Markets and operations

- Short-term UK interest rates fell over the review period. In part, that was thought to be due to weak data in the United States.
- UK rates rose at slightly longer maturities, however, partly reflecting the minutes of the April Monetary Policy Committee meeting, with contacts pointing to the description of the market-implied pace of tightening as 'exceptionally slow'.
- There were also significant rises in international long-term bond yields over the review period, amid materially higher volatility than in the recent past.
- Despite the volatility in long-term interest rates, there was limited spillover to risky assets. Corporate bond spreads ended the review period broadly flat overall, while equities edged a little higher.

Overview

Short-term UK interest rates fell during the review period. Part of the downward move followed the UK general election, and contacts thought this may have been due to the unexpected Conservative majority outcome. Sterling and domestically focused UK equities rose on the election result. There was also some downward pressure on short-term UK interest rates due to weaker-than-expected data in the United States and worries about the impact of a potential slowing there on the United Kingdom.

At slightly longer maturities, meanwhile, UK interest rates increased over the review period. Contacts pointed to Monetary Policy Committee communications, and in particular the statement in the April minutes, that the pace of tightening implied by market interest rates was 'exceptionally slow'. This was thought to have contributed to the rise in medium-term interest rates. Some contacts suggested that the pace of tightening implied by market rates may lie below market participants' true expectations of the likely future path of policy.

The European Central Bank began purchasing sovereign bonds in its Public Sector Purchase Programme in March and very short-term euro-area interest rates fell as a result of rising liquidity in the banking system. Longer-term euro-area sovereign bond yields also declined over the first half of the review period, but later rose sharply. The volatility in sovereign bond markets was led by moves in German bund yields, but generated spillovers to other international long-term interest rates, including those of the United Kingdom and United States. Ten-year UK gilt yields increased by 42 basis points overall, ending the period at 2.2% — around the same level that prevailed in November 2014.

A number of factors were thought by contacts to have contributed to the volatility. Contacts suggested that the potential price effects of the programme were difficult to predict. In particular, they cited the fragmented nature of the euro-area sovereign bond market, with considerable heterogeneity of assets that might be purchased and uncertainty about the bond-buying approaches of the national central banks that comprise the Eurosystem. Contacts also pointed to further technical drivers of the volatility, related to the behaviour of hedge funds and particular constraints on assets' eligibility for the scheme, for example, which helped to amplify the moves.

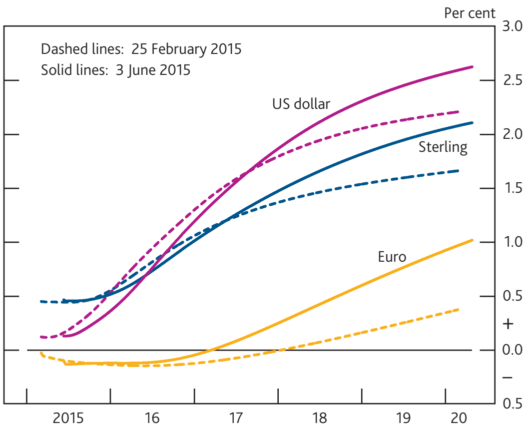
Despite the elevated volatility in long-term government borrowing costs, there was little spillover to risky asset prices. Corporate bond spreads were broadly unchanged over the review period as a whole, while major equity indices were up a touch.

In discharging its responsibilities to ensure monetary and financial stability, the Bank gathers intelligence from contacts across a range of financial markets. Regular dialogue with market contacts provides valuable insights into how markets function, and provides context for the formulation of policy, including the design and evaluation of the Bank's own market operations. The first section of this article reviews developments in financial markets between the 2015 Q1 *Quarterly Bulletin* and 3 June 2015. The second section goes on to describe the Bank's own operations within the Sterling Monetary Framework.

