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)

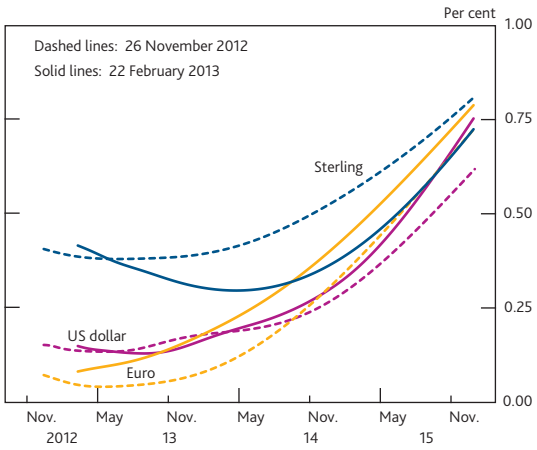
A Reuters poll of economists conducted shortly after the review period indicated that expectations of further asset purchases had risen a little. The median of economists' central expectations was for the final stock of asset purchases to increase to £400 billion, £25 billion higher than reported in 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.

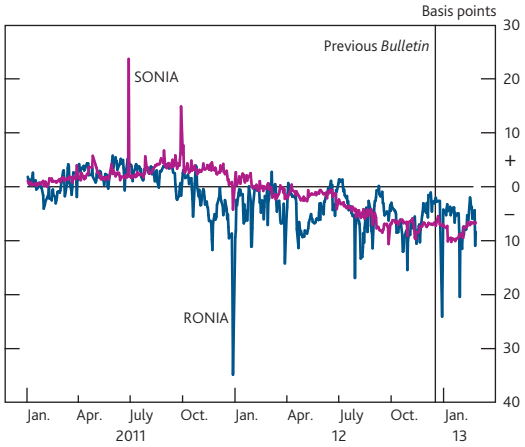
Chart 1 Instantaneous forward interest rates derived from OIS contracts(a)



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

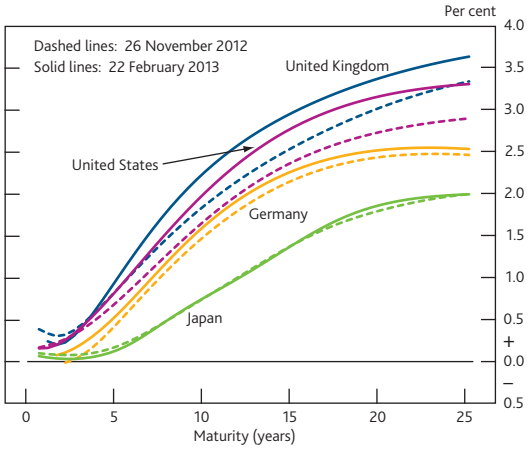
Financial market sentiment improved further during the review period. In part, that represented growing confidence following the announcement by the ECB of its OMT programme last September.

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)



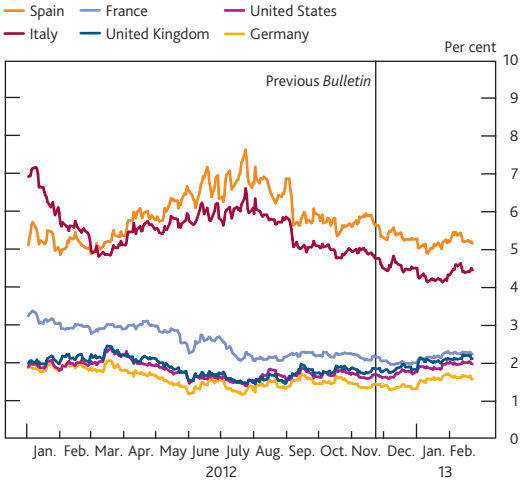
Sources: Bloomberg and Bank calculations.

(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.

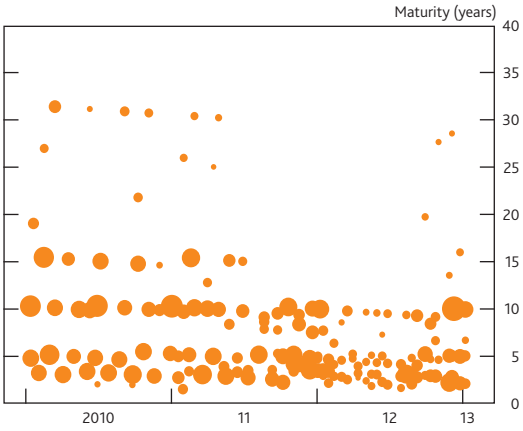
Chart 4 Selected euro-area ten-year government bond yields(a)



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.

