

# Inflation Report

May 2015



BANK OF ENGLAND







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In order to maintain price stability, the Government has set the Bank's Monetary Policy Committee (MPC) a target for the annual inflation rate of the Consumer Prices Index of 2%. Subject to that, the MPC is also required to support the Government's economic policy, including its objectives for growth and employment.

The *Inflation Report* is produced quarterly by Bank staff under the guidance of the members of the Monetary Policy Committee. It serves two purposes. First, its preparation provides a comprehensive and forward-looking framework for discussion among MPC members as an aid to our decision-making. Second, its publication allows us to share our thinking and explain the reasons for our decisions to those whom they affect.

Although not every member will agree with every assumption on which our projections are based, the fan charts represent the MPC's best collective judgement about the most likely paths for inflation, output and unemployment, as well as the uncertainties surrounding those central projections.

This *Report* has been prepared and published by the Bank of England in accordance with section 18 of the Bank of England Act 1998.

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The Overview of this *Inflation Report* is available in PDF at [www.bankofengland.co.uk/publications/Documents/inflationreport/2015/mayo.pdf](http://www.bankofengland.co.uk/publications/Documents/inflationreport/2015/mayo.pdf).

The entire *Report* is available in PDF at [www.bankofengland.co.uk/publications/Pages/inflationreport/2015/may.aspx](http://www.bankofengland.co.uk/publications/Pages/inflationreport/2015/may.aspx).

PowerPoint™ versions of the charts in this *Report* and the data underlying most of the charts are provided at [www.bankofengland.co.uk/publications/Pages/inflationreport/2015/may.aspx](http://www.bankofengland.co.uk/publications/Pages/inflationreport/2015/may.aspx).



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# Overview

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GDP growth was robust in 2014, moderating in the second half of the year. Despite the weakness in 2015 Q1, the outlook for growth remains solid. Household real incomes have been boosted by the fall in food, energy and imported goods prices. The absorption of remaining slack and a pickup in productivity growth are expected to support wage growth in the period ahead. Along with the low cost of finance, that will help maintain domestic demand growth. Activity in the United States and a number of emerging markets has slowed but momentum in the euro area appears to have strengthened over the quarter as a whole.

CPI inflation was 0.0% in March 2015 as falls in food, energy and other import prices continued to weigh on the annual rate. Inflation is likely to rise notably around the turn of the year as those factors begin to drop out. Inflation is then projected to rise further as wage and unit labour cost growth picks up and the effect of sterling's appreciation dissipates. The MPC judges that it is currently appropriate to set policy so that it is likely inflation will return to the 2% target within two years. Conditional on Bank Rate following the path currently implied by market yields — such that it rises gradually over the forecast period — that is judged likely to be achieved.

## Recent economic developments

### Demand and supply

The European Central Bank's (ECB's) public sector asset purchase programme, which commenced in March, has helped to boost euro asset prices, and lower the yields on most euro-area government bonds. The programme also appears to have weighed on yields in other advanced economies. Divergent economic prospects and monetary policy stances have caused significant movements in exchange rates. Since November, the euro has depreciated sharply while the US dollar has risen. In effective terms, sterling is around 2% higher than in February and 16% higher than its trough in March 2013. Sterling Brent crude oil prices have risen, but remain 40% below their mid-2014 peak.

Supported by policy measures and lower oil prices, the expansion in global activity looks to be continuing, although the news since February has been mixed. Euro-area GDP growth appears to have strengthened further in Q1. A combination of lower borrowing rates, improved household real incomes and a lower euro mean the outlook, at least in the near term, is brighter than in February. In contrast, US growth weakened sharply in Q1. In part that is likely to reflect a temporary impact from adverse weather conditions. But weak wage and productivity growth, and a stronger dollar may imply a more persistent slowing in activity. Growth also appears to have been weaker in a number of emerging markets, including China.

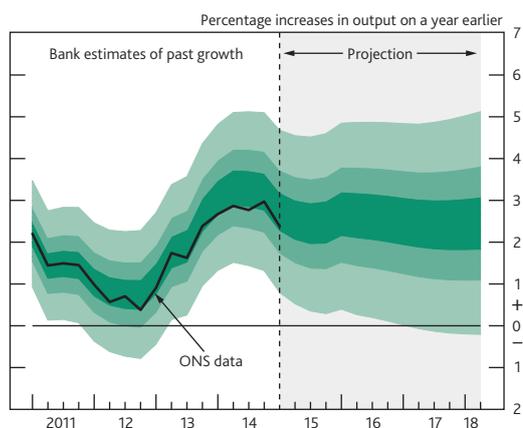
UK GDP grew at a little above its historical average rate in 2014 and somewhat faster than estimated potential supply, although it moderated during the course of the year. That slowing reflected both weaker net trade and domestic demand growth. Preliminary estimates of GDP suggest that growth slowed further in 2015 Q1. Activity in the housing market remains subdued. Nevertheless, surveys of household and business confidence and other indicators of consumption and business investment suggest activity has been more robust than reported in official data.

In light of recent developments, the MPC reviewed the outlook for potential supply and the likely degree of slack in the economy. Supply growth over the past two years has been concentrated in the labour force, while productivity growth has been weak. The best collective view of the MPC is that the amount of slack has narrowed over the past six months and is broadly in the region of ½% of GDP, though there is considerable uncertainty around this estimate and a wide range of views across the Committee.

### Costs and prices

CPI inflation was 0.0% in March, triggering a second successive open letter from the Governor to the Chancellor of the Exchequer. Around three quarters of the weakness in inflation relative to target, or 1.5 percentage points, was due to unusually low contributions from food, energy and other goods prices, which are judged largely to reflect non-domestic factors. The biggest single driver has been the large fall in energy prices. Falls in global agricultural prices and the appreciation of sterling have also led to lower retail prices for food and other goods. Absent further developments, these factors will continue to drag on the annual inflation rate before starting to drop out around the end of 2015.

**Chart 1** GDP projection based on market interest rate expectations and £375 billion purchased assets



The fan chart depicts the probability of various outcomes for GDP growth. It has been conditioned on the assumption that the stock of purchased assets financed by the issuance of central bank reserves remains at £375 billion throughout the forecast period. To the left of the vertical dashed line, the distribution reflects the likelihood of revisions to the data over the past; to the right, it reflects uncertainty over the evolution of GDP growth in the future. If economic circumstances identical to today's were to prevail on 100 occasions, the MPC's best collective judgement is that the mature estimate of GDP growth would lie within the darkest central band on only 30 of those occasions. The fan chart is constructed so that outcomes are also expected to lie within each pair of the lighter green areas on 30 occasions. In any particular quarter of the forecast period, GDP growth is therefore expected to lie somewhere within the fan on 90 out of 100 occasions. And on the remaining 10 out of 100 occasions GDP growth can fall anywhere outside the green area of the fan chart. Over the forecast period, this has been depicted by the light grey background. See the box on page 39 of the November 2007 *Inflation Report* for a fuller description of the fan chart and what it represents.

The remaining one quarter of the weakness in inflation relative to target, or 0.5 percentage points, is judged to reflect domestic factors. Wage growth remained subdued in Q1, despite a further fall in the unemployment rate. Part of that weakness is likely to reflect the effects of slack in the labour market, although the concentration of recent employment growth in lower-skilled jobs, which tend to be less well paid, is also likely to account for part of it.

Another influence on wage and price-setting decisions is inflation expectations. Nearly all measures of inflation expectations have fallen over the past year, with household measures now below pre-crisis average levels. Surveys suggest that employees and firms expect little recovery in pay growth this year. Other measures of inflation expectations are, however, close to historical averages. The MPC judges that inflation expectations remain broadly consistent with the 2% inflation target.

### The outlook for GDP and inflation

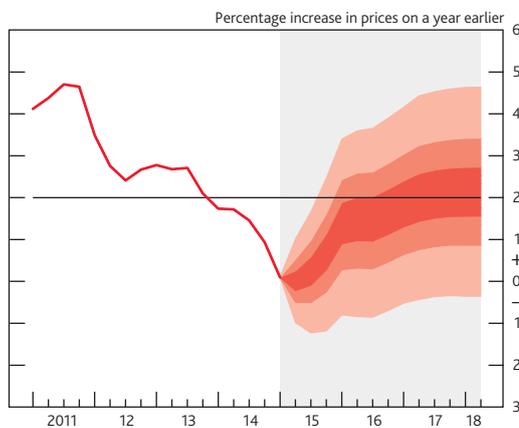
Chart 1 shows the MPC's best collective judgement for the outlook for four-quarter GDP growth under the assumptions that: Bank Rate rises gradually to 1.4% by 2018 Q2, in line with the

path implied by market interest rates; and the stock of purchased assets remains at £375 billion. Growth is projected to be at or a little below its historical average rate throughout the forecast period, although remaining slack in the economy is absorbed.

World GDP growth is projected to pick up slightly over the forecast period, broadly unchanged from the February *Inflation Report*. While ECB policy actions should support euro-area growth, the possibility of a disorderly resolution of Greek debt negotiations is considered to pose a downside risk to the world and UK growth outlook. Globally, a normalisation in US monetary policy could be associated with volatility in financial markets and a knock-on impact on global activity.

Domestically, the projection is for solid demand growth. The boost to household spending from lower energy and food prices is sustained by a pickup in wage growth. Business investment growth remains robust, reflecting the low cost of finance and the broader recovery in demand. Supply growth is supported by a gradual pickup in productivity growth. There remain considerable uncertainties around the timing and extent of that pickup.

**Chart 2** CPI inflation projection based on market interest rate expectations and £375 billion purchased assets



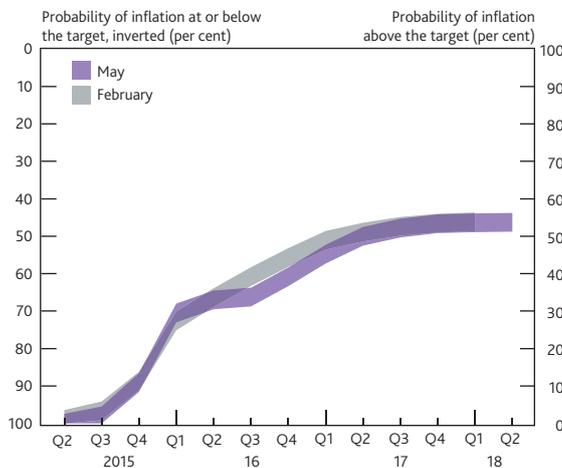
The fan chart depicts the probability of various outcomes for CPI inflation in the future. It has been conditioned on the assumption that the stock of purchased assets financed by the issuance of central bank reserves remains at £375 billion throughout the forecast period. If economic circumstances identical to today's were to prevail on 100 occasions, the MPC's best collective judgement is that inflation in any particular quarter would lie within the darkest central band on only 30 of those occasions. The fan chart is constructed so that outturns of inflation are also expected to lie within each pair of the lighter red areas on 30 occasions. In any particular quarter of the forecast period, inflation is therefore expected to lie somewhere within the fan on 90 out of 100 occasions. And on the remaining 10 out of 100 occasions inflation can fall anywhere outside the red area of the fan chart. Over the forecast period, this has been depicted by the light grey background. See the box on pages 48–49 of the May 2002 *Inflation Report* for a fuller description of the fan chart and what it represents.