Monetary policy and interest rates

UK market interest rates at short tenors fell during the review period (**Chart 1**). Some of that decline followed the UK general election, with contacts suggesting that the unexpected Conservative majority implied that Bank Rate might follow a lower path than previously anticipated. Some of the fall in UK rates was also driven by declines in US rates, as a number of weaker-than-expected economic data releases caused market participants to become more concerned about the risk of slowing growth there and the impact that would have on other economies. And at its March meeting, members of the Federal Open Market Committee (FOMC) revised down their expectations for the path of US policy rates by more than market participants had expected.

Chart 1 Instantaneous forward interest rates derived from overnight index swap (OIS) contracts[(a)]

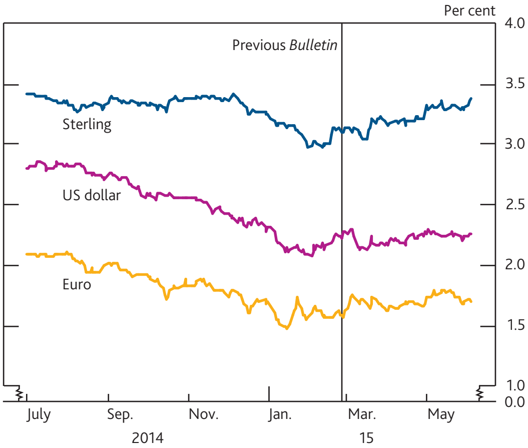


Sources: Bloomberg and Bank calculations.

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

UK market interest rates rose at longer tenors. This partly reflected an increase in UK market-implied inflation expectations over the review period (**Chart 2**).[(1)] Contacts also cited communications from the Monetary Policy Committee (MPC) about the shape of the yield curve. In particular, they noted the minutes of the April MPC meeting, which referred to the pace of tightening implied by the yield curve as 'exceptionally slow'. The yield curve steepened after this, and contacts thought the May 2015 *Inflation Report* confirmed the appropriateness of the new level of short-term interest rates.

Chart 2 Selected five-year inflation swap rates, five years forward[(a)]



Sources: Bloomberg and Bank calculations.

(a) Forward swap rates derived from the Bank's inflation swap curves. Swaps reference the retail prices index (sterling), consumer price index (US dollar) and harmonised index of consumer prices (euro).

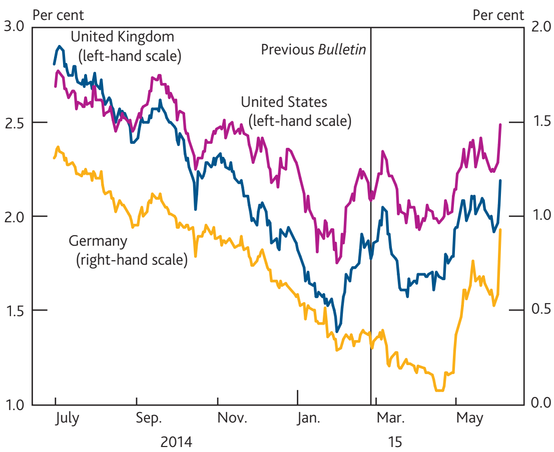
Some contacts suggested that the yield curve — which is partly a function of the mean of the distribution of participants' expectations about the path of interest rates — might, in fact, understate the pace of monetary policy tightening anticipated by those in the market. A few explanations were suggested as to why that might be the case. Some contacts thought that downside tail risks, perhaps associated with the Greek sovereign debt crisis or the possibility of a renewed global slowdown, created a negative skew in the distribution of market expectations. That would cause the mean of the distribution — as given by the yield curve — to lie below the level of rates regarded as most likely. Others thought that market participants were focused on developments elsewhere, and that risk-taking in sterling markets was relatively limited at present. This might also cause the yield curve to imply a slower pace of increase in Bank Rate than was expected by those in the market. The apparent difference in views about the path of monetary policy might dissipate once the FOMC raised rates in the United States or MPC members began to vote for policy tightening in the United Kingdom, and attention shifted back to UK monetary policy.

