moves, the sterling ERI remained around 23% lower than in mid-2007. Adjusting for differences in consumer price levels in the United Kingdom and overseas, the real sterling ERI has returned close to its level in the mid-1990s.

Perceptions about the relative cyclical prospects for the UK economy, which in principle might be expected to affect real returns on sterling-denominated assets compared with assets denominated in other currencies, cannot explain the scale of

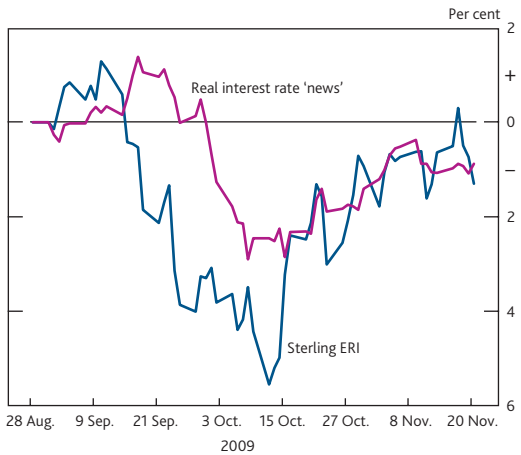
Chart 14 Percentage changes in selected bilateral sterling exchange rates and the sterling ERI since previous *Bulletin*



Sources: Bloomberg and Bank calculations.

sterling's real depreciation since the summer of 2007.[1] But over the latest quarter at least, unexpected shifts in real interest rate differentials across countries do seem to broadly account for changes in the (real) sterling ERI (**Chart 15**). Consistent with this, market contacts suggested that perceptions about the near-term outlook for the UK economy relative to other countries worsened slightly early in the period before subsequently recovering.

Chart 15 Implied contribution of real interest rate 'news' to cumulative changes in the sterling ERI since previous *Bulletin*[a]



Source: Bank calculations.

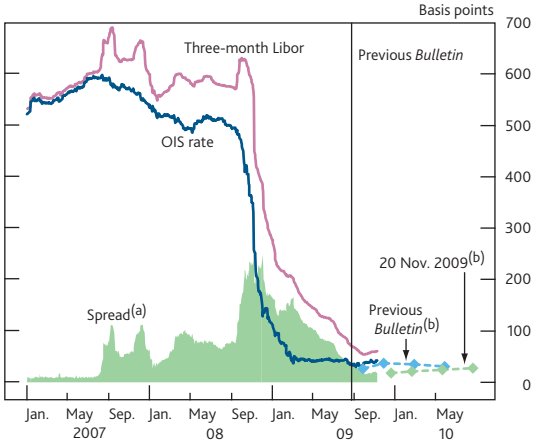
(a) For more information on the analytics required to isolate the impact of interest rate 'news' on exchange rates, see Brigden, A, Martin, B and Salmon, C (1997), 'Decomposing exchange rate movements according to the uncovered interest rate parity condition', *Bank of England Quarterly Bulletin*, November, pages 377–89.

(1) Possible explanations for the depreciation in sterling over recent years are discussed in Astley, M, Pain, D and Smith, J (2009), 'Interpreting recent movements in sterling', *Bank of England Quarterly Bulletin*, Vol. 49, No. 3, pages 202–14.

Bank funding markets

Conditions in short-term sterling interbank money markets continued to improve. Contacts noted greater funding opportunities out to three months, particularly for higher-rated money market participants. Perhaps consistent with this, the spread between the three-month Libor fixing and equivalent-maturity OIS rates narrowed further and approached its level prior to the start of the turmoil in financial markets (**Chart 16**). Funding at maturities greater than three months remained patchy.

Chart 16 Three-month interbank rates and spreads relative to OIS rates



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

(a) Three-month London interbank offered rate (Libor) spreads over equivalent-maturity OIS rates.
(b) Three-month Libor forward spreads over equivalent-maturity forward OIS rates.

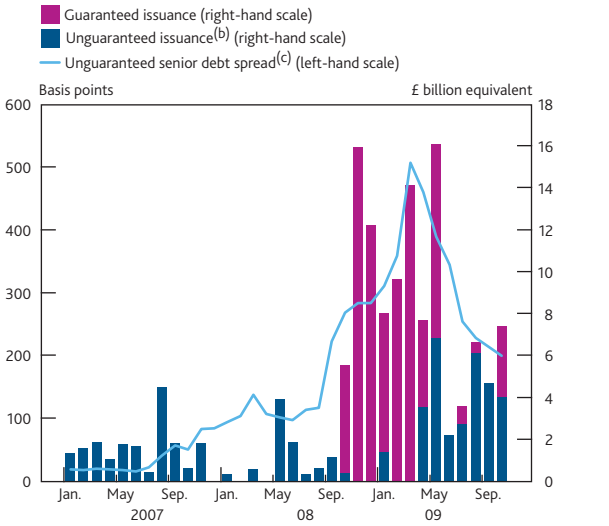
An improvement in the perceived financial strength of the banks in the sterling Libor panel was generally reflected in continued falls in their CDS premia and likely contributed to the falls in Libor-OIS spreads. However, whereas Libor-OIS spreads returned close to their pre-crisis average levels, bank CDS premia remained elevated.

A number of factors may have contributed to this. For example, some contacts suggested that Libor fixings (based on contributing banks' quotes rather than actual transacted rates) may potentially underestimate the true cost of funding in size beyond three months where lending volumes remained low. Conversely, short-maturity credit default swaps reportedly remained relatively illiquid and may therefore overstate the underlying compensation for default risk.

Alternatively, the narrowing in Libor-OIS spreads could be related to banks' reduced need to borrow at term in the sterling money market. The increased size of the Bank's balance sheet since the onset of the financial crisis has increased available liquid funds. Moreover, with institutions still engaged in balance sheet repair, banks have been wary of borrowing from wholesale markets, preferring, where possible, to raise longer-term funds in capital markets. As a result, some non-bank investors that traditionally lend to high-quality banks may have had little option but to accept lower rates given the reduced appetite to borrow. Taken together, these factors could have contributed to lower Libors.