**Chart 2** shows the Committee's best collective judgement for the outlook for CPI inflation on the same basis as **Chart 1**. In the very near term, inflation is projected to remain close to zero, as the past falls in food, energy and other goods prices continue to drag on the annual rate. Towards the end of 2015, inflation rises notably, as those effects begin to drop out. As the drag from domestic slack continues to fade, inflation is projected to return to target within two years and to move slightly above the target in the third year of the forecast period.

The path for inflation depends crucially on the outlook for domestic cost pressures. A tightening of the labour market and an increase in productivity should underpin wage growth in the period ahead. There is a risk that the temporary period of low inflation may persist for longer — for example, if it affects wage settlements. Alternatively, wages could pick up faster as labour market competition intensifies, which could pose an upside risk to inflation. Inflation will also remain sensitive to further movements in energy and other commodity prices, and the exchange rate.

The MPC considers that on balance these factors point to downside risks to the inflation outlook in the first half of the projection, relative to the central path. Inflation is judged as likely to be above as below the 2% target by early 2017, with the likelihood of inflation being above the target then rising a little further (**Chart 3**).

**Chart 3** Inflation probabilities relative to the target



The May and February swathes in this chart are derived from the same distributions as **Charts 5.1** and **5.2** respectively. They indicate the assessed probability of inflation relative to the target in each quarter of the forecast period. The 5 percentage points width of the swathes reflects the fact that there is uncertainty about the precise probability in any given quarter, but they should not be interpreted as confidence intervals.

### The policy decision

The UK expansion has continued, but inflation has fallen to 0.0%, well below the MPC's 2% target. The MPC judges that around three quarters of the undershoot in inflation reflects unusually low contributions from energy, food and other goods prices,

which will continue to bear down on annual inflation for much of this year. The remainder is accounted for by weak domestic cost growth: although it has been diminishing, slack remains.

The MPC's inflation target is symmetric: deviations of inflation below the target are to be treated with the same importance as deviations above it. As was the case three months ago, inflation is currently below the target with unemployment somewhat above its long-run sustainable rate. Eliminating that remaining economic slack, and so returning output to its sustainable level, should also reduce the drag on domestic costs and prices, helping to return inflation to the target. It therefore remains appropriate to set policy so as to return inflation to the target relatively quickly, once the effects of energy and food price movements have abated. The MPC continues to judge it appropriate to set policy so that it is likely that inflation will return to the 2% target within two years.

In the February 2014 *Inflation Report*, the MPC said that, given the likely persistence of headwinds weighing on the economy, when Bank Rate did begin to rise, it was expected to do so more gradually than in previous cycles. Moreover, the persistence of those headwinds, together with the legacy of the financial crisis, meant that Bank Rate was expected to remain below average historical levels for some time to come.

At its meeting on 8 May, the MPC noted that while those headwinds had begun to ease, a path that implied only gradual rises in Bank Rate over the next few years, broadly in line with the current market path, remained consistent with absorbing slack and returning inflation to the target within two years.

The MPC also noted, however, that, as set out in the February 2014 *Report*, the interest rate required to keep the economy operating at normal levels of capacity and inflation at the target was likely to continue to rise as the effects of the financial crisis faded further. Despite this, beyond the three-year forecast horizon the yield curve had flattened further over the past year. There was uncertainty about the reasons for this. Given that uncertainty, there was a risk that longer-term yields would move back up over time, for example, in response to a tightening of US monetary policy.

In the light of the economic outlook, the Committee voted to maintain Bank Rate at 0.5% and the stock of purchased assets at £375 billion.

# 1 Money and asset prices

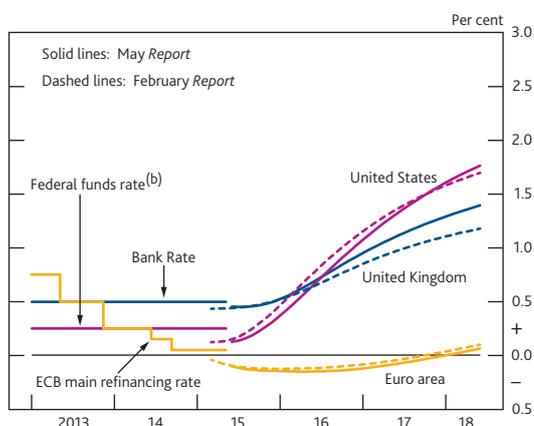
In the United Kingdom, official interest rates remained at historically low levels, and the market path continued to suggest very gradual rises over the next three years. The European Central Bank's asset purchase programme has been associated with lower long-term interest rates and contributed to an increase in euro-area equity prices. The sterling effective exchange rate rose by around 2%. Household borrowing rates remained low and unsecured lending to individuals continued to grow. Companies continued to raise net external finance.

**Table 1.A** Monitoring the MPC's key judgements

| Developments anticipated in February   | Developments since February  |
|--|--|
| <b>Cost of credit</b>  | <b>Broadly as expected</b>   |
| <ul style="list-style-type: none"> <li>Credit spreads to decline slightly over 2015.</li> </ul>  | <ul style="list-style-type: none"> <li>Credit spreads broadly flat in Q1, and expected to decline slightly over 2015.</li> </ul>                     |
| <b>Mortgage approvals</b>  | <b>Broadly as expected</b>   |
| <ul style="list-style-type: none"> <li>A rise in mortgage approvals for house purchase to around 65,000 a month in 2015 Q3.</li> </ul>           | <ul style="list-style-type: none"> <li>Mortgage approvals for house purchase averaged 61,000 a month in 2015 Q1.</li> </ul>                          |
| <b>House price inflation</b>   | <b>Slightly higher than expected</b>   |
| <ul style="list-style-type: none"> <li>Rises in the main indices of national house prices to average around ¼% a month until 2015 Q3.</li> </ul> | <ul style="list-style-type: none"> <li>Average of Halifax and Nationwide indices rose by around ½% per month in Q1, and by 1.3% in April.</li> </ul> |
| <b>Sterling ERI</b>  | <b>Slightly higher than expected</b>   |
| <ul style="list-style-type: none"> <li>Sterling ERI to evolve in line with the conditioning assumption.</li> </ul>                               | <ul style="list-style-type: none"> <li>Sterling appreciated by around 2%.</li> </ul>   |

**Chart 1.1** Market prices imply low official interest rates over the next few years

International forward interest rates<sup>(a)</sup>



Sources: Bank of England, Bloomberg, European Central Bank (ECB) and Federal Reserve.

(a) The February 2015 and May 2015 curves are estimated using instantaneous forward overnight index swap rates in the fifteen working days to 4 February and 7 May respectively.

(b) Upper bound of the target range of 0% to 0.25%.

## 1.1 Monetary policy and financial markets

### Monetary policy and short-term interest rates

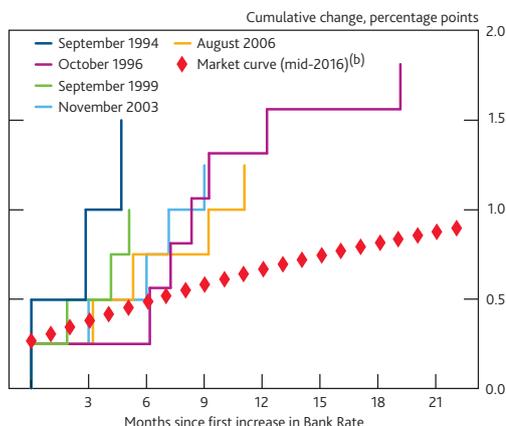
In the United Kingdom, the Monetary Policy Committee (MPC) maintained Bank Rate at 0.5% and the stock of purchased assets at £375 billion. Market interest rates imply that Bank Rate is expected to rise from early 2016, but to only 1.4% in three years' time. The path is slightly higher than implied by market prices in the run-up to the February Report (Chart 1.1). Even so, the implied rise in Bank Rate is particularly gradual compared with previous tightening cycles (Chart 1.2).

In the United States, the Federal Open Market Committee (FOMC) reaffirmed its view that the target range for the federal funds rate of 0% to 0.25% remained appropriate. Market prices imply that the federal funds rate is expected to increase from late 2015 to around 1¾% in three years' time, little different to expectations three months ago.

As announced in January, the European Central Bank (ECB) expanded its asset purchase programme: from 9 March onwards, the ECB intends to purchase €60 billion of assets per month. The purchases are intended to continue until the end of September 2016 and will in any case be conducted until a sustained adjustment is seen in the path of inflation, consistent with the ECB's aim of inflation below, but close to, 2% over the medium term. The ECB's Governing Council left its benchmark interest rates unchanged. Market interest rates imply that the ECB main refinancing rate is expected to be close to zero in three years' time.

Official policy rates are at historically low levels in most other advanced economies. The Reserve Bank of Australia lowered its cash rate to 2%. In addition, the Bank of Japan has continued with its asset purchase programme, most recently amended in October 2014. The programme involves annual purchases of ¥80 trillion of government bonds, ¥3 trillion of

**Chart 1.2 Market prices imply a very gradual increase in Bank Rate relative to previous tightening cycles**  
UK Bank Rate tightening cycles<sup>(a)</sup>



Sources: Bank of England, Bloomberg and Bank calculations.

- (a) Tightening cycles since the start of inflation targeting in 1992. Tightening cycles are shown up to when interest rates reach their highest level before they were next reduced.  
(b) The curve is estimated using instantaneous forward overnight index swap rates in the fifteen working days to 7 May 2015. The tightening cycle is defined as starting when instantaneous overnight index swap rates rise above 0.75%, in August 2016. The final observation is June 2018 at the end of the forecast period.