In the euro area, the European Central Bank (ECB) began its programme of large-scale sovereign bond purchases, the Public Sector Purchase Programme (PSPP), which was announced in January. Euro-area interest rates fell slightly at very short tenors in response to the increase in liquidity resulting from the scheme.

(1) For further analysis of the drivers of recent changes in inflation expectations, see Domit, S, Jackson, C and Roberts-Sklar, M (2015), 'Do inflation expectations currently pose a risk to inflation?', *Bank of England Quarterly Bulletin*, Vol. 55, No. 2, pages 165–80; www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2015/q205.pdf.

There was heightened volatility in international long-term bond yields over the review period (**Chart 3**). International long-term government bond yields fell markedly over the first half of the review period, following the start of purchases by the ECB. Some contacts thought that part of the reason that yields declined was because market prices did not fully incorporate the impact of the PSPP until after its launch. Contacts pointed to the fragmented nature of euro-area sovereign bond markets — particularly the heterogeneity of the pool of eligible assets, and potential differences in how national central banks would approach the task of buying bonds on behalf of the Eurosystem — which made the potential price impact of the programme difficult to predict. Moves in the euro area then led to declines in UK and US government bond yields given the high degree of correlation between them.

Chart 3 Selected ten-year government bond yields[(a)]



Sources: Bloomberg and Bank calculations.

(a) Yields to maturity derived from the Bank's government liability curves.

Also, contacts noted that the fall in yields may have been exacerbated by a feature of the PSPP operations, announced in the week preceding the start of asset purchases, which ruled out purchases of assets yielding below the deposit facility rate — currently at -20 basis points. Prior to this, markets had expected the ECB to purchase fairly evenly across the term structure in proportion to the maturity composition of eligible euro-area government bonds. But the limit meant that the ECB would have to focus its purchases at relatively longer maturities, causing longer-term yields to decline. In turn, this caused more bond yields to fall to below the deposit rate, shifting expected buying further along the curve, and so on, creating a self-reinforcing dynamic.

Then, in the second half of the review period, international government bond yields rose, and there was a particularly sharp increase in yields at the very end of the review period. Contacts were not able to explain these moves with much confidence and the data flow had actually been slightly weaker than expected. They thought the increase in yields may have been caused, in part, by relatively low coverage of bids in some euro-area sovereign bond auctions around the time of the start of the rise in government bond yields. Some also noted a period of growing optimism about the prospects for a positive resolution to negotiations over Greece's Economic Adjustment Programme.

Contacts also stressed several factors that they thought may have exacerbated the volatility. First, they suggested that further upward pressure on yields resulted from the unwinding of large long futures positions held by hedge funds, which had spilled over into cash markets. In particular, contacts stressed the role of Commodity Trading Advisors, a type of hedge fund which employs rule-based trading strategies to profit from asset price trends. In this instance, the earlier decline in bond yields had led to a large build-up of positioning for further falls in yields. When yields subsequently picked up, these positions were then reversed, amplifying the initial rise.

Second, contacts thought that the -20 basis point constraint, which had contributed to earlier falls, later added to upward pressure on long-term yields. As yields rose, less of the outstanding stock was excluded under the -20 basis point constraint, causing the expected maturity of ECB purchases to fall.

Throughout these episodes of volatility, price adjustments remained fairly orderly, but liquidity was reported to be thin. Moreover, contacts were caught by surprise at the magnitude of the move on the final two days of the review period, which was the biggest two-day rise in ten-year German government bond yields in over a decade.