Difficulties associated with obtaining short-term funding via cross-currency swap markets also continued to abate. And at longer horizons, funding conditions for UK banks reportedly improved, albeit gradually. UK banks issued senior debt under the Government's guarantee scheme as well as on an unguaranteed basis (**Chart 17**). Lloyds Banking Group (LBG) announced new capital raising plans, offering an exchange of existing capital instruments into Enhanced Capital Notes (ECNs) designed to convert into equity should the bank's core Tier 1 capital fall below 5%. There was strong demand for these new notes, although uncertainties remained over how the market for ECNs would evolve in the future.

Chart 17 UK bank senior debt issuance(a) and spreads

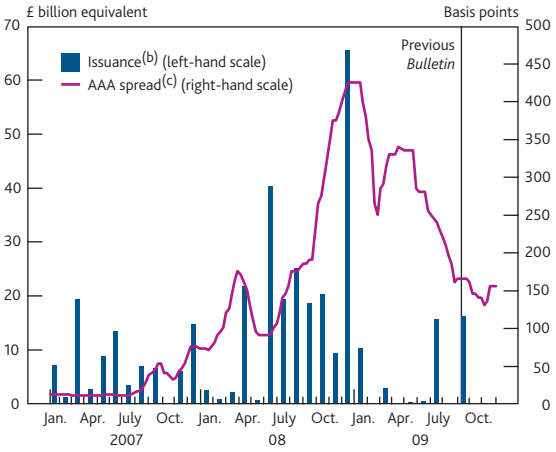


Sources: Dealogic, JPMorgan Chase and Co. and Bank calculations.

(a) Issuance with a value greater than or equal to US$500 million equivalent and original maturity greater than one year. Data were converted into sterling using monthly averages of the sterling-dollar exchange rate.
(b) Senior debt issued under HM Treasury's Credit Guarantee Scheme.
(c) Secondary market spread to swaps for sterling and euro unguaranteed senior debt. Simple average of spreads for Barclays, HSBC, LBG and RBS sterling and euro senior debt.

Some primary markets for UK asset-backed securities reopened, with UK banks issuing covered bonds and the first public issuance of UK residential mortgage-backed securities (RMBS) since May 2008 (**Chart 18**). The new securities from Lloyds' Permanent and Nationwide's Silverstone Master Trust programmes both included an option for investors to sell the notes back to the issuer at their expected maturity dates. Contacts said that this helped underpin investor demand by addressing concerns about extension risk (the risk that mortgagors repay their loans slower than anticipated, which would mean that the bonds would not mature on their expected maturity dates). However, demand was reportedly concentrated across relatively few investors.

Chart 18 UK RMBS issuance[a] and spreads



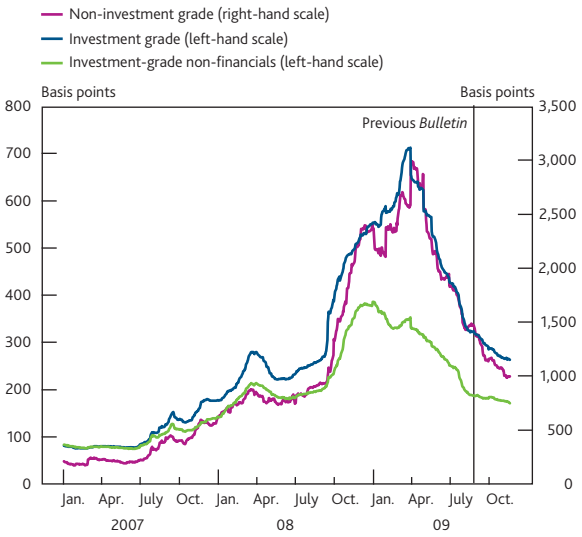
Sources: JPMorgan Chase and Co. and Bank calculations.

(a) Retained and public issuance.
(b) All-currency RMBS issued by UK residents, converted to sterling at prevailing exchange rates as at date of issue. Excludes UK-based but foreign-owned SPV issuance backed by foreign collateral.
(c) Spread of benchmark AAA five-year UK RMBS yields to three-month Libor.

Corporate credit markets

Conditions in credit markets also continued to ease for non-financial companies. Spreads on sterling-denominated corporate bonds narrowed, especially for non-investment grade bonds. Indeed, the sharp widening in spreads in Autumn 2008, when the turmoil in financial markets intensified, has been largely unwound, although spreads remained above their average levels over the past decade (**Chart 19**).

Chart 19 Sterling corporate bond spreads



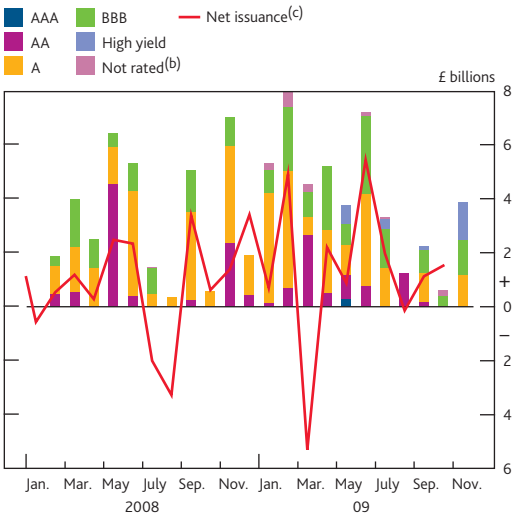
Sources: Merrill Lynch and Bank calculations.