**Table 1.B Government bond yields have fallen in most euro-area countries over the past six months**

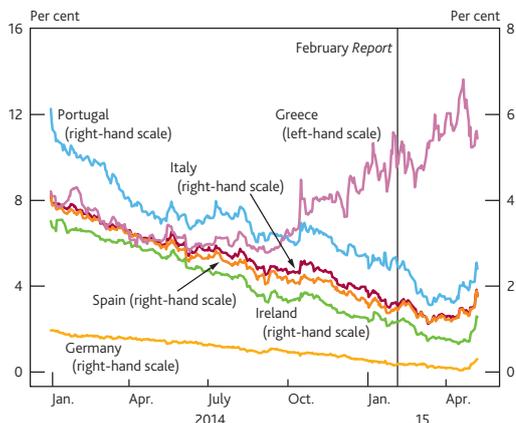
Ten-year euro-area government bond yields<sup>(a)</sup>

| Per cent | Averages |      |                     | Nov. 2014 Report <sup>(c)</sup> | May 2015 Report <sup>(d)</sup> |
|----------|----------|------|---------------------|---------------------------------|--------------------------------|
|          | 2007     | 2010 | 2012 <sup>(b)</sup> |                                 |                                |
| France   | 4.3      | 3.1  | 2.5                 | 1.3                             | 0.5                            |
| Germany  | 4.2      | 2.8  | 1.6                 | 0.9                             | 0.3                            |
| Greece   | 4.5      | 9.1  | 24                  | 7.9                             | 11.9                           |
| Ireland  | 4.0      | 5.8  | n.a.                | 1.8                             | 0.9                            |
| Italy    | 4.5      | 4.0  | 5.5                 | 2.5                             | 1.5                            |
| Portugal | 4.4      | 5.3  | 10.6                | 3.3                             | 2.1                            |
| Spain    | 4.3      | 4.3  | 5.9                 | 2.2                             | 1.5                            |

Sources: Bloomberg and Bank calculations.

- (a) Yield to maturity on ten-year benchmark government bonds.  
(b) Bloomberg data on Irish ten-year yields are not available between early October 2011 and mid-March 2013.  
(c) Average of the fifteen working days to 5 November 2014.  
(d) Average of the fifteen working days to 7 May 2015.

**Chart 1.3 Falls in many euro-area bond yields have unwound slightly in the run-up to the May Report**  
Ten-year euro-area government bond yields<sup>(a)</sup>



Source: Bloomberg.

- (a) Yield to maturity on ten-year benchmark government bonds.

exchange-traded funds and ¥90 billion of real estate investment trusts.

### Impact of asset purchases in the euro area

The ECB's asset purchase programme is designed to raise inflation towards the ECB's aim of inflation being below, but close to, 2%. By lowering yields on assets and increasing their prices, asset purchases boost the wealth of consumers and make it cheaper for companies to raise finance in capital markets. This should help to support consumption and investment growth (Section 2). The boost to demand growth will contribute to higher inflation through a faster absorption of spare capacity in the economy. Asset purchases may also strengthen confidence and support inflation expectations.

The ECB's asset purchases have contributed to lower government bond yields in most euro-area countries (Table 1.B). Although yields rose in the immediate run-up to the May Report, they remain well below their levels of six months ago, close to historical lows (Chart 1.3). In the run-up to the May Report, the ten-year spot rate — the nominal cost of government borrowing for the next ten years — was a little over ½ percentage point lower in Germany, France and Spain and around 1 percentage point lower in Ireland, Italy and Portugal than at the time of the November 2014 Report, around the time expectations of ECB asset purchases began to build.

The fall in yields over the past six months has been more pronounced for longer-term bonds than those at shorter maturities. In Germany, for example, the yield on a 30-year bond has fallen by 1 percentage point, to around ¾%. Whereas the yield on a three-year bond has fallen only slightly, to a little below 0%. Operational details announced in early March — in particular, the ineligibility for purchase by the ECB of bonds with yields of less than -0.2% — may have contributed to larger falls in yields on bonds with higher yields, such as those at longer maturities.<sup>(1)</sup>

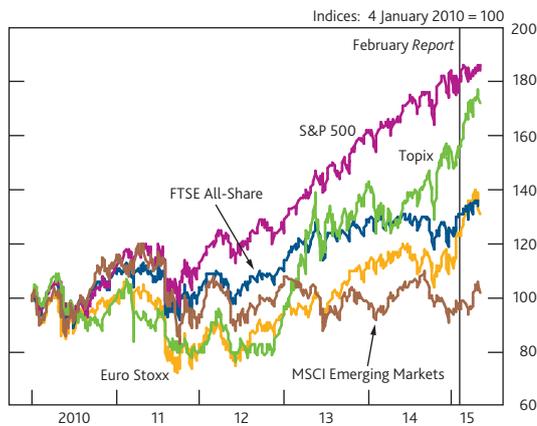
In contrast to yields in other euro-area countries, Greek government bond yields are substantially higher than six months ago, reflecting increased concerns about how discussions between the Greek government and its creditors will be resolved. Despite falls in the second half of April (Chart 1.3), in the run-up to the May Report, the yield on a ten-year Greek bond was around 4 percentage points higher than six months ago (Chart 1.3).

Even following very recent rises, in most euro-area countries yields remain historically low. One way in which these low government bond yields will support euro-area growth is through a reduction in banks' funding costs. Over the past

(1) For more information on the details of the ECB's asset purchase programme see [www.ecb.europa.eu/mopo/implementation/omo/pspp/html/pspp.en.html](http://www.ecb.europa.eu/mopo/implementation/omo/pspp/html/pspp.en.html).

**Chart 1.4 Equity prices higher, especially in the euro area and Japan**

International equity prices<sup>(a)</sup>

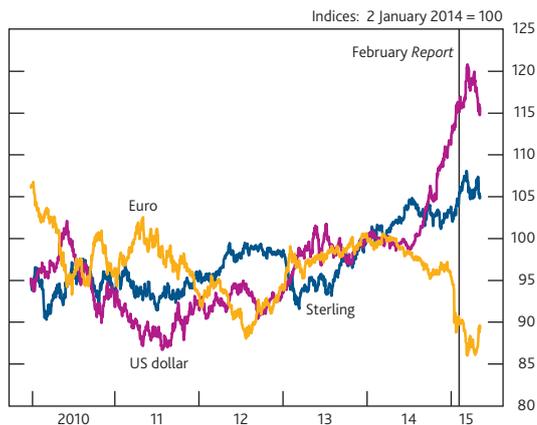


Source: Thomson Reuters Datastream.

(a) In local currency terms, except MSCI Emerging Markets, which is in US dollar terms.

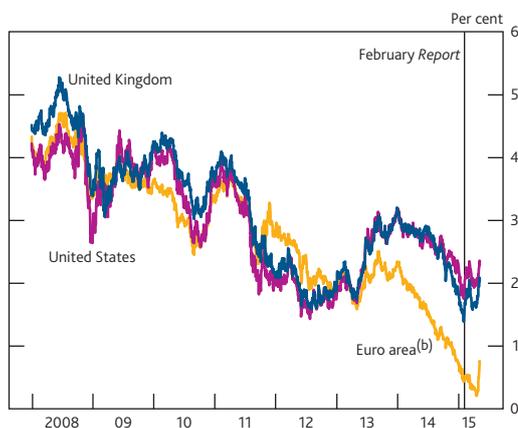
**Chart 1.5 Moves in sterling since mid-2014 have been small relative to those in the euro and US dollar**

Effective exchange rates



**Chart 1.6 Long-term interest rates remain unusually low**

International ten-year government bond yields<sup>(a)</sup>



Sources: Bloomberg and Bank calculations.

(a) Zero-coupon yields on ten-year benchmark government bonds.  
(b) An estimate based on French and German government bonds.

six months, bank funding reference rates, such as swap rates, have fallen with government bond yields, lowering euro-area banks' overall funding costs. Over time that should lead to a further improvement in credit conditions for euro-area businesses and households (Section 2).

Another way in which asset purchases should support euro-area growth is through investors reallocating their portfolios away from government bonds towards other riskier euro-denominated assets. This increases the wealth of asset holders and makes capital markets a cheaper source of finance for businesses. Euro-area equity prices have risen by 24% since the November *Report* (Chart 1.4). And as corporate bond spreads are little changed, the fall in government bond yields has reduced the cost of corporate bond finance.

As expectations of ECB asset purchases began to develop, the euro effective exchange rate index (ERI) fell sharply (Chart 1.5). Although a little of that unwound in the run-up to the May *Report*, the euro ERI is 9% lower than in the run-up to the November *Report*.

### Other global asset price movements

The prices of assets outside the euro area will also have been influenced by ECB asset purchases. A reallocation of investors' portfolios into assets denominated in other currencies will have tended to reduce the yields on these assets, and raise their prices. And a stronger outlook for euro-area demand will increase demand for goods and services produced in other countries, further supporting asset prices (Section 2).

Long-term government bond yields in the United Kingdom and United States fell sharply in late 2014 and early 2015, but have risen a little more recently (Chart 1.6). Overall, UK and US ten-year spot rates remain exceptionally low, at around 1¾% and 2% respectively.

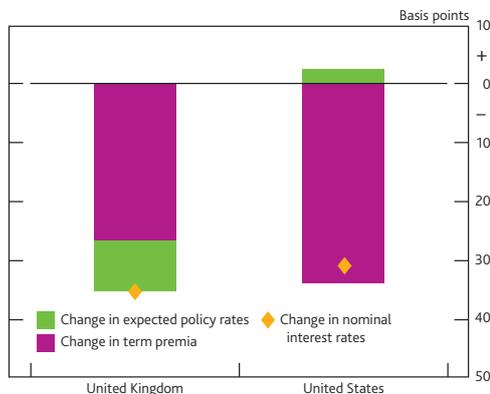
The fall in UK and US long-term government bond yields over the past six months is likely to reflect, in part, the effects of ECB asset purchases, rather than lower expectations of long-term growth and policy rates in those countries.

Demand for euro-area government bonds from the ECB is likely to have increased investor demand for substitutes such as UK and US government bonds, putting downward pressure on their yields. Indeed, monthly estimates suggest that term premia — the compensation that investors require for the risks associated with holding government bonds and which will reflect shifts in investors' preferences — account for almost all of the decline in ten-year UK and US government bond yields between the end of October 2014 and end of April 2015, with estimates of expected policy rates much less changed (Chart 1.7).

In the run-up to the May *Report*, the sterling effective exchange rate was around 3% higher than six months ago, and

### Chart 1.7 Term premia on UK and US government bonds have fallen over the past six months

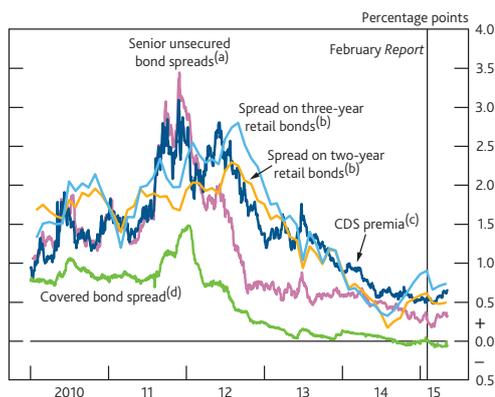
Estimates of contributions to the change in ten-year government bond yields between end-October 2014 and end-April 2015<sup>(a)(b)</sup>



Sources: Bloomberg, Federal Reserve Bank of New York and Bank calculations.