Foreign exchange

Sterling was broadly unchanged overall, although the sterling exchange rate index (ERI) reached a post-financial crisis high in May (**Chart 4**). Having depreciated during the first half of the review period, the currency subsequently rose following the UK general election. Most contacts had expected the

Chart 4 Sterling exchange rate index

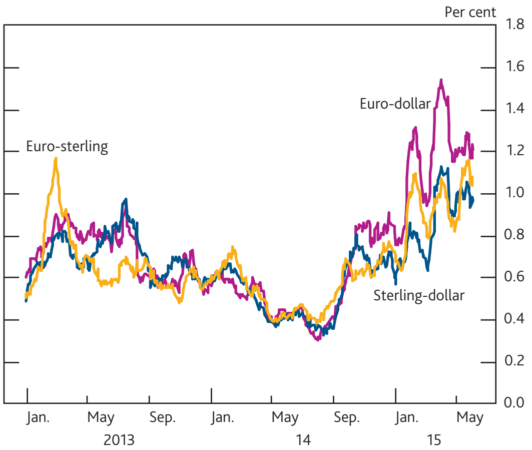
Source: Bank calculations.

uncertainty surrounding the election and the likely outcomes to weigh on the currency following the vote. In the event, however, the unexpected Conservative majority was perceived to have removed much of the near-term political uncertainty that had worried some investors, leading to a strengthening of sterling.

There were fairly sizable moves in other currencies during the review period. Initially, the euro depreciated by around 4%, reflecting declines in European interest rates relative to those of major trading partners of the euro area. The currency then began to appreciate in April, as yields on euro-area sovereign bonds increased relative to government borrowing costs elsewhere. But overall, the euro ERI ended the review period a little lower. To a large degree, the dollar ERI mirrored the moves in the euro, and ended the review period slightly higher than at the start.

Liquidity in foreign exchange (FX) markets was reported by contacts to have remained somewhat lower than at the start of the year — prior to the Swiss National Bank's decision to remove the euro-Swiss franc exchange rate floor. The volatility that followed was thought to have prompted a widespread reappraisal of the extent to which trading conditions might deteriorate under stressed conditions. And it was suggested that this episode had encouraged participants to make systems better able to adapt to such outsize movements in future. Intraday volatility in FX markets remains elevated relative to the recent past (**Chart 5**).

Chart 5 Intraday volatility of FX rates[(a)]



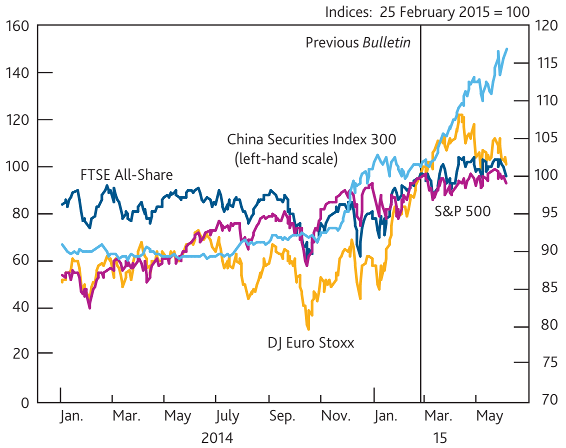
Sources: Bloomberg and Bank calculations.

(a) The measure of intraday volatility used is the 20-day moving average of the difference between the intraday high and low as a percentage of the intraday open price.

Corporate capital markets

Uncertainty associated with the UK general election was thought to have had relatively little effect on the UK equity market, although there was a broad-based rise in share prices following the result. European equities, meanwhile, continued to rise, supported by improved sentiment stemming from the announcement of the ECB PSPP earlier in the year. Contacts reported that there was a marked increase in flows into currency-hedged euro equity exchange-traded funds in the first quarter of this year, as international equity investors sought to offset potential downside risk from depreciation of the euro. The upward trajectory of euro-area equities persisted until mid-April, with the Euro Stoxx up by 8% compared with the start of the review period (**Chart 6**). The Euro Stoxx later fell, however, largely as a result of turbulence in sovereign bond markets. The index ended the review period up by about 2%.

Chart 6 International equity indices[(a)]



Sources: Bloomberg and Bank calculations.