Although perceptions of corporate default risk may have fallen a little over recent months, much of the reduction in spreads, and in turn the cost of issuing corporate bonds in the primary market, has been associated with a decline in illiquidity premia. Consistent with this, secondary market bid-offer spreads narrowed and banks reportedly dedicated more balance sheet and resources to market-making in corporate bonds. The Bank's Corporate Bond Secondary Market Scheme is reported to have been supportive of these improvements, although trading conditions in secondary markets continue to be somewhat restricted (see the box on page 269).

Despite brief episodes of weaker market sentiment, investor demand for corporate bonds generally remained strong, especially in the primary market — 2009 will be a record year for issuance. Contacts also noted that investors with less restrictive investment mandates became more willing to invest in riskier assets.

Investment-grade firms, with better access to the capital markets, appear to have benefited most from the improvements in corporate bond market conditions. Issuance by lower-rated borrowers nonetheless also increased since the previous *Bulletin* (**Chart 20**). This included issuance from firms that had previously never accessed capital markets before, as well as from non-rated companies and private placements.

Chart 20 Gross[a] and net bond issuance by UK non-financial corporates (all currencies)



Sources: Bank of England, Dealogic and Bank calculations.

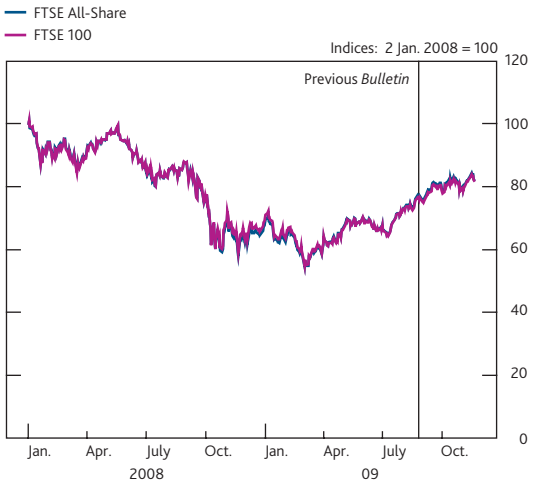
(a) Gross issuance data refer to bond issuance by UK private non-financial corporations in all currencies by rating. Data for November 2009 include issuance until 17 November.
(b) Also includes bonds that were not allocated a rating reference by Dealogic.
(c) Net issuance data cover bond issuance by UK-resident companies and sterling-denominated bonds issued in the United Kingdom by non-resident companies.

Overall, given the continued limited supply of bank lending, the ability of corporates to issue bonds reportedly helped to alleviate somewhat their near-term refinancing concerns. Smaller firms, on the other hand, that were typically unable to access capital markets, remained credit constrained and sought ways to extend the maturity of their existing loans.

Equity markets

Against the background of the general upward trend in risky asset prices, UK equity prices rose further, by around 7% (**Chart 21**). Since the March 2009 lows, the FTSE All-Share

Chart 21 UK equity indices



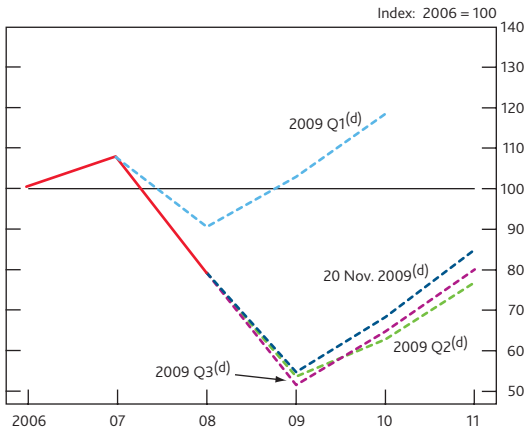
Sources: Bloomberg and Bank calculations.

index increased by around 50%, but it remained around 20% lower than its level in early 2008.

A number of UK firms reported stronger-than-expected earnings for the third quarter. This, and forward-looking indicators pointing to an improved outlook for the global economy, may have encouraged investors to reassess the prospects for UK corporate earnings.

Analysts' forecasts for company earnings over the next few years were revised marginally higher over the quarter, although the projections remained much lower than those made in early 2009 (**Chart 22**). This pattern was mirrored in market-based measures of future dividends implied from dividend swaps which also picked up, albeit from low levels.

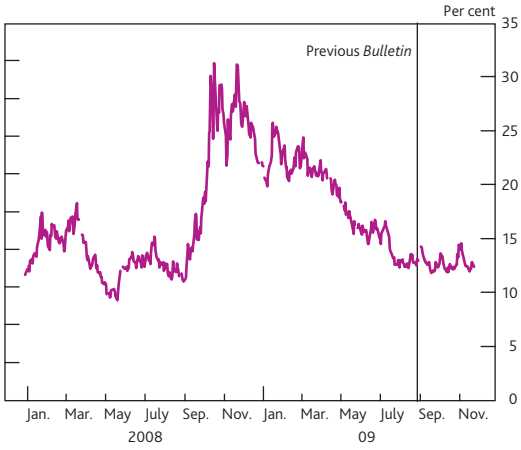
Chart 22 Actual and IBES forecasts for earnings per share for the FTSE All-Share index[a][b][c]



(a) Institutional Brokers' Estimate System (IBES) uses Consensus forecasts of earnings per share by sell-side analysts.
(b) Data refer to earnings per share on the FTSE All-Share index. Forecasts are denoted by dashed lines, and outturns are denoted by the solid line.
(c) The actual and forecast figures for a specific year relate to companies' annual results that have a year end between start-June of that year and end-May of the following year.
(d) Refers to forecast data available at the data cut-off for each *Bulletin*.

Alongside a slightly improved outlook for earnings, the returns required by investors to compensate for the risk of holding equities may have fallen further. For example, contacts noted fewer concerns about extreme downside risks, not least in part due to accommodative monetary and fiscal policies. Information from options prices suggested that the weight attached by market participants to the possibility of a large fall in equity prices fell slightly (**Chart 23**). The asset purchase schemes implemented by different countries, including the United Kingdom, may also have contributed to higher equity prices by encouraging investors to rebalance their portfolios away from gilts towards riskier assets.