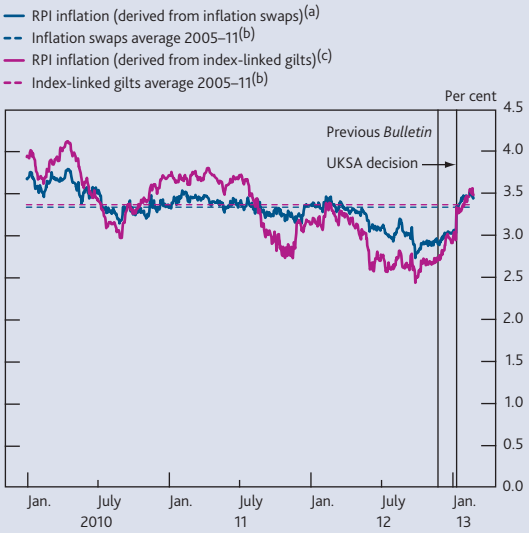
But on 10 January 2013, the UKSA recommended that there be no change to the formula used for the calculation of RPI. Breakeven inflation rates increased sharply on the announcement — by around 40 basis points. Contacts ascribed this to an immediate repricing associated with the reversal of expectations 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 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.

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

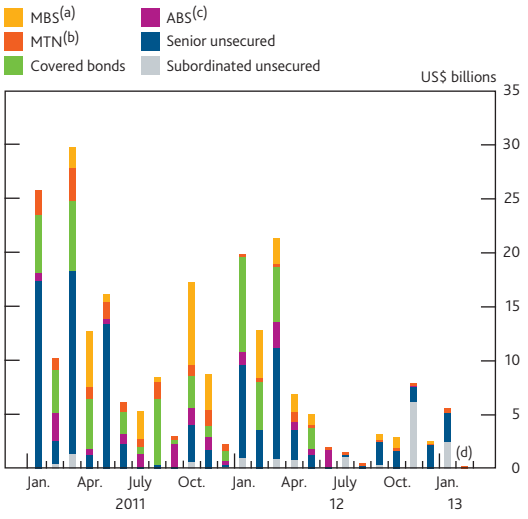


Sources: Bloomberg and Bank calculations.

(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.

(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



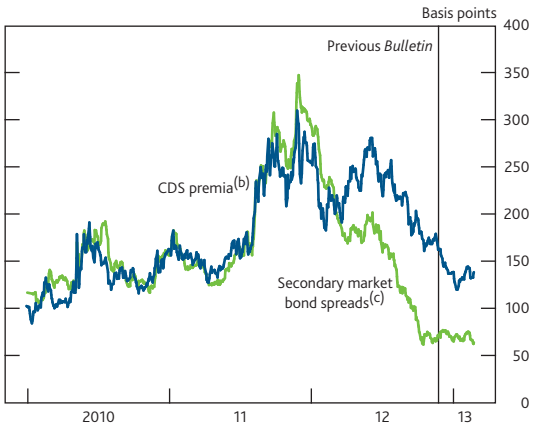
Sources: Dealogic and Bank calculations.

(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)



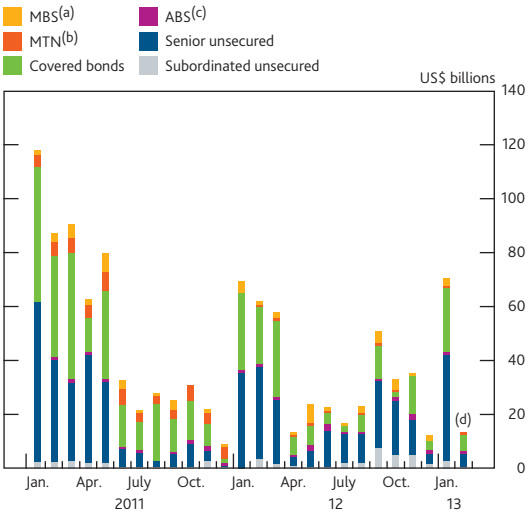
Sources: Bloomberg, Markit Group Limited and Bank calculations.

(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.

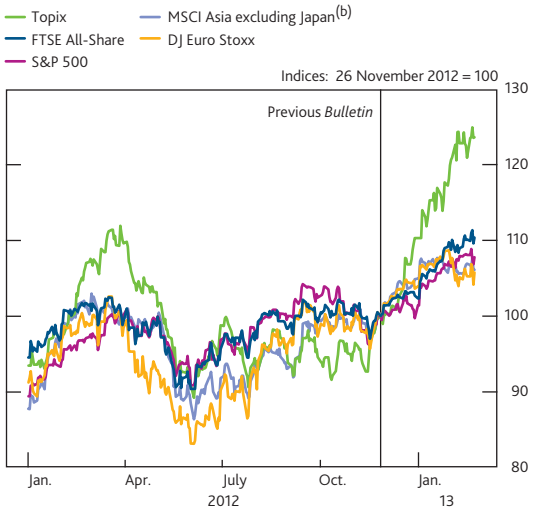
(a) Commercial and residential mortgage-backed securities.
(b) Medium-term notes.
(c) Asset-backed securities.
(d) Data up to 22 February 2013.