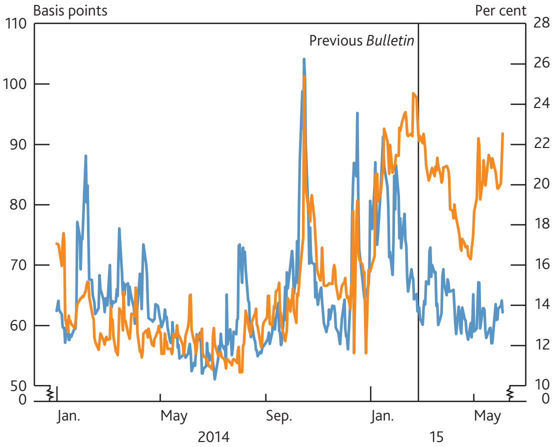
(a) Indices are quoted in domestic currency terms.

Some of the most noteworthy developments in equity markets came from further afield, with the Chinese Securities Index 300 rising by over 40% over the review period, and more than doubling since the start of the second half of last year. The rapid rise was thought to be due to several factors, including strong domestic appetite for equities and monetary policy easing by the People's Bank of China.

Despite the turbulence observed in international long-term bond yields, equity implied volatility remained very low. As a result, there was a material divergence in the VIX — an index of equity-market implied volatility — and an index of volatility in the US Treasury market (MOVE), which typically comove quite closely (**Chart 7**). While the MOVE index rose sharply in late April, coinciding with heightened volatility in the sovereign bond market, the VIX index was little changed.

In developed-economy corporate bond markets, spreads increased somewhat during March, but ended the review period little changed (**Chart 8**). While there was no material impact from the sovereign bond market on corporate bond spreads, there was some slowing in euro-denominated issuance by private non-financial corporations during the period of heightened volatility. But over the year as a whole,

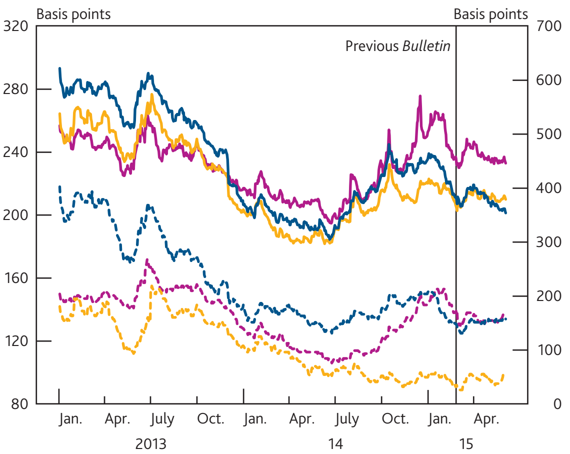
Chart 7 Option-implied volatility of equity and bond markets



Sources: Bank of America Merrill Lynch and Chicago Board Options Exchange.

(a) The Merrill Option Volatility Estimate (MOVE) index is a measure of market-implied volatility of the US Treasury market, based on a yield-curve weighted average of implied volatilities on a range of one-month US Treasury options.
(b) The Chicago Board Options Exchange Market Volatility Index (VIX) is a measure of market-implied volatility of the S&P 500, estimated from a weighted average of S&P 500 index option prices.

Chart 8 International corporate bond option-adjusted spreads



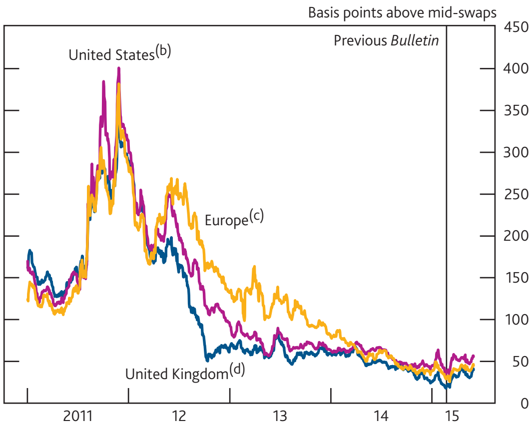
Source: BofA Merrill Lynch Global Research.

euro-denominated issuance has been very strong, partly because of the large volume of borrowing by US firms seeking to take advantage of exceptionally low yields. It was thought that much of the issuance was related to US mergers and acquisitions activity, which was very robust over the review period.