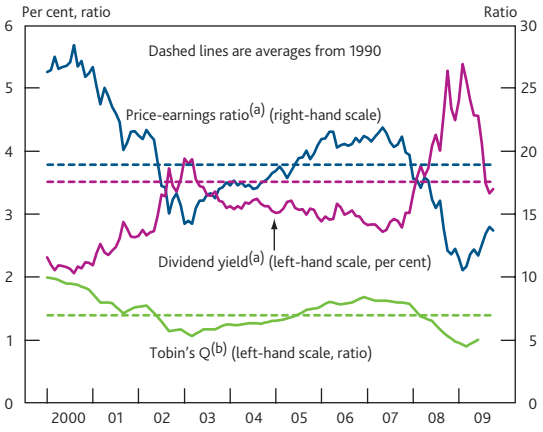
Chart 23 FTSE 100 option-implied probability of a 20% fall[a]



Sources: Euronext.liffe and Bank calculations.

(a) Calculated from the risk-neutral distribution of returns from six-month option prices.

Chart 24 UK equity valuation measures



Sources: National Statistics, Thomson Datastream and Bank calculations.

(a) Price-earnings ratio and dividend yield are for the FTSE All-Share index.
(b) Tobin's Q refers to UK private non-financial corporations.

Despite their rapid rise since March, the level of UK equity prices did not look particularly elevated compared with long-run averages of simple valuation metrics. For example, the price-earnings ratio remained below its average since 1990, and the dividend yield was close to its average (**Chart 24**). Similarly, a measure based on a comparison of firms' market value with the replacement cost of the assets

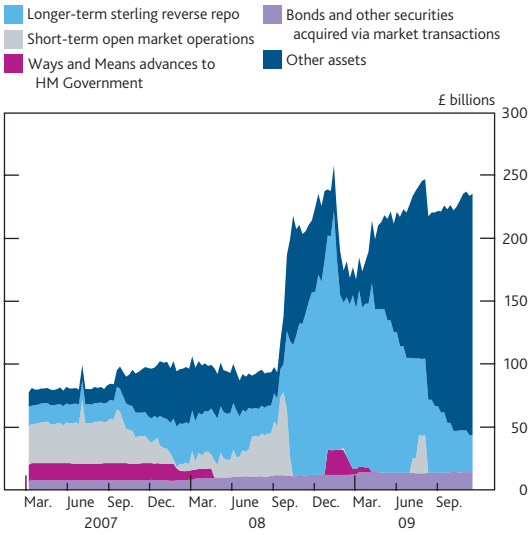
they own — so-called Tobin's Q — was also below its recent historical average.(1) Nonetheless, some market participants expressed worries that equity prices might have increased too far relative to the improvement in underlying macroeconomic fundamentals.

Bank of England operations

The Bank's balance sheet enables the Bank to fulfil its core purposes to promote and maintain monetary and financial stability. At the end of the review period to 20 November, the size of the balance sheet was £235 billion. This was larger than at the end of the previous review period to 28 August but below its earlier highs (**Chart 25** and **Chart 26**).

The composition of the balance sheet, in particular on the asset side, also continued to change. This reflected a shift away from liquidity insurance provision towards policies to support nominal demand through asset purchases. Over the review period, the former is shown as a reduction in the amount outstanding in the Bank's extended-collateral long-term repo open market operations (OMOs) (**Chart 25**). The latter is shown as an increase in 'other assets' which in turn reflects an increase in the loan the Bank has made to the Bank of England Asset Purchase Facility Fund Limited (BEAPFF) (**Chart 25**).(2) Those asset purchases have resulted in a significant increase in reserves balances (**Chart 26**). The remainder of this section describes the Bank's operations over the review period in more detail.

Chart 25 Bank of England consolidated balance sheet: assets(a)

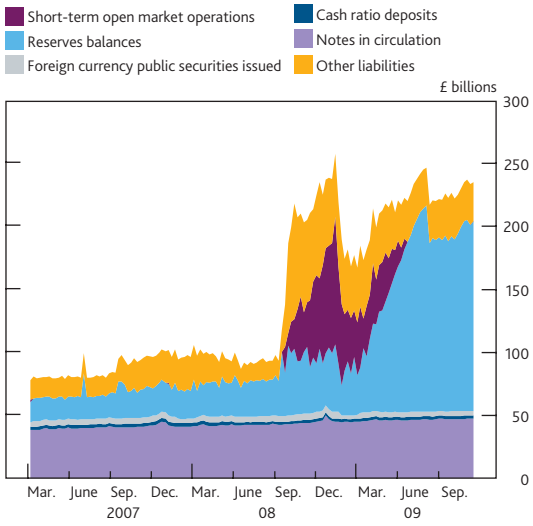


(a) Excludes loans and associated deposits in course of settlement.

Asset purchases(3)

In the week prior to the November MPC meeting, the Bank completed the £175 billion of private and public sector asset purchases financed by the issuance of central bank reserves that had been announced on 5 March and extended on 7 May and 6 August. On 5 November, the MPC voted to continue with this programme of asset purchases and to increase its size by £25 billion to £200 billion. **Table A** summarises asset purchases by type of asset.(4)

Chart 26 Bank of England consolidated balance sheet: liabilities(a)



(a) Excludes loans and associated deposits in course of settlement.

Gilts

As of 19 November, £178 billion of gilts had been purchased under the asset purchase programme, of which £80 billion were in the 3–10 year residual maturity range, £80 billion in the 10–25 year maturity range and £18 billion had a maturity greater than 25 years (**Chart 27**).