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]



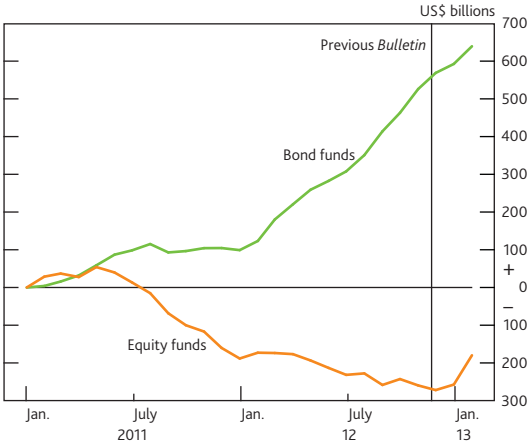
Sources: Bloomberg and Bank calculations.

(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.

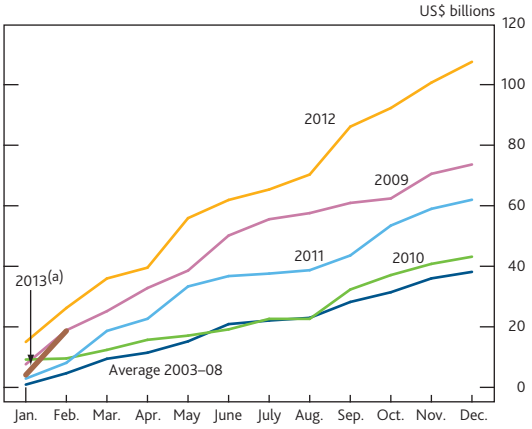
Chart 10 Cumulative inflows into global bond and equity funds since January 2011



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)

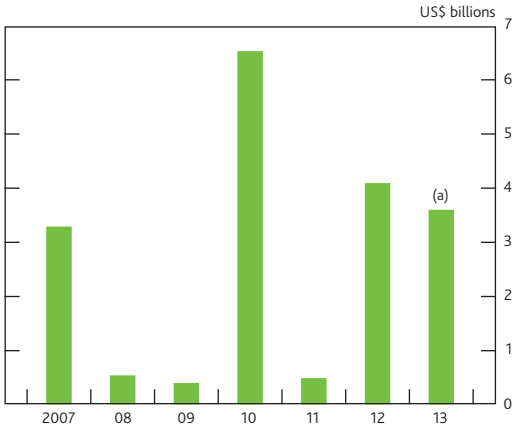


Sources: Dealogic and Bank calculations.

(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.

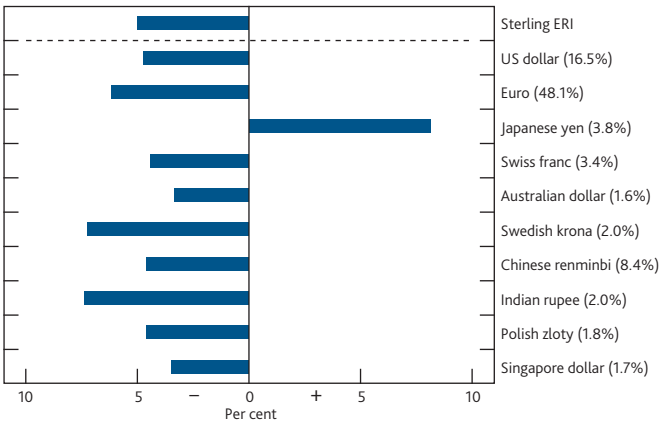
Foreign exchange

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

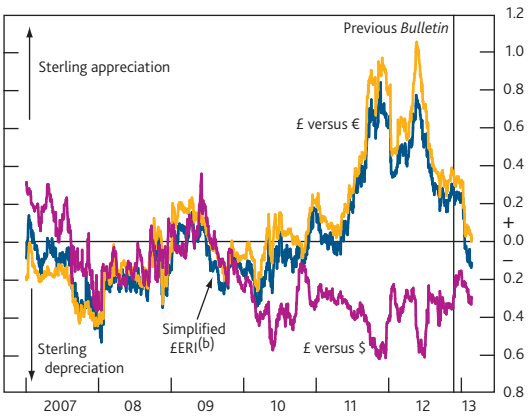
Chart 13 Changes in the sterling effective ERI and selected bilateral exchange rates since the previous *Bulletin*(a)



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.