Bank funding markets

After a prolonged period of decline, there was a small tickup in banks' secondary market funding costs, with a rise in an indicative measure of spreads on UK, US and euro-area bank debt (**Chart 9**). That might, in part, have been due to euro-area political risk, which remains elevated. Spreads remained around post-crisis lows, however, and banks continued to issue debt in the primary market. Issuance in 2015 so far was proceeding at about the same pace as last year, although there were signs of a slowing in issuance by European lenders during the latter part of the review period. There was also further issuance of additional Tier 1 capital instruments, mostly in dollars but also in euros.

Chart 9 Indicative senior unsecured bank bond spreads[a]



Sources: Bloomberg, Markit Group Limited and Bank calculations.

(a) Constant-maturity unweighted average of secondary market spreads to mid-swaps of banks' five-year senior unsecured bonds, where available. Where a five-year bond is unavailable, a proxy has been constructed based on the nearest maturity of bond available for a given institution and the historical relationship of that bond with the corresponding five-year bond.
(b) Average of Bank of America, Citi, Goldman Sachs, JPMorgan Chase & Co., Morgan Stanley and Wells Fargo.
(c) Average of Banco Santander, BBVA, BNP Paribas, Crédit Agricole, Credit Suisse, Deutsche Bank, ING, Intesa, Société Générale, UBS and UniCredit.
(d) Average of Barclays, HSBC, Lloyds Banking Group, Nationwide, Royal Bank of Scotland and Santander UK.

Operations

Operations within the Sterling Monetary Framework and other market operations

This section provides an update of the Bank's operations within the Sterling Monetary Framework (SMF) over the review period, as well as its other market operations. Collectively, these operations help implement the Bank's monetary policy stance and provide liquidity insurance to institutions when deemed necessary.

The aggregate level of central bank reserves is closely monitored by the Bank, as it affects monetary conditions in the UK economy. The level of central bank reserves is affected by (i) the stock of assets purchased via the Asset Purchase Facility (APF); (ii) the level of reserves supplied by operations under the SMF; and (iii) the net impact of other sterling flows across the Bank's balance sheet. Over the review period, aggregate reserves rose to a high of £318 billion, mainly reflecting larger injections of reserves through the Bank's Indexed Long-Term Repo (ILTR) operations (discussed below).

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. As a consequence, there is little incentive for reserves account holders to use the deposit facility. Reflecting this, the average use of the deposit facility was £0 million in the three months to 9 April 2015.(1)

The rate charged on the Operational Standing Lending Facility remained at 25 basis points above Bank Rate. However, given the large aggregate supply of reserves, there was no demand from market participants to use the lending facility. The average use of the lending facility was also £0 million over the quarter to 9 April 2015.

Indexed Long-Term Repo operations(2)

The Bank conducts regular ILTR operations as part of its provision of predictable liquidity to banks, building societies and broker-dealers. During the review period, the Bank offered a minimum of £5 billion via six-month repos in each of its ILTR operations on 10 March, 7 April and 12 May 2015 (**Table A**).