These gilt purchases took place over 79 auctions, which varied in size up to a maximum of £3.5 billion. The size of the auctions between the 6 August and 5 November MPC decisions were £1.4 billion. Following the MPC's decision on 5 November to increase the scale of the programme of asset purchases financed by central bank reserves to £200 billion, the size of the auctions was increased to £1.7 billion.

The Bank also announced on 5 November that while it would continue, normally, to conduct auctions to purchase gilts with a residual maturity of 10–25 years on Mondays; of over 25 years on Tuesdays; and of 3–10 years on Wednesdays, these auctions would be spread over a two-week cycle. In the week beginning 9 November, auctions were held on Monday and Wednesday and an auction was held on the Tuesday of the subsequent week. This cycle was repeated in subsequent weeks.

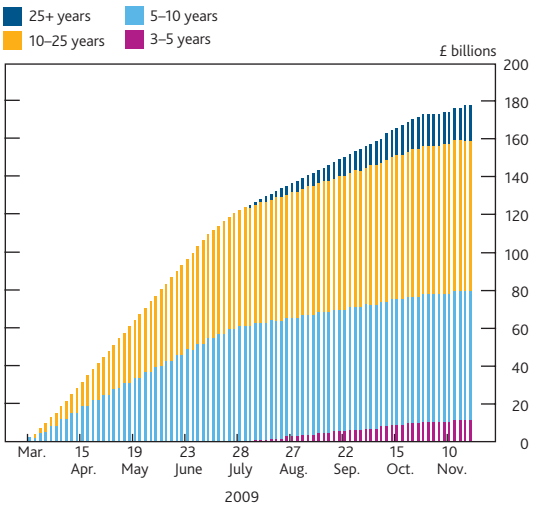
(1) For a discussion of this measure see Thompson, J and Mac Gorain, S (2002), 'Profit expectations and investment', *Bank of England Quarterly Bulletin*, Winter, pages 404–09.
(2) As described in previous *Bulletins*, asset purchases are undertaken by the BEAPFF which is a wholly-owned subsidiary of the Bank of England. The BEAPFF borrows from the Bank for the purchases it makes.
(3) The data cut-off for this subsection is 19 November.
(4) The objectives and operation of the Asset Purchase Facility are described in more detail in the 2009 Q2 *Quarterly Bulletin*.

Table A Asset purchases by type (£ millions)

Week ending[a]	Commercial paper	Gilts	Corporate bonds	Total[b]
27 August 2009[c][d]	1,573	134,971	938	137,482
3 September 2009	0	2,800	32	2,832
10 September 2009	5	5,604	27	5,636
17 September 2009	225	4,200	32	4,457
24 September 2009	395	4,201	51	4,647
1 October 2009	225	4,200	72	4,497
8 October 2009	80	4,200	139	4,419
15 October 2009	25	4,200	33	4,258
22 October 2009	145	4,201	13	4,359
29 October 2009	0	4,200	62	4,262
5 November 2009	0	0	63	63
12 November 2009	0	3,400	60	3,460
19 November 2009	70	1,700	13	1,783
Total financed by Treasury bills	–	–	–	–
Total financed by central bank reserves[d]	588	177,875	1,522	179,985
Total asset purchases[d]	588	177,875	1,522	179,985

(a) Week-ended amounts are in terms of the proceeds paid to counterparties, 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) Measured as amount outstanding as at 27 August 2009.
(d) In terms of proceeds paid to counterparties less redemptions at initial purchase price on a settled basis. Amounts outstanding may be less than total purchases due to assets maturing during the period.

Chart 27 Cumulative gilt purchases[a] by maturity

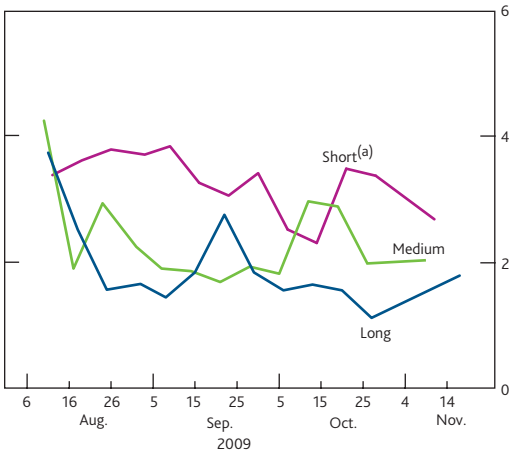


(a) Data based on settled transactions.

Cover in the auctions varied, but averaged 3.2 in the 3–10 year auctions, 2.3 in the 10–25 year auctions and 1.9 in the auctions for gilts with a maturity greater than 25 years (**Chart 28**).[1]

As purchases progressed, the Bank had earlier acquired a sizable proportion (around 70%) of the free float (the total issue size of a gilt minus government holdings) in four gilts, which had subsequently been suspended from auctions until further notice.[2] As the Bank's holdings as a proportion of the free float fell in three of these gilts following further issuance by the UK Debt Management Office (DMO), these bonds were made eligible.[3]

Chart 28 Cover ratios in APF gilt auction



(a) On 6 August, the short-maturity bucket changed from 5–10 years to 3–10 years. The medium and long-maturity buckets are 10–25 years and greater than 25 years respectively.

The Bank continued to lend some of the gilts via the DMO in return for other UK government collateral, as announced on 6 August. The Bank announced on 14 October that between 7 August and 30 September an average daily value of £4.8 billion had been lent in this way.