- (a) Total change in monthly model-fitted values of nominal yields. UK estimates are derived using the model described in Malik, S and Meldrum, A (2014), 'Evaluating the robustness of UK term structure decompositions using linear regression methods', *Bank of England Working Paper No. 518*; [www.bankofengland.co.uk/research/Documents/workingpapers/2014/wp518.pdf](http://www.bankofengland.co.uk/research/Documents/workingpapers/2014/wp518.pdf). US estimates are available from [www.newyorkfed.org/research/data\\_indicators/term\\_premia.html](http://www.newyorkfed.org/research/data_indicators/term_premia.html).  
 (b) Change between 31 October 2014 and 30 April 2015.

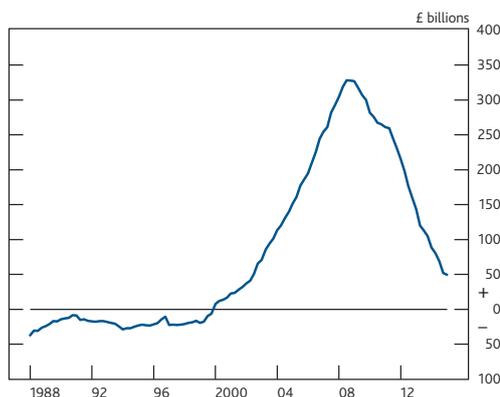
### Chart 1.8 Spreads on bank funding remain low UK banks' indicative longer-term funding spreads



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

- (a) Constant-maturity unweighted average of secondary market spreads to swaps for the major UK lenders' five-year euro senior unsecured bonds or a suitable proxy.  
 (b) Spreads for sterling fixed-rate retail bonds over equivalent-maturity swaps.  
 (c) Unweighted average of the five-year senior CDS premia for the major UK lenders.  
 (d) Constant-maturity unweighted average of secondary market spreads to swaps for the major UK lenders' five-year euro-denominated covered bonds or a suitable proxy.

### Chart 1.9 Banks' funding has become more deposit-based Customer funding gap<sup>(a)</sup>



- (a) Calculated as the difference between bank lending to households and private non-financial corporations and deposits received from them.

around 2% higher than in the run-up to the February Report (Chart 1.5). Over the past six months, an appreciation against the euro has been partially offset by a depreciation against the US dollar, although both have unwound somewhat in recent weeks. These movements are, in part, likely to reflect changes in growth and policy expectations, and accompanying relative changes in market interest rates, as investors seek to equalise expected risk-adjusted returns on assets in different currencies.

Equity prices have risen in the United Kingdom and United States over the past six months. The FTSE All-Share is around 10% higher than in the run-up to the November Report, and the S&P 500 is 7% higher (Chart 1.4). In Japan, the Topix is 27% higher than six months ago, in part probably reflecting asset purchases by the Bank of Japan.

## 1.2 Credit conditions and money

### Bank funding and money

UK banks continue to be able to access wholesale funding at relatively low cost. The reference rates for bank funding costs, such as swap rates, are around historically low levels. And the spreads banks pay over reference rates are considerably below their levels in mid-2012 (Chart 1.8), when the Bank of England and HM Treasury introduced the Funding for Lending Scheme (FLS). These low funding costs have limited banks' needs to draw from the FLS.

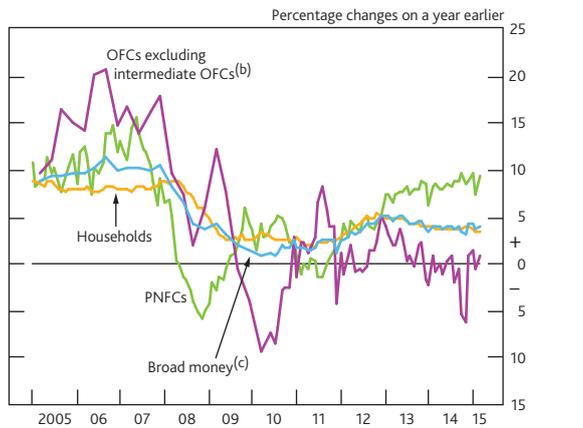
A number of factors have contributed to lower wholesale funding costs over recent years. Increased confidence about the resilience of the UK banking sector has probably reduced wholesale funding costs. And, since the *Bank Liabilities Survey* began in 2012 Q4, it has pointed to fairly strong demand for bank debt by investors. One indicator of banks' resilience is the customer funding gap. This is a measure of how much of banks' lending to households and businesses is funded through wholesale markets, as opposed to typically more stable deposits. The customer funding gap has been narrowing since the recession, having widened in the years running up to the crisis (Chart 1.9).

Banks have continued to access retail funding at low cost (Chart 1.8). Private non-financial corporate (PNFC) money growth has been strong since late 2012 (Chart 1.10). And household money growth has also been stable. Overall, four-quarter broad money growth was 4.1% in Q1.

### Secured credit and the housing market

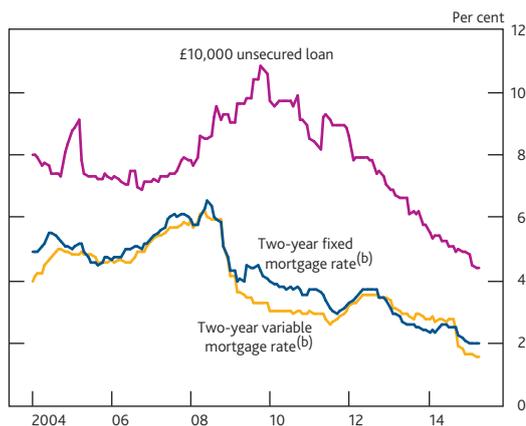
Falls in banks' funding costs and competition among lenders have led to large falls in household mortgage rates (Chart 1.11), which are now at historically low levels. The average quoted rate on a two-year fixed-rate 75% loan to value ratio mortgage was 2.0% in April, while for an equivalent variable-rate mortgage it was 1.6%.

**Chart 1.10 Broad money growth has been stable**  
Sectoral broad money<sup>(a)</sup>



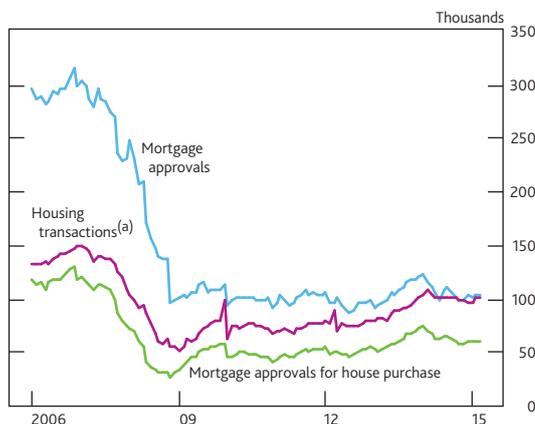
- (a) Monthly data unless otherwise specified.  
 (b) Quarterly data prior to June 2010 and monthly thereafter. Intermediate other financial corporations (OFCs) are: mortgage and housing credit corporations; non-bank credit grantors; bank holding companies; securitisation special purpose vehicles; other activities auxiliary to financial intermediation; and 'other financial intermediaries' belonging to the same financial group.  
 (c) Quarterly data prior to June 2010 and monthly thereafter. M4 excluding intermediate OFCs.

**Chart 1.11 Household interest rates are at low levels**  
Average quoted household interest rates<sup>(a)</sup>



- (a) Sterling-only end-month average quoted rates. The Bank's quoted rates series are weighted averages of rates from a sample of banks and building societies with products meeting the specific criteria (see [www.bankofengland.co.uk/statistics/Pages/iadb/notesiadb/household\\_int.aspx](http://www.bankofengland.co.uk/statistics/Pages/iadb/notesiadb/household_int.aspx)). Data are non seasonally adjusted.  
 (b) On mortgages with a loan to value ratio of 75%.

**Chart 1.12 Housing market activity has been broadly stable over the past few months**  
Mortgage approvals and housing transactions



Sources: Bank of England and HM Revenue and Customs.

- (a) Number of residential property transactions for values of £40,000 or above.

Despite the large fall in mortgage rates, mortgage approvals for house purchase remain muted. In 2015 Q1 approvals averaged 61,000 per month (**Chart 1.12**), broadly in line with expectations (**Table 1.A**). Approvals are expected to remain subdued over coming months as the factors that have weighed on recent mortgage market activity persist.

Some of the weakness in mortgage market activity since mid-2014 is likely to reflect a slowdown in demand for secured credit.<sup>(1)</sup> According to the 2015 Q1 *Credit Conditions Survey (CCS)*, lenders reported that demand for secured credit has fallen markedly over the past three quarters (**Chart 1.13**). Some lenders attributed part of the reduction in demand to increasing concerns among households about the affordability of housing. The ratio of house prices to earnings has been rising since late 2012. Some lenders also noted that uncertainty about the outlook for the housing market had reduced demand.

Credit supply factors are also likely to have weighed on mortgage market activity, although to a lesser extent recently than demand factors. According to the *CCS*, growth in the availability of secured credit has weakened somewhat since mid-2014 (**Chart 1.13**). One persistent effect on the number of mortgages being approved is likely to have been the introduction of more stringent affordability criteria in April 2014 following the Mortgage Market Review (MMR). This may also have dissuaded some people from applying for a mortgage. Respondents to a survey of mortgage lenders conducted in late 2014 by the Intermediary Mortgage Lenders Association reported that the impact of the MMR on borrowing has been a little larger than had been thought six months previously. One aspect of mortgage availability is the affordability criteria banks apply. Recent changes in those criteria appear to have been mixed: respondents to the *CCS* said that the maximum loan to income ratio they were willing to lend at had fallen in Q1, but the maximum loan to value ratio had risen.

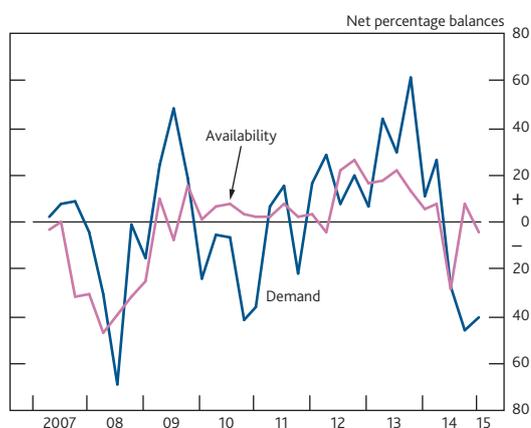
Broader housing market activity also remains well below its pre-crisis levels, although it has remained more robust than mortgage market activity. Having risen alongside approvals between 2012 and early 2014, the total number of housing transactions has fallen by less than mortgage approvals for house purchase (**Chart 1.12**). That divergence may reflect an increase in the number of cash buyers in the housing market.