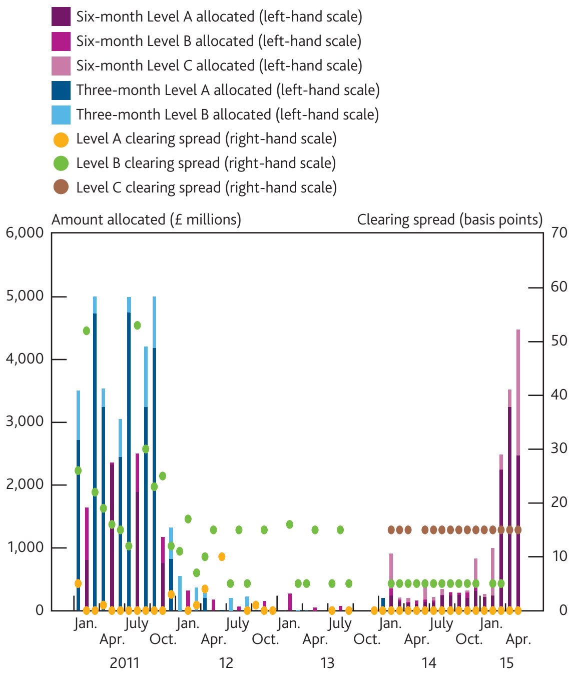
Table A Indexed Long-Term Repo operations(a)

	Total	Collateral set summary		
		Level A	Level B	Level C
10 March 2015 (six-month maturity)				
Minimum on offer (£ millions)	5,000			
Total bids received (£ millions)	2,485	2,245	5	235
Amount allocated (£ millions)	2,485	2,245	5	235
Clearing spread (basis points)		0	5	15
7 April 2015 (six-month maturity)				
Minimum on offer (£ millions)	5,000			
Total bids received (£ millions)	3,520	3,245	0	275
Amount allocated (£ millions)	3,520	3,245	0	275
Clearing spread (basis points)		0	n.a.	15
12 May 2015 (six-month maturity)				
Minimum on offer (£ millions)	5,000			
Total bids received (£ millions)	4,875	2,470	0	2,405
Amount allocated (£ millions)	4,470	2,470	0	2,000
Clearing spread (basis points)		0	n.a.	15

(a) The minimum amount on offer is the size of the operation that the Bank is willing to allocate, in aggregate, across all collateral sets at the minimum clearing spreads.

Participation in, and usage of, ILTR operations have increased recently, although the total amount allocated in each operation remained below the minimum £5 billion on offer (**Chart 10**). This reflected usage of the ILTR by some participants as a source of term repo liquidity, as well as a liquidity insurance backstop. Over the review period, with £0.9 billion of ILTRs maturing, the stronger participation in ILTR operations resulted in a net addition of £9.6 billion of central bank reserves. This was in addition to the existing excess supply of aggregate reserves which were provided largely through the Bank's APF operations.

Chart 10 ILTR reserves allocation and clearing spreads(a)



(a) Where there has not been any allocation to a collateral set, no clearing spread is marked.

Contingent Term Repo Facility

The Contingent Term Repo Facility (CTRF) is a contingent liquidity facility that the Bank can activate in response to actual or prospective market-wide stress of an exceptional nature. The Bank reserves the right to activate the facility as it deems appropriate. In light of market conditions throughout the review period, the Bank judged that CTRF auctions were not required.

Discount Window Facility

The Discount Window Facility (DWF) is a bilateral on-demand facility provided to institutions experiencing a firm-specific or market-wide liquidity shock. It allows participants to borrow highly liquid assets in return for less liquid collateral in potentially large size and for a variable term. The Bank publishes quarterly data of DWF usage with a lag. The average daily amount outstanding in the DWF in the three months to 31 December 2013 was £0 million.

(1) Operational Standing Facility usage data are released with a lag.
(2) See Frost, T, Govier, N and Horn, T (2015), 'Innovations in the Bank's provision of liquidity insurance via Indexed Long-Term Repo (ILTR) operations', *Bank of England Quarterly Bulletin*, Vol. 55, No. 2, pages 181–88; www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2015/q206.pdf.