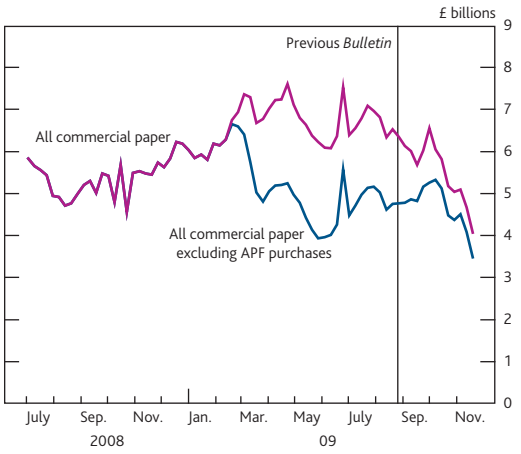
Commercial paper

The Bank continued to offer to purchase sterling-denominated investment-grade commercial paper (CP) issued by companies that make a material contribution to UK economic activity. The functioning of the non-bank investment-grade European commercial paper market improved further over the review period. Although the total amount of sterling-denominated CP outstanding for UK corporate and non-bank financial firms declined over the period from £6.3 billion to £4.1 billion (**Chart 29**), this was partially offset by foreign currency denominated issuance. Corporates were also able to raise a greater proportion of their funding through longer-term issuance in the corporate bond market.

Quoted primary market CP spreads narrowed further and remained below the spreads at which the Asset Purchase Facility (APF) offers to purchase CP. This meant that some issuers found it more economic to issue to investors rather than use the APF. The facility reportedly acted as a backstop, for example following temporary reductions in market liquidity. As a result, gross purchases over the period were £1.3 billion compared with redemptions of £2.3 billion. As of 19 November, APF holdings of CP amounted to £0.6 billion, down from £1.6 billion as of 27 August.

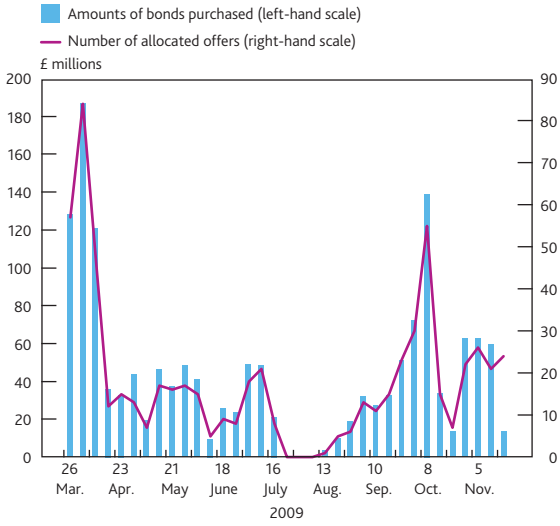
(1) Further details of individual operations are available at www.bankofengland.co.uk/markets/apf/gilts/results.htm.
(2) The 5% 2014, 4.75% 2020, 8% 2021 and 4% 2022 gilts.
(3) 4% 2022 on 12 October, 4.75% 2020 on 26 October, 5% 2014 on 11 November.

Chart 29 Sterling commercial paper outstanding for UK corporates and non-bank financial firms



Sources: CP Ware and Bank calculations.

Chart 30 Weekly purchases of sterling corporate bonds(a)



(a) Weekly (Friday-Thursday) amounts in terms of the proceeds paid to counterparties, on a trade-day basis.

Corporate bonds

The Bank's Corporate Bond Secondary Market Scheme aims to facilitate market-making by banks and dealers, to help reduce illiquidity premia and so remove obstacles to corporates' access to capital markets. To fulfil this aim the Bank offers to make regular small purchases of a wide range of high-quality corporate bonds by reverse auctions. These operations are currently carried out three times a week, split by maturity, with the Bank offering to purchase each eligible bond once a week.

Following a reduction in activity during July and early August, participation in the Bank's auctions increased modestly, with an average of £161.5 million offered to the Bank each week over the review period, and £49.3 million purchased (**Chart 30**).

The volume and number of offers in the Bank's auctions was higher following periods of volatility in corporate bond markets. For example, on 2 October the Bank received £332 million in offers and purchased £102 million, as corporate bond and CDS spreads widened and market contacts reported a temporary deterioration in market sentiment.

As of 19 November, the corporate bond portfolio totalled £1,522 million, compared to £938 million on 27 August. The portfolio had been acquired through 630 purchases of 144 bonds of 53 issuers, spread over 86 auctions from 25 March to 19 November.

On 3 December, the Bank launched a consultation process on proposals for a possible extension to the Scheme through the BEAPFF operating as a seller, as well as a buyer, of corporate bonds. The proposals are aimed at improving secondary market liquidity further. See the box on page 269.

Secured commercial paper

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. There has been no usage of the facility to date.(1)

Credit Guarantee Scheme

The Bank did not make any purchases of bank debt issued under the Credit Guarantee Scheme from the secondary market, but stands ready to do so should conditions in that market deteriorate.

Operations within the sterling monetary framework(2)

Since the announcement of the programme of asset purchases financed by central bank reserves on 5 March, the usual system, in which banks chose monthly reserves targets to achieve on average over a maintenance period, has been suspended and all reserves balances have been remunerated at Bank Rate.(3) Since 6 August, the Bank has continued to offer reserves in long-term repo open market operations (OMOs), but has not conducted short-term OMOs. During the period under review, the level of reserves was thus determined by (i) the level of reserves injected via asset purchases, (ii) the reserves supplied in long-term repo OMOs, and (iii) the net impact of other sterling ('autonomous factor') flows across the Bank's balance sheet.

Long-term repo OMOs

The Bank continued to provide liquidity insurance by conducting extended-collateral long-term repo OMOs with a three-month maturity against a wider range of collateral than routinely accepted in the Bank's short-term OMOs and

(1) The SCP facility is described in more detail in the Market Notice available at www.bankofengland.co.uk/markets/marketnotice090730.pdf.
(2) This and the subsection describing other market operations cover operations from 6 August to 20 November.
(3) This article however continues to use the term 'maintenance period' for convenience to refer to the period between one MPC decision date and the next.