House prices have continued to rise in recent months. In April, the average of the Halifax and Nationwide house price indices rose by 1.3%. That followed an average monthly rise of ½% in Q1. These increases in the face of low levels of housing

(1) For a detailed discussion of the weakness in mortgage demand see pages 13–14 of the November 2014 *Report*; [www.bankofengland.co.uk/publications/Documents/inflationreport/2014/ir14nov.pdf](http://www.bankofengland.co.uk/publications/Documents/inflationreport/2014/ir14nov.pdf).

### Chart 1.13 Banks report a fall in demand for mortgages since mid-2014

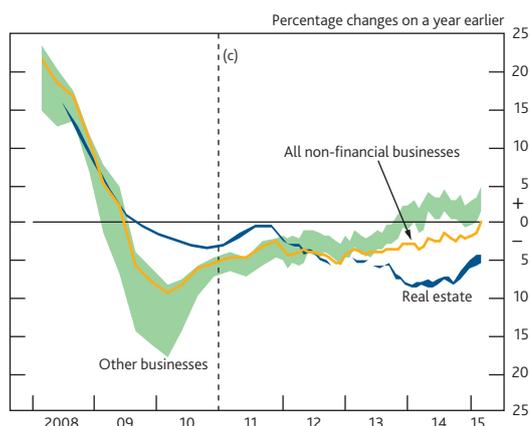
*Credit Conditions Survey*: household secured credit demand and availability<sup>(a)</sup>



(a) Weighted response of lenders. A positive (negative) balance indicates that more (less) household secured credit was available or demanded to finance a house purchase over the previous three months.

### Chart 1.14 PNFC loan growth picked up in Q1

Growth in the stock of lending to the UK real estate sector and other businesses<sup>(a)(b)</sup>



(a) Lending by UK monetary financial institutions. Rates of growth in the stock of lending. Non seasonally adjusted. For details on the series included in the swathes see tab 'Chart 1.1 appendix' at [www.bankofengland.co.uk/publications/Documents/other/monetary/lendingtoukbusinessesandindividualsoctober2014.xls](http://www.bankofengland.co.uk/publications/Documents/other/monetary/lendingtoukbusinessesandindividualsoctober2014.xls).

(b) Data are quarterly until 2012 and monthly thereafter.

(c) From 2011, data are on the SIC 2007 basis. Changes in SIC codes have led to some components moving between industries, which may affect growth rates in 2011.

### Table 1.C Companies continued to raise net external finance

Net external finance raised by PNFCs<sup>(a)</sup>

| £ billions                            | Quarterly averages |         |      |         |         |         |
|---------------------------------------|--------------------|---------|------|---------|---------|---------|
|                                       | 2003–08            | 2009–12 | 2013 | 2014 H1 | 2014 H2 | 2015 Q1 |
| Loans                                 | 11.5               | -6.2    | -2.2 | -2.7    | 0.9     | 4.3     |
| Bonds <sup>(b)(c)</sup>               | 3.4                | 3.2     | 3.0  | -0.1    | 6.8     | 0.4     |
| Equities <sup>(b)</sup>               | -2.1               | 1.3     | -1.2 | 2.2     | 0.9     | 1.8     |
| Commercial paper <sup>(b)</sup>       | 0.0                | -0.4    | 0.0  | -1.8    | 0.6     | 2.4     |
| Total <sup>(d)</sup>                  | 12.7               | -2.0    | -0.5 | -3.3    | 9.8     | 8.3     |
| Memo: PNFC loan growth <sup>(e)</sup> | 2.8                | -0.7    | -0.1 | -0.9    | -0.5    | 0.6     |

(a) Includes sterling and foreign currency funds.

(b) Non seasonally adjusted.

(c) Includes stand-alone and programme bonds.

(d) As component series are not all seasonally adjusted, the total may not equal the sum of its components.

(e) Sterling net lending excluding the effects of securitisations. Percentage change on a quarter earlier.

market activity may reflect, in part, some softening in the secondary market supply of housing. The Royal Institution of Chartered Surveyors' March survey indicates that, since the autumn, more respondents have reported a fall in the number of houses being put up for sale than a rise. Overall, Bank staff project house prices to rise by around ½% per month in H2.

### Unsecured credit

Quoted personal loan rates have continued to drift down on average over the past three months, following previous declines in banks' funding costs, supporting unsecured credit growth. The average quoted interest rate on a £10,000 personal loan, for example, fell to 4.4% in April (Chart 1.11). Unsecured lending grew by 6.9% in the year to March. As discussed in the February Report, most of this growth can be accounted for by a pickup in non credit card net lending growth. While credit card lending has been increasing at a somewhat slower rate. Overall, while net unsecured lending has increased, the outstanding stock of consumer credit remains around 20% lower than its 2008 peak, largely reflecting write-offs of previously advanced loans.

### Corporate credit

Corporate credit conditions have been improving over the past couple of years. Reports from the Bank's Agents suggest that credit availability has improved for companies of all sizes, although larger companies find it easier to obtain credit. This picture is broadly consistent with the CCS. Overall, the stock of loans to non-financial businesses rose very slightly in the year to 2015 Q1 (Chart 1.14). Within that, annual growth in the stock of loans outside the real estate sector rose a little more strongly. And while the stock of loans to the real estate sector has continued to decline as banks have reduced their exposures to that sector, the pace of that decline has slowed in recent months. In 2015 Q1, PNFCs borrowed £4.3 billion from banks in net terms.

PNFCs have continued to raise a high volume of external finance from capital markets, as they did during 2014 (Table 1.C). Overall, net external finance raised was £8.3 billion in 2015 Q1. That was slightly less than the average raised in 2014 H2, but significantly more than raised on average during the crisis.

## Monetary policy since the February Report

The MPC's central projection in the February *Report*, under the assumptions that Bank Rate followed a path implied by market interest rates and that the stock of purchased assets remained at £375 billion, was that four-quarter GDP growth would settle a little below current rates for much of the forecast period before easing back to around its historical average rate. Inflation was expected to fall further in the near term before returning to the 2% target by the two-year point.

At the MPC's meeting on 4–5 March, the MPC noted that sentiment in financial markets had improved relative to the turn of the year and developments overseas had been mildly positive. Domestic activity had continued to expand at a solid pace, although business investment and consumer spending growth in Q4 had been weaker than expected at the time of the February *Report*. Indicators in the euro area suggested a pace of growth fractionally above that envisaged in the February *Report*, and a deal had been reached to avoid a breakdown in negotiations over the Greek support package.

The price of Brent crude oil had increased and the sterling exchange rate had appreciated over the month. Taken together, these developments were expected to leave the path for CPI inflation broadly unchanged in the near term, but a little lower further ahead. Set against that, labour costs looked to be growing slightly ahead of forecast, given the recent evolution of the pay and productivity data, although a further sustained increase in labour cost growth would probably be necessary for inflation to rise to the 2% target in the medium term.

In light of the relatively limited amount of news for the inflation outlook over the month, all Committee members agreed that it was appropriate to leave the stance of monetary policy unchanged, although two members regarded this month's decision as finely balanced. There was a range of views over the most likely path of Bank Rate in the future, but all members agreed that it was more likely than not that Bank Rate would increase over the next three years.

By the time of the MPC meeting on 8–9 April, there had been continued signs of momentum in euro-area activity, offset by surprising weakness in US data and a further softening in indicators of emerging market activity. Risks from any disorderly outcome from a failure to reach agreement on a new Greek programme remained. Long-term interest rates had declined globally, in part reflecting asset purchases by the ECB and Bank of Japan. The path of Bank Rate expected by financial markets was now exceptionally flat. There had been little material news about the pace or composition of domestic activity. Indicators of household spending had firmed slightly and business investment had been revised upwards.

CPI inflation had fallen to 0.0% in February and stayed there in March. This would necessitate a further letter from the Governor to the Chancellor of the Exchequer which would be published alongside the May *Report*. The Committee judged that inflation was likely to turn slightly negative briefly at some point in the coming months and to remain low for the rest of the year.

A further pickup in wage inflation would be necessary for labour cost growth to be consistent with meeting the CPI inflation target in the medium term. There remained a risk that weak price pressures would persist for longer than anticipated. Set against that, it was possible that the appreciation of sterling was feeding through more quickly into CPI inflation than expected, which could mean less downward pressure on prices to come.

Against this backdrop, all Committee members agreed that it was appropriate to leave the stance of monetary policy unchanged, although two members regarded the decision as finely balanced. All members again agreed that it was more likely than not that Bank Rate would rise over the three-year forecast period.

At its meeting on 7–8 May, the MPC voted to maintain Bank Rate at 0.5%, and the stock of purchased assets at £375 billion.

## 2 Demand

Despite some slowing in the second half of the year, demand growth was robust in 2014. That was supported by robust household consumption growth, funded by a recovery in real income, which is expected to continue in 2015. Business investment growth weakened in 2014 H2, but is expected to recover in 2015. Despite subdued world demand growth, net trade made a positive contribution to GDP growth in 2014. The outlook for the euro area has improved and world demand growth is projected to rise a little in 2015.

**Table 2.A** Monitoring the MPC's key judgements

| Developments anticipated in February  | Developments since February   |
|---|---|
| <b>Consumer spending</b>  | <b>Weaker than expected</b>   |
| <ul style="list-style-type: none"> <li>Quarterly consumer spending growth of around 1%.</li> </ul>  | <ul style="list-style-type: none"> <li>Rose by 0.4% in 2014 Q4, but expected to have bounced back in 2015 Q1.</li> </ul>  |
| <b>Investment</b>   | <b>Weaker than expected</b>   |
| <ul style="list-style-type: none"> <li>Average quarterly business investment growth of around 1½%.</li> <li>Broadly flat private housing investment.</li> </ul>   | <ul style="list-style-type: none"> <li>Fell by 0.9% in 2014 Q4, although initial estimates are uncertain. Expected to have risen by ¾% in 2015 Q1.</li> <li>Fell by 1.1% in Q4, expected to be broadly flat in 2015 H1.</li> </ul>  |
| <b>Other advanced economies</b>   | <b>Euro area slightly stronger than expected; US weaker</b>   |
| <ul style="list-style-type: none"> <li>Average quarterly euro-area GDP growth of between ¼% and ½%; euro-area inflation to stabilise in 2015 H1.</li> <li>Average quarterly US GDP growth a little above ½%; monthly rises in non-farm payrolls of around 250,000.</li> </ul> | <ul style="list-style-type: none"> <li>Growth in Q4 slightly stronger than expected. Headline inflation expected to pick up in mid-2015.</li> <li>GDP growth was 0.1% in Q1, and non-farm payrolls weaker than expected.</li> </ul> |
| <b>Rest of the world</b>  | <b>China slightly weaker than expected</b>  |
| <ul style="list-style-type: none"> <li>Average four-quarter PPP-weighted emerging-economy growth of around 4½%. Chinese GDP growth to average around 7%.</li> </ul>   | <ul style="list-style-type: none"> <li>Emerging-economy GDP growth was 4.8% in Q4. Chinese GDP growth was 7.0% in 2015 Q1; but near-term indicators suggest further moderation.</li> </ul>  |
| <b>Exports</b>  | <b>Stronger than expected</b>   |
| <ul style="list-style-type: none"> <li>Average quarterly growth in UK exports of around ¾%.</li> </ul>  | <ul style="list-style-type: none"> <li>Exports rose by 4.6% in Q4; goods export growth weakened in Q1.</li> </ul>   |

GDP is estimated to have risen by 0.6% in 2014 Q4, slightly higher than estimated at the time of the *February Report*. Within that, domestic demand was weaker than expected, while net trade was stronger. According to the ONS's preliminary estimate, growth slowed to 0.3% in 2015 Q1 (Section 3).