Other operations

Funding for Lending Scheme

The Funding for Lending Scheme (FLS) (henceforth 'the Scheme') was launched by the Bank and HM Treasury on 13 July 2012. The initial drawdown period for the Scheme ran from 1 August 2012 until 31 January 2014. The drawdown period for the FLS extension opened on 3 February 2014 and will run until 29 January 2016. The quantity each participant can borrow in the FLS is linked to their lending to the UK real economy, with the incentives currently skewed towards supporting lending to small businesses.

The Bank publishes quarterly data showing, for each group participating in the FLS extension, the amount borrowed from the Bank and the net quarterly flows of lending. During the three months ending 31 March 2015, ten of the 34 groups participating in the FLS extension made drawdowns totalling £3.1 billion. Participants also repaid £1.5 billion, taking aggregate outstanding drawings under the Scheme to £57.3 billion.

US dollar repo operations

On 23 April 2014, in co-ordination with other central banks and in view of the improvement in US dollar funding conditions, the Bank ceased the monthly 84-day US dollar liquidity-providing operations. The seven-day US dollar operation will continue until further notice. The network of bilateral central bank liquidity swap arrangements provides a framework for the reintroduction of further US liquidity operations if warranted by market conditions. There was no use of the Bank's US dollar facilities throughout the review period.

Bank of England balance sheet: capital portfolio

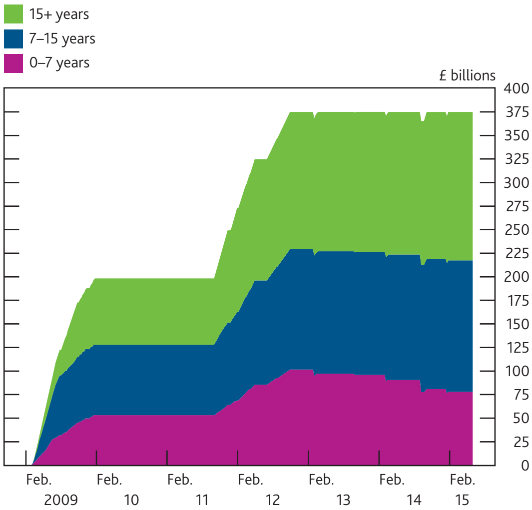
The Bank holds an investment portfolio that is approximately the same size as its capital and reserves (net of equity holdings, for example in the Bank for International Settlements, and the Bank's physical assets) and aggregate cash ratio deposits. The portfolio consists of sterling-denominated securities. 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 £5.5 billion of gilts and £0.2 billion of other debt securities.

Asset purchases

Alongside the publication of the *Inflation Report* on 12 February 2014, the MPC announced that it intends to maintain the stock of purchased assets, including reinvesting the cash flows associated with all maturing gilts held in the APF, at least until Bank Rate has been raised from its current level of 0.5%. There were no gilts held in the APF that had matured during the review period, and as a result there were no reinvestment operations.

The total stock of gilts outstanding in the APF, measured as proceeds paid to sellers, remained unchanged at £375 billion. The stock of gilts comprised of £77.9 billion of purchases in the 3–7 years residual maturity range, £139.5 billion in the 7–15 years residual maturity range and £157.5 billion with a residual maturity of greater than 15 years (**Chart 11**).

Chart 11 Cumulative gilt purchases by maturity(a)(b)



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

Gilt lending facility

The Bank continued to offer to lend gilts held in the APF via the Debt Management Office in return for other UK government collateral. In the three months to 31 March 2015, the daily average value of gilts lent, as part of the gilt lending facility, was £632 million. The average daily lending in the previous quarter was somewhat higher at £1,080 million.

Corporate bonds

There were no purchases of corporate bonds during the review period. Future purchase or sale operations through the scheme will be dependent on market demand, which the Bank will keep under review in consultation with its counterparties. Reflecting the recent lack of activity, the scheme currently holds no bonds.

Secured commercial paper facility

The Bank continued to offer to purchase secured commercial paper backed by underlying assets that are short term and provide credit to companies or consumers that support economic activity in the United Kingdom. No purchases were made during the review period.