Asset Purchase Facility Corporate Bond Secondary Market Scheme

The introduction, in March, of the Bank of England's programme of auctions to purchase small amounts of high-quality sterling corporate bonds can be viewed as a response to the problems facing the market and akin to the Bank acting as a 'market maker of last resort'.(1) As dealers withdrew, due to a combination of capital constraints and risk aversion, market liquidity had become impaired. As such, the Scheme's primary objective was to improve market liquidity in order to support the flow of credit to the corporate sector. A key step in the mechanism to achieve this objective was to improve price discovery and transparency through offering to undertake frequent transactions and help establish pricing points. Furthermore, its aim was to be catalytic, helping to reinvigorate the market, rather than replace it.

To date the Bank's purchases have had some success in establishing pricing points and improving price discovery. Counterparties report that the disclosure of auction results reduced the uncertainty for investors in valuing their portfolios and established, for dealers, a price at which others were willing to sell. The Scheme also helped dealers to manage their inventory of securities, thus freeing up balance sheet capacity.

Since the launch of the Scheme, conditions in the sterling corporate bond market have, overall, improved. This has occurred alongside a general improvement in sentiment in global credit markets. During 2009, gross bond issuance has been strong and net issuance has also increased. For new issues, the 'new issuance premium' (ie the difference between the yields based on the offer price and the secondary market price) fell, dropping from between 75 basis points to 100 basis points in January to perhaps less than 10 basis points. Conditions in the secondary market also improved, with both credit (**Chart 19**) and bid-offer spreads narrowing considerably from their highs in March 2009. Some indicators of market liquidity, such as the difference between corporate bond spreads and credit default swap premia, improved for bonds that were eligible for purchases by the APF and for those that were not.

Despite strong primary market issuance, the secondary market is still not functioning well with trading volumes remaining at low levels. And, although reduced, bid-offer spreads remained elevated. Dealers' capacity to support market functioning has, at times, continued to be limited by balance sheet constraints. When demand for corporate bonds has been notably strong, dealers have not always been able to meet that demand. As a result, contacts consistently highlight that the sterling corporate bond market remains prone to bouts of illiquidity. Earlier this year this manifested itself in an absence of buyers; recently periods of illiquidity have more commonly been due to potential buyers finding it difficult to source bonds that meet their requirements. Market intelligence also suggests that many dealers (and indeed some investors) have been cautious of offering bonds to the APF during times of strong demand as they have no certainty of being able to buy the bonds back should clients demand them in the future. As a consequence, market participants may not have fully utilised the current Scheme.

On 3 December, the Bank launched a consultation process on proposals for a possible extension to the APF.(2) The proposals are aimed at improving secondary market liquidity further by the BEAPFF operating as a seller, as well as a buyer, of bonds. Starting to offer for sale the APF holdings of corporate bonds, while continuing to offer to buy (both in small quantities), would be intended to support price transparency and improve two-way liquidity through the establishment of pricing points. Any sales would be in addition to the Scheme's existing purchase programme. As such, the overall size of the Bank's portfolio of corporate bonds would vary in line with the intensity of offers by market participants to both buy and sell bonds to the Scheme; the Bank would not target any particular portfolio size. Any net reduction in the stock of purchases would be offset by gilt purchases while the MPC's programme of asset purchases continued. As before, such a policy would be designed in such a way that all transactions would move back towards private sector participants as soon as markets fully recover.

(1) See www.bankofengland.co.uk/publications/speeches/2009/speech410.pdf.
(2) See www.bankofengland.co.uk/markets/marketnotice091203.pdf.

Operational Standing Facilities (OSFs). The results of these operations are shown in **Table B**.

Table B Extended-collateral three-month long-term repo operations

18 August 2009	
On offer (£ millions)	10,000
Cover	0.53
Weighted average rate[a]	0.935
Lowest accepted rate[a]	0.510
Tail[b]	0.43
1 September 2009	
On offer (£ millions)	10,000
Cover	0.38
Weighted average rate[a]	0.511
Lowest accepted rate[a]	0.500
Tail[b]	0.01
15 September 2009	
On offer (£ millions)	5,000
Cover	0.43
Weighted average rate[a]	0.625
Lowest accepted rate[a]	0.500
Tail[b]	0.12
29 September 2009	
On offer (£ millions)	5,000
Cover	0.34
Weighted average rate[a]	0.505
Lowest accepted rate[a]	0.500
Tail[b]	0.00
13 October 2009	
On offer (£ millions)	5,000
Cover	0.41
Weighted average rate[a]	0.558
Lowest accepted rate[a]	0.500
Tail[b]	0.06
3 November 2009	
On offer (£ millions)	5,000
Cover	0.85
Weighted average rate[a]	0.705
Lowest accepted rate[a]	0.500
Tail[b]	0.20
17 November 2009	
On offer (£ millions)	5,000
Cover	0.69
Weighted average rate[a]	0.926
Lowest accepted rate[a]	0.530
Tail[b]	0.40

(a) Per cent.
(b) The yield tail measures, in basis points, the difference between the weighted average accepted rate and the lowest accepted rate.

All three-month extended-collateral long-term repo OMOs over the review period were uncovered. This resulted in a decline in the stock of long-term repo OMOs outstanding (**Chart 25**). In light of revealed demand for funds in these operations, from the operation on 15 September, the Bank reduced the amount on offer from £10 billion to £5 billion.

For the period under review, the Bank continued to set two minimum bid rates applicable to its three-month extended-collateral long-term repo OMOs. The minimum bid rate for bids against routine OMO collateral remained at the higher of the equivalent-maturity OIS rate and Bank Rate. For bids against the wider collateral pool, the minimum bid rate remained 50 basis points higher than that for routine OMO collateral.

Repo operations at six, nine and twelve-month maturities were offered against collateral routinely accepted in the Bank's short-term OMOs and OSFs. In contrast to the repo operations at three-month maturity all of these operations were covered (**Table C**).