Demand growth was robust in 2014 as a whole, a little above its historical average rate. That was mainly accounted for by rises in consumption and private sector investment, and a positive net trade contribution (**Chart 2.1**). Domestic demand slowed at the end of 2014, but is expected to expand steadily in 2015, supported by continued rises in real income, sustained business and consumer sentiment, and past improvements in credit conditions (Section 2.1).

UK-weighted world demand growth was subdued in 2014 (Section 2.2). There is evidence of a pickup in momentum in the euro area in early 2015. That recovery is expected to be supported by the ECB's expanded asset purchase programme, which began in March (Section 1). In contrast, US growth moderated in Q1, and the outlook for emerging economies weakened slightly. Overall, UK-weighted world demand growth is expected to continue to recover gradually, although to slightly below historical average rates.

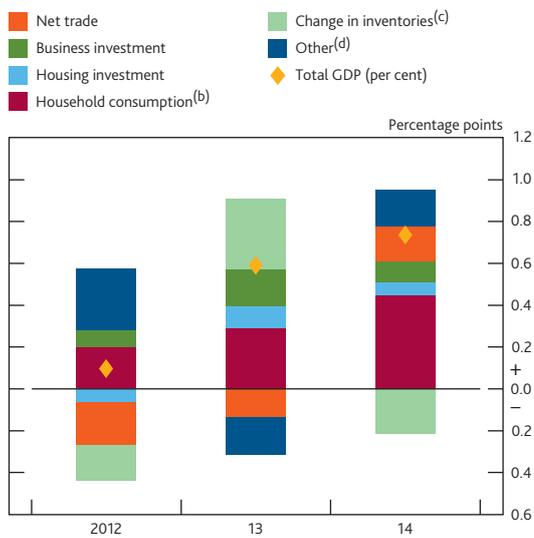
### 2.1 Domestic demand

#### Household spending

Household spending growth slowed to 0.4% in 2014 Q4 (**Table 2.B**), weaker than expected in the *February Report*. In part, that reflected a sharp fall in spending by non-profit institutions serving households (NPISH), which is a relatively volatile component. This includes consumption by charities and universities and accounts for only 5% of household consumption. Excluding NPISH, household spending growth was still weaker than expected, at 0.6% in Q4.

**Chart 2.1 GDP growth in 2014 was supported by household spending, net trade and investment**

Contributions to average quarterly GDP growth<sup>(a)</sup>



- (a) Chained-volume measures. Contributions may not sum to total due to rounding.  
 (b) Includes non-profit institutions serving households.  
 (c) Excludes the alignment adjustment.  
 (d) Includes government expenditure, statistical adjustments and acquisitions less disposals of valuables.

**Table 2.B Household consumption growth slowed in Q4; investment fell on the quarter**

Expenditure components of demand<sup>(a)</sup>

Percentage changes on a quarter earlier

|  | Averages    |             |            |             |            | 2014        |             |
|--|-------------|-------------|------------|-------------|------------|-------------|-------------|
|  | 1998–2007   | 2008–09     | 2010–12    | 2013        | 2014 H1    | Q3          | Q4          |
| Household consumption <sup>(b)</sup>                 | 0.9         | -0.6        | 0.1        | 0.5         | 0.7        | 1.0         | 0.4         |
| Private sector investment                            | 0.6         | -3.8        | 1.3        | 2.0         | 2.3        | 0.6         | -1.0        |
| <i>of which, business investment<sup>(c)</sup></i>   | 0.5         | -1.9        | 1.5        | 1.7         | 2.2        | 0.3         | -0.9        |
| <i>of which, private sector housing investment</i>   | 0.9         | -8.1        | 1.4        | 2.8         | 2.8        | 1.4         | -1.1        |
| <b>Private sector final domestic demand</b>          | <b>0.9</b>  | <b>-1.2</b> | <b>0.4</b> | <b>0.7</b>  | <b>1.0</b> | <b>1.0</b>  | <b>0.2</b>  |
| Government consumption and investment <sup>(c)</sup> | 0.8         | 0.8         | -0.1       | 0.0         | 0.8        | 1.3         | 0.0         |
| <b>Final domestic demand</b>                         | <b>0.9</b>  | <b>-0.7</b> | <b>0.3</b> | <b>0.5</b>  | <b>0.9</b> | <b>1.0</b>  | <b>0.2</b>  |
| Change in inventories <sup>(d)(e)</sup>              | 0.0         | 0.1         | 0.0        | 0.3         | -0.3       | 0.4         | -0.7        |
| Alignment adjustment <sup>(e)</sup>                  | 0.0         | -0.1        | 0.1        | -0.1        | 0.1        | -0.4        | 0.2         |
| <b>Domestic demand</b>                               | <b>0.8</b>  | <b>-0.7</b> | <b>0.3</b> | <b>0.7</b>  | <b>0.7</b> | <b>1.1</b>  | <b>-0.3</b> |
| 'Economic' exports <sup>(f)</sup>                    | 1.2         | -1.0        | 0.9        | 0.1         | 0.6        | -0.1        | 4.6         |
| 'Economic' imports <sup>(f)</sup>                    | 1.4         | -1.2        | 0.8        | 0.5         | 0.1        | 1.4         | 1.6         |
| <b>Net trade<sup>(e)(f)</sup></b>                    | <b>-0.1</b> | <b>0.1</b>  | <b>0.0</b> | <b>-0.1</b> | <b>0.2</b> | <b>-0.5</b> | <b>0.8</b>  |
| <b>Real GDP at market prices</b>                     | <b>0.7</b>  | <b>-0.7</b> | <b>0.3</b> | <b>0.6</b>  | <b>0.9</b> | <b>0.6</b>  | <b>0.6</b>  |
| Memo: nominal GDP at market prices                   | 1.3         | 0.0         | 0.8        | 1.1         | 1.5        | 0.6         | 0.7         |

- (a) Chained-volume measures unless otherwise stated.  
 (b) Includes non-profit institutions serving households.  
 (c) Investment data take account of the transfer of nuclear reactors from the public corporation sector to central government in 2005 Q2.  
 (d) Excludes the alignment adjustment.  
 (e) Percentage point contributions to quarterly growth of real GDP.  
 (f) Excluding the impact of missing trader intra-community (MTIC) fraud. Official MTIC-adjusted data are not available for exports, so the headline exports data have been adjusted by Bank staff for MTIC fraud by an amount equal to the ONS import adjustment.

Over 2014 as a whole, household consumption made a solid contribution to GDP growth (Chart 2.1), broadly in line with its share in GDP. In contrast with recent years, the increase in consumption was mainly funded by a pickup in household income growth: the saving ratio was broadly flat (Table 2.C). That income growth appears to have been driven by a rise in employees' wages and salaries, reflecting rises in employment as well as higher earnings. There is some uncertainty about the precise extent of the pickup in income growth: the National Accounts measure implies faster wage growth per employee than the average weekly earnings measure (Section 4). Nevertheless, both measures are consistent with a pickup in total income growth in 2014.

Household consumption growth is expected to remain solid in 2015, funded by continued real income growth. Real incomes have been supported by the fall in food, energy and other import prices (Section 4). In the absence of further such falls, the prospects for continued real income growth will depend on the extent to which nominal income growth is supported by continued rises in employment (Section 3) and a pickup in wage growth (Section 4).

Surveys suggest that households have become more optimistic about their finances: according to the GfK survey, households' optimism about their personal financial situation has continued to rise in recent months, and the balance is above its historical average. Growth in retail sales volumes was robust in Q1, with rises in spending on food and petrol, as well as on more discretionary elements of spending. That could indicate that households are starting to respond to falls in food and petrol prices by increasing spending. But it is too early to gauge fully the extent to which the boost to real incomes is feeding through to rises in consumption.

As discussed in the box on page 35, there is a risk that subdued price pressures encourage households to put off big spending decisions in anticipation of greater purchasing power in the future. But there is little evidence of this so far: for example, a rising proportion of households surveyed by GfK think that it is a good time to undertake large purchases (Chart 2.2).

### Housing investment

Housing investment growth was robust during 2013 and 2014, reflecting a revival in housing market activity and house building as households' credit availability and optimism recovered after the crisis. Housing investment contracted in 2014 Q4, however. Within that, investment in existing dwellings fell on the quarter, while spending on new dwellings and spending associated with property transactions, such as solicitors' and estate agents' fees, was broadly flat.

A decline in the number of property transactions during 2014 (Section 1) is likely to have weighed on associated spending, which accounts for around a fifth of overall housing

**Table 2.C Consumption grew broadly in line with income in 2014**  
Income, consumption and saving

|   | Averages  |         |      |         | 2014 |      |
|---|-----------|---------|------|---------|------|------|
|   | 1998–2007 | 2010–12 | 2013 | 2014 H1 | Q3   | Q4   |
| <b>Percentage changes on a year earlier</b>   |           |         |      |         |      |      |
| Real post-tax income <sup>(a)</sup>           | 3.1       | 0.1     | 0.0  | 2.0     | 1.4  | 2.5  |
| Real post-tax labour income <sup>(b)</sup>    | 3.2       | -0.9    | 0.4  | 2.8     | 1.7  | 3.1  |
| Consumption <sup>(c)</sup>                    | 3.7       | 0.5     | 1.7  | 2.2     | 2.7  | 2.8  |
| <b>Per cent</b>                               |           |         |      |         |      |      |
| Saving ratio <sup>(d)</sup>                   | 8.7       | 9.2     | 6.4  | 6.1     | 5.8  | 5.9  |
| Saving out of available income <sup>(e)</sup> | -2.0      | 0.9     | -0.5 | -2.5    | -2.6 | -1.7 |

(a) Total available household resources divided by the consumer expenditure deflator.

(b) Wages and salaries plus mixed income less taxes plus net transfers, divided by the consumer expenditure deflator.