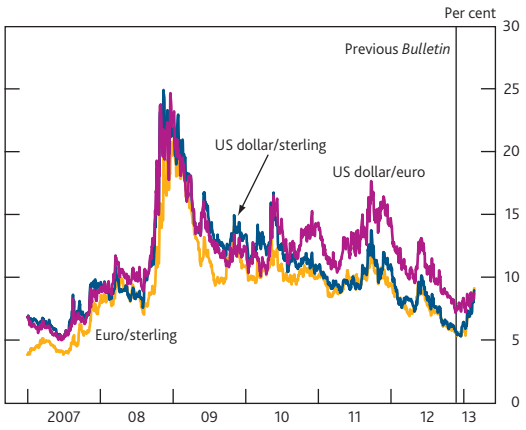
(a) Returns are defined as the logarithmic difference between the current forward rate and the spot rate at the maturity date of the contract.
(b) The simplified sterling ERI places 70% weight on the euro-sterling bilateral exchange rate and 30% weight on the US dollar-sterling bilateral exchange rate.

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

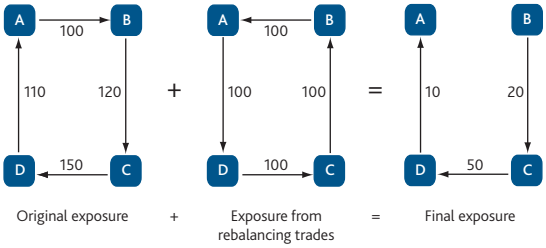
In addition to central clearing and bilateral margining, portfolio optimisation services can help reduce systemic risk. Market participants have for a number of years used so-called 'compression' services. These remove superfluous individual transactions between participants, in turn reducing operational 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.

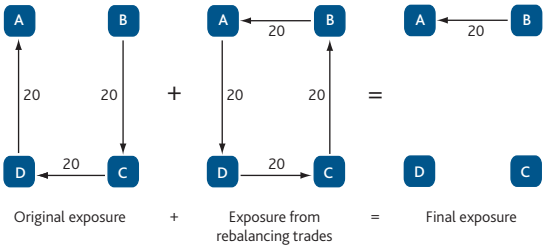
In a rebalancing exercise, market participants submit to the service provider information on the net counterparty credit exposure they have within a given asset class against each of the other participating counterparties (potentially including CCPs). Participants also submit parameters which define 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 (**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)

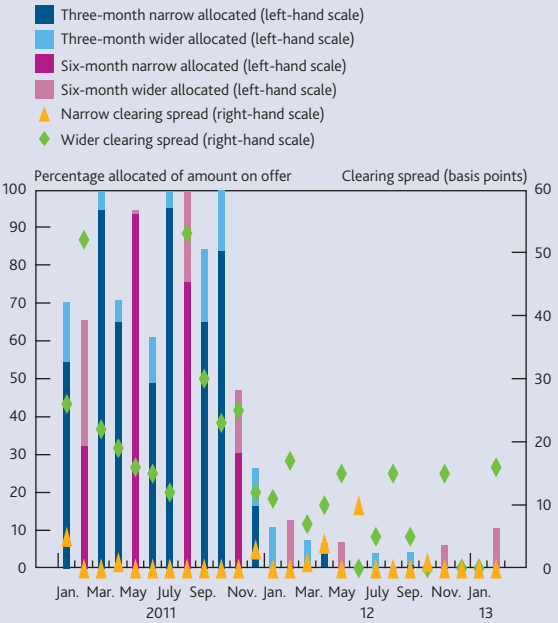
On 20 November, the Bank announced that the ECTR Facility would remain activated, but that the Bank would review the demand for auctions on a monthly basis, following the December 2012 auction, in consultation with ECTR eligible institutions.(2) Should the Bank determine that there is sufficient demand, 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.

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



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.

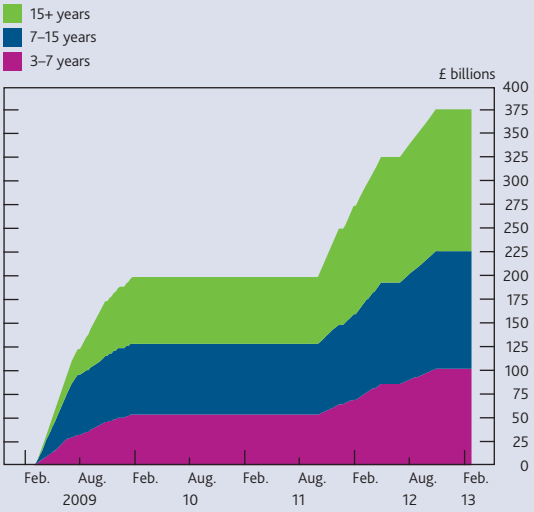
Gilts

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

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.

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.