Table C Long-term repo operations

	Six-month	Nine-month	Twelve-month
18 August 2009			
On offer (£ millions)	750	400	200
Cover	2.33	2.13	4.25
Weighted average rate[a]	0.406	0.466	0.693
Lowest accepted rate[a]	0.396	0.440	0.688
Tail[b]	0.01	0.03	0.01
15 September 2009			
On offer (£ millions)	750	400	200
Cover	3.27	3.75	4.75
Weighted average rate[a]	0.373	0.483	0.738
Lowest accepted rate[a]	0.360	0.450	0.730
Tail[b]	0.01	0.03	0.01
13 October 2009			
On offer (£ millions)	750	400	200
Cover	3.33	3.13	4.00
Weighted average rate[a]	0.400	0.480	0.620
Lowest accepted rate[a]	0.385	0.480	0.620
Tail[b]	0.02	0.00	0.00
17 November 2009			
On offer (£ millions)	750	400	200
Cover	2.83	4.35	4.75
Weighted average rate[a]	0.452	0.526	0.670
Lowest accepted rate[a]	0.443	0.511	0.650
Tail[b]	0.01	0.01	0.02

(a) Per cent.
(b) The yield tail measures, in basis points, the difference between the weighted average accepted rate and the lowest accepted rate.

Operational Standing Facilities

As part of the changes to the sterling monetary framework (SMF) introduced on 5 March, the Bank announced that, if Bank Rate was set at 0.5% or below, the rate paid on the Operational Standing Deposit Facility would be zero, while the rate charged on the Operational Standing Lending Facility would continue to be set at 25 basis points above Bank Rate.

As a result of the change to remunerate all reserves balances at Bank Rate and (given the level of Bank Rate) the reduction in the rate paid on the Operational Standing Deposit Facility to

zero, daily average use of the deposit facility was £0 million in each of the maintenance periods under review. Average usage of the lending facility was also £0 million throughout the period.

Discount Window Facility

In October 2008, the Bank introduced a Discount Window Facility (DWF) as part of the framework for its operations in the sterling money markets. The DWF is a permanent facility to provide liquidity insurance to the banking system and allows eligible banks and building societies to borrow gilts against a wide range of collateral.

On 6 October, the Bank announced that the average daily amount outstanding in the 30-day Discount Window Facility between 1 April and 30 June 2009 was £0 million.

Changes to haircuts applied to eligible securities

On 25 September, the Bank announced some changes to the haircuts it applies to securities accepted as collateral in its operations. In addition to changes to haircut levels, a greater number of haircut categories were introduced for bonds with different maturities.(1)

Changes to the eligibility criteria for access to SMF facilities

On 5 October, the Bank announced that it had widened the population of institutions eligible to apply for reserves accounts in order to assist smaller institutions in managing their liquidity. Previously, only firms required to place cash ratio deposits (CRDs) with the Bank — that is, institutions with an average level of eligible liabilities of £500 million or more — were eligible to apply for reserves accounts. With effect from 5 October 2009, all institutions that are subject to the statutory CRD regime — that is all institutions reporting their eligible liabilities to the Bank — are eligible to apply for a reserves account. Newly eligible institutions would also be able to apply to access the other SMF facilities: the Operational Standing Facilities, the Discount Window Facility and open market operations.(2)

Other market operations

Special Liquidity Scheme

The drawdown period for the Special Liquidity Scheme (SLS) closed on 30 January 2009. Although the drawdown window to access the SLS has closed, the Scheme will remain in place for three years, thereby providing participating institutions with continuing liquidity support.

US dollar repo operations

In concert with other central banks, since 18 September 2008 the Bank has offered US dollar financing to financial institutions funded by a swap with the Federal Reserve. These measures are designed to improve the liquidity conditions in global financial markets.

Over the previous review period the Bank offered US dollar financing at one-week and three-month maturities. In light of the reduced use of these operations, the Bank announced on 24 September that, following a 91-day auction on 6 October, all further three-month operations would be suspended. All further scheduled operations would be seven days, with the exception of eleven and ten-day operations in December. The Bank announced operations up until 27 January 2010. Since the previous *Bulletin*, the total stock outstanding ($13 million) was unchanged. However, following the suspension of the longer-dated operations, by 6 November all this stock was of one-week maturity.

As previously announced, since 6 April, the Bank, along with other central banks, has had swap arrangements in place that would enable the provision of foreign currency liquidity by the Federal Reserve to US financial institutions. Should it be required, the Bank would provide sterling via a swap arrangement with the Federal Reserve, similar to that which underpins the Bank's US dollar repo operations.

Foreign reserves

As part of the monetary policy framework introduced by the Chancellor of the Exchequer in 1997, the Bank of England holds its own foreign exchange reserves in support of its monetary policy objective. These reserves are separate from the Government's foreign exchange reserves, which the Bank manages as HM Treasury's agent. The assets held in the Bank's reserves are included in the balance sheet under 'bonds and other securities acquired via market transactions' (**Chart 25**). They are financed with medium-term foreign currency securities issued by the Bank (**Chart 26**). At 20 November, the Bank's foreign exchange reserves comprised £4 billion of assets.

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 European Central Bank, 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; nevertheless sales may be made from time to time, reflecting for example, risk management, liquidity management or changes in investment policy.

The portfolio currently includes around £3.2 billion of gilts and £1 billion of other debt securities. Over the period from 6 August to 20 November, gilt purchases of £258 million in six purchase transactions were made in accordance with the quarterly announcements on 1 July 2009 and 1 October 2009.

(1) Further details are available in a Market Notice available at www.bankofengland.co.uk/markets/marketnotice090925.pdf.
(2) Further details are available in the consolidated Market Notice dated 13 November, available at www.bankofengland.co.uk/markets/marketnotice091113con.pdf.