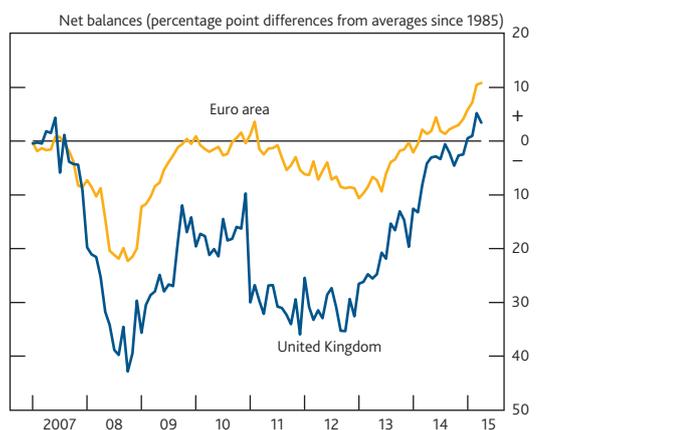
(c) Chained-volume measure. Includes non-profit institutions serving households.

(d) Percentage of household post-tax income.

(e) Percentage of household post-tax income excluding flows into employment-related pension schemes.

**Chart 2.2 Consumers think it is a good time to make big purchases**

Consumer confidence: major purchases index<sup>(a)</sup>

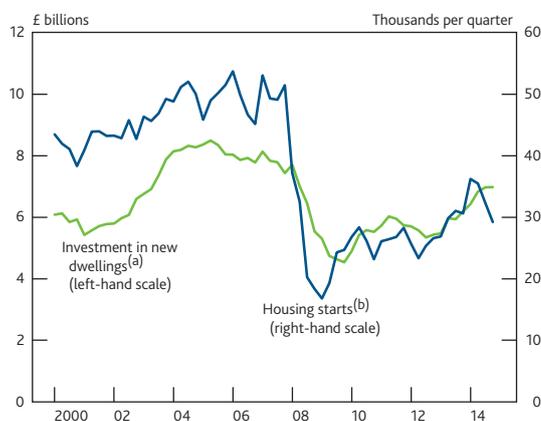


Sources: European Commission (EC), GfK (research carried out on behalf of the European Commission) and Bank calculations.

(a) Net balance of respondents reporting that, in view of the general economic situation, now is the right time for people to make major purchases such as furniture or electrical goods.

**Chart 2.3 Weaker housing starts could weigh on investment in new homes**

Housing starts and investment in new dwellings



Sources: Department for Communities and Local Government, ONS and Bank calculations.

(a) Chained-volume measure. Excludes improvements to existing dwellings.

(b) UK permanent dwellings financed and built by private developers, calculated from national series. Private permanent dwelling starts in Wales are grown in line with Welsh total permanent dwelling starts since 2011 Q2. From 2014 Q2, UK data are grown in line with data for England.

investment. And, in the near term, subdued housing market activity is expected to continue to weigh on this spending.

One leading indicator of investment in new dwellings is the number of housing starts. Following a sharp rise in 2014 H1, housing starts fell in H2 (**Chart 2.3**). That is likely to feed through to lower investment in new dwellings over coming quarters. Housing starts remain significantly below pre-crisis levels, with contacts of the Bank's Agents citing skills shortages as one factor holding back an expansion in house building. Overall, housing investment growth is expected to rise only modestly in 2015 (Section 5).

## Business investment

Business investment made a significant contribution to overall GDP growth in 2013 and 2014 H1, as the demand outlook improved and the cost of finance fell. Business investment moderated in 2014 H2, however, with a contraction in Q4 (**Table 2.B**). That, in part, reflected a fall in extraction sector investment in Q4. But capital spending growth in other sectors also eased, particularly in the service sector, which accounts for over 60% of business investment (**Chart 2.4**).

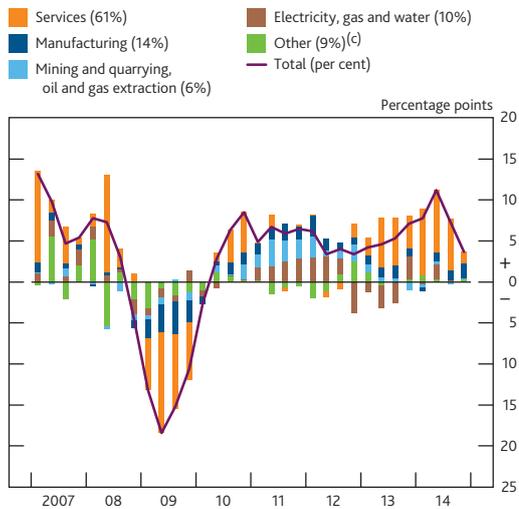
Initial estimates of business investment are volatile and particularly prone to revision, making it hard to draw a signal from the recent slowing in the data. One possible explanation for the slowing, to the extent it is genuine, is that companies were less willing to invest in the face of increased uncertainty around the domestic political situation, but there is little evidence to support this. According to the CBI, the proportion of companies citing demand uncertainty as a constraint on business spending has been below average, and fell further in Q1. And the Bank's Agents report that political uncertainty has had little material impact on most contacts' investment plans. Consistent with that, survey indicators of investment intentions remained above average levels in Q1 (**Chart 2.5**), despite some slight softening in recent months.

A number of factors suggest that business investment growth is likely to remain strong. Survey balances of expected orders suggest that the demand outlook remains favourable. Businesses may need to undertake investment in order to satisfy those orders, as they appear, on average, to be operating at around normal levels of capacity (Section 3). Financial conditions also remain supportive of business investment, as low interest rates and low yields on corporate bonds are likely to have made the return on capital spending more attractive.

Offsetting that underlying strength, weak extraction sector capital spending is likely to continue to weigh on overall business investment growth. Extraction sector investment is projected to fall by around 30% over the MPC's forecast period, primarily as a result of lower oil prices. That is a slightly smaller fall than expected in the *February Report*,

### Chart 2.4 Business investment growth moderated in the second half of 2014

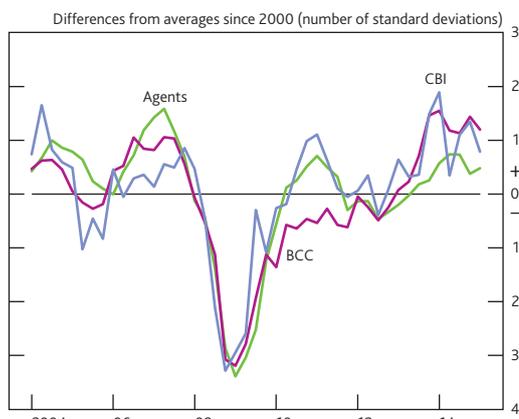
Contributions to four-quarter business investment growth<sup>(a)(b)</sup>



(a) Chained-volume measures. Contributions prior to 2011 are indicative estimates.  
(b) Figures in parentheses are shares in total business investment in 2011.  
(c) Total business investment growth less contributions from the mining and quarrying, oil and gas extraction, utilities, manufacturing and service sectors.

### Chart 2.5 Companies' investment intentions have softened but remain above average

Survey measures of companies' investment intentions<sup>(a)</sup>



Sources: Bank of England, BCC, CBI, CBI/PwC and Bank calculations.

(a) Survey measures of investment intentions from the Bank's Agents (companies' intended changes in investment over the next twelve months), BCC (net percentage balance of companies who say they have increased planned investment in plant and machinery over the past three months) and CBI (net percentage balance of companies who say they have revised up planned investment in plant and machinery over the next twelve months). Measures weight together sectoral surveys using shares in real business investment. BCC data are non seasonally adjusted.

largely reflecting reductions to tax rates for oil companies announced in the March *Budget*. But the uncertainty around the extent of the prospective fall remains large.

Overall, business investment growth is expected to be robust in 2015, but weaker than projected at the time of the February *Report*.

### Government spending

The MPC's projections are conditioned on the tax and spending plans outlined in the March 2015 *Budget*, which incorporates continued fiscal consolidation. The Institute for Fiscal Studies estimates that a little over half of the Government's planned fiscal consolidation, relative to the March 2008 *Budget*, had taken place by the end of the 2014/15 fiscal year. The remaining consolidation is expected to be achieved primarily through reductions in government consumption.

## 2.2 External demand and UK trade

UK-weighted world GDP growth in 2014 Q4 was broadly in line with expectations at the time of the February *Report*. In early 2015, however, a pickup in euro-area momentum has been largely offset by some moderation in growth in the United States and emerging economies.

### The euro area

Activity in the euro area has been sluggish for much of the period since the financial crisis, but developments since the February *Report* point to a pickup in momentum. Euro-area output rose by 0.3% in 2014 Q4 (Table 2.D), and the monthly composite PMI indicator points to growth of 0.4% in Q1, slightly stronger than expected in February. Indicators of household consumption, such as retail sales and consumer confidence, have been particularly strong. In part, that could reflect the boost to households' real incomes from declines in fuel and food prices.

Following four months of negative annual rates, headline HICP inflation rose to 0.0% in April, according to the flash estimate. Core inflation also appears to have stabilised, at 0.6% in April. Headline inflation is expected to pick up gradually over the course of 2015 as recent falls in fuel and food prices drop out of the annual comparison. The EC consumer confidence survey provides little evidence that consumers are delaying large purchases in response to low inflation (Chart 2.2).

One contributor to the pickup in euro-area momentum is likely to have been the improvement in credit conditions, particularly in periphery countries. Banks' funding costs and the interest rates they charge rose in 2011 and early 2012, as market concerns over the resilience of the financial system intensified. Policy actions in late 2012 were associated with a fall in bank funding costs. But the pass-through to household

**Table 2.D UK-weighted world GDP growth was broadly steady in Q4**

GDP in selected countries and regions<sup>(a)</sup>

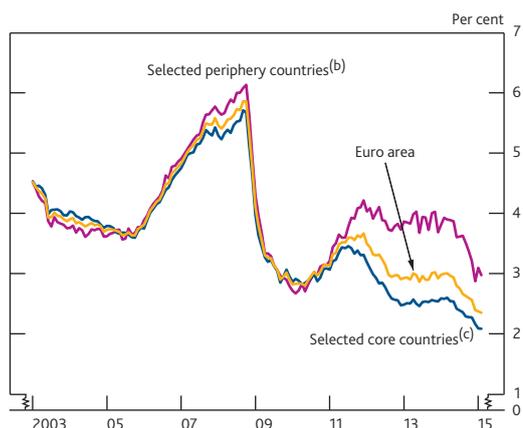
|                                      | Averages       |      |      | 2014 |      |      |     | 2015 |
|--------------------------------------|----------------|------|------|------|------|------|-----|------|
|                                      | 1998–2007      | 2012 | 2013 | Q1   | Q2   | Q3   | Q4  | Q1   |
|                                      | United Kingdom | 3.0  | 0.4  | 2.4  | 3.6  | 3.4  | 2.5 | 2.5  |
| Euro area (39%)                      | 2.3            | -0.9 | 0.4  | 1.1  | 0.3  | 0.7  | 1.3 | n.a. |
| United States (18%)                  | 3.0            | 1.6  | 3.1  | -2.1 | 4.6  | 5.0  | 2.2 | 0.2  |
| China (3%) <sup>(b)</sup>            | 10.0           | 7.7  | 7.7  | 7.4  | 7.5  | 7.3  | 7.3 | 7.0  |
| Japan (2%)                           | 1.1            | 0.0  | 2.3  | 5.1  | -6.4 | -2.6 | 1.5 | n.a. |
| UK-weighted world GDP <sup>(c)</sup> | 3.0            | 1.1  | 2.2  | 1.4  | 2.1  | 2.6  | 2.4 | n.a. |

Sources: Eurostat, IMF *World Economic Outlook (WEO)* April 2015, Japanese Cabinet Office, National Bureau of Statistics of China, OECD, ONS, Thomson Reuters Datastream, US Bureau of Economic Analysis and Bank calculations.

- (a) Real GDP measures. Figures in parentheses are shares in UK goods and services exports in 2013 from the 2014 *Pink Book*.  
 (b) Figures for China are percentage changes in GDP on a year earlier. The earliest observation for China is 2000 Q1. Data are non seasonally adjusted.  
 (c) Constructed using data for the real GDP growth rates of 146 countries weighted according to their shares in UK exports. The observation for 2014 Q4 is an estimate. For those countries where national accounts data for 2014 Q4 are not yet available, data are assumed to be consistent with projections in the IMF *WEO* April 2015.

**Chart 2.6 Euro-area interest rates have fallen sharply, particularly in the periphery**

Interest rates on bank loans in the euro area<sup>(a)</sup>



Sources: European Central Bank and Bank calculations.

- (a) Weighted average of annualised agreed interest rates on lending to household and non-financial corporations. Measures weight together sectoral rates using shares in the total national stock of loans. Individual countries' interest rates are then weighted together using shares in the total stock of loans across countries. Data are non seasonally adjusted.  
 (b) Includes Ireland, Italy, Portugal and Spain.  
 (c) Includes Austria, Belgium, Germany, Finland, France and the Netherlands.

and corporate interest rates in periphery countries was relatively slow, which is likely to have hampered the recovery in activity. Since 2014 Q3, however, interest rates in the periphery have fallen sharply (Chart 2.6). That may, in part, be related to the ECB's Asset Quality Review in October 2014, which helped to reduce concerns about the resilience of the euro-area banking system. The ECB's April *Bank Lending Survey* pointed to a further easing in credit conditions over the next three months. And credit conditions are likely to continue to normalise, supported by ECB programmes (Section 1), and the improved economic outlook.

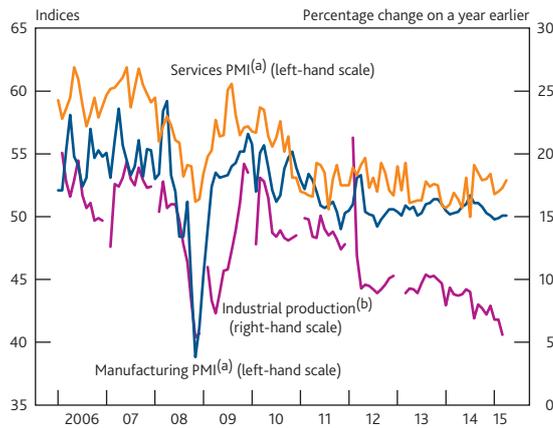
ECB policy is projected to underpin the recovery in growth over coming years (Section 5). Downside risks to euro-area activity remain, however. Subdued domestic price pressures make it harder for countries to improve competitiveness and to reduce debt positions. And the resolution of Greek debt negotiations may prove disorderly (Section 5).

### The United States

Following robust growth rates in the middle of 2014, US quarterly GDP growth slowed to 0.1% in 2015 Q1, weaker than expected in February (Table 2.A). Consumption growth slowed, despite the support to real incomes from fuel price falls. Business investment detracted from growth, as capital spending in the oil sector fell. And net trade also dragged on growth, which could reflect the effect of the appreciation of the dollar (Section 1). While the exchange rate is likely to continue to act as a drag over 2015, part of the weakness in Q1 is likely to reflect the temporary effect of severe winter weather. Growth is therefore expected to bounce back in Q2, with consumption supported by the boost to real incomes and robust levels of consumer confidence. But there is a risk that the weakness in consumption proves more persistent than expected.

Despite softening somewhat since the February *Report*, US employment growth nevertheless remained solid: non-farm payrolls rose by a monthly average of 197,000 in Q1. The unemployment rate continued to fall, reaching 5.5% in March. While measures of wage growth ticked up in Q1, they remained below historical average rates. In part, those below-average rates could reflect weak productivity growth in 2014. Another driver could be labour market slack: although unemployment is falling, the FOMC revised down its central range of estimates of the unemployment rate in the longer run from between 5.2% and 5.5% to between 5.0% and 5.2%, suggesting that the fall in unemployment has been associated with less of a tightening in the labour market than previously thought. Reflecting subdued wage pressures, as well as food and fuel price falls, annual personal consumption expenditure inflation was 0.3% in Q1, well below the FOMC's longer-run price stability objective of 2%.

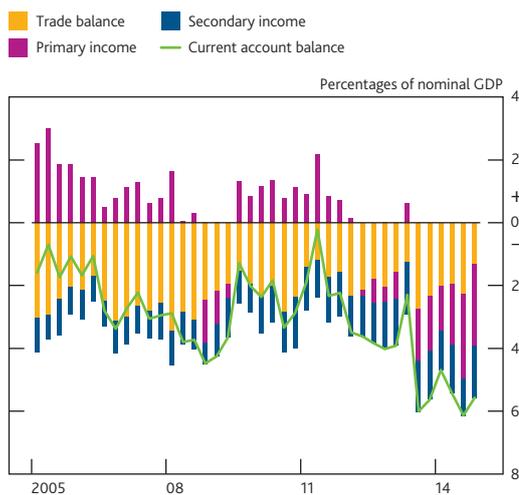
**Chart 2.7 Growth in Chinese activity has moderated**  
PMIs and industrial production in China



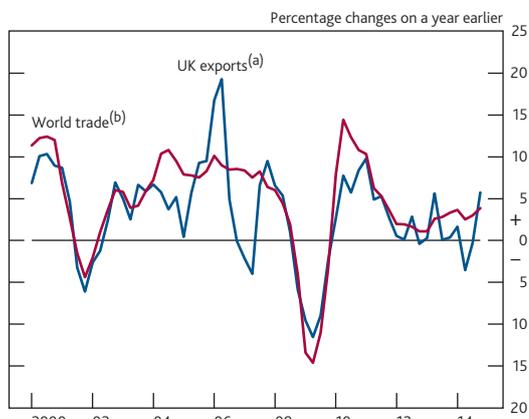
Sources: HSBC, Markit Economics, National Bureau of Statistics and Thomson Reuters Datastream.

- (a) A reading of above (or below) 50 indicates increasing (or decreasing) output.  
(b) Prior to 2014, data for January are not available. Data for January and February 2015 are average figures for industrial production across the two months, as quoted by the National Bureau of Statistics. Data are non seasonally adjusted.

**Chart 2.8 Wide current account deficit in 2014**  
UK current account



**Chart 2.9 Export growth picked up sharply in 2014 Q4**  
UK exports and UK-weighted world trade



Sources: IMF WEO April 2015, OECD, ONS, Thomson Reuters Datastream and Bank calculations.

- (a) Chained-volume measure. Headline exports data have been adjusted by Bank staff for MTIC fraud by an amount equal to the ONS's imports adjustment.  
(b) Constructed using data for import volumes of 146 countries weighted according to their shares in UK exports. For the vast majority of countries, the latest observation is 2014 Q4. For those countries where national accounts data for 2014 Q4 are not yet available, data are assumed to be consistent with projections in the IMF WEO April 2015.

## Emerging economies

GDP growth continued to slow in China, falling to 7.0% in the four quarters to 2015 Q1 (Table 2.D), slightly weaker than had been expected in February. The slowing appeared to be broad-based, with both services and manufacturing PMIs softening since mid-2014 (Chart 2.7). The outlook for external demand also worsened, reflecting the rise in the renminbi effective exchange rate since mid-2014, as the US dollar appreciated.

In response to the deceleration in activity, the Chinese authorities cut the reserve requirement ratio further and introduced a package of measures to support the property market. These measures are expected to support activity, with Bank staff projecting growth of slightly below 7% in 2015, broadly in line with the authorities' target. Downside risks from the property market remain, however: the pace of house price falls accelerated in March.

The picture for other emerging economies is mixed. In India, significant upward revisions to growth rates in recent years, and the fall in oil prices, point to an improved outlook; in contrast, activity in Russia and Brazil weakened. Taken together, the outlook for emerging economies is slightly weaker than in February.

## UK trade and the current account

The UK trade deficit narrowed in 2014 to 1.9% of GDP. But the current account deficit widened to a post-war high of 5.5% of GDP, driven by a sharp deterioration in primary income, which includes income earned by UK residents on investments abroad. As discussed on pages 22–23 of the May 2014 Report, the decline in investment income was concentrated in a fall in income earned by UK private non-financial corporations on their direct investments abroad. In Q4, the current account deficit was 5.6% of GDP, as the trade deficit narrowed on the quarter and the primary income balance was broadly unchanged (Chart 2.8).

Consistent with the improvement in the nominal trade deficit in Q4, net trade made a sizable positive contribution to real GDP growth, as export growth of nearly 5% outstripped import growth of 1.6% (Table 2.B). That rise in exports was greater than had been expected in February (Table 2.A), but that strength is unlikely to persist. The sharp rise in export growth was not matched by a similar pickup in world trade growth (Chart 2.9). And much of the strength in Q4 reflected a rise in erratic factors, such as exports of precious metals and oil, which fell back in Q1.

The continued modest pace of world demand growth and the past appreciation of sterling (Section 1) are likely to weigh on export growth in 2015: Bank staff project average export growth of around 1% a quarter over the rest of the year.

# 3 Output and supply

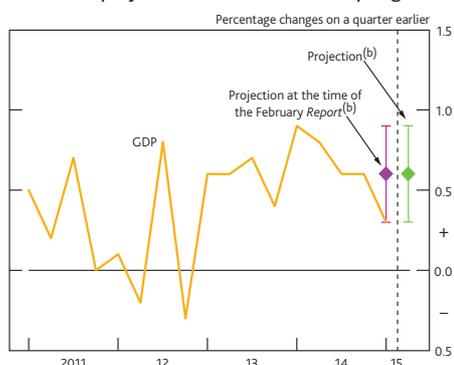
Output growth is estimated to have slowed to 0.3% in 2015 Q1, but is expected to be revised up to 0.5%. Four-quarter hourly productivity growth remained weak. Survey indicators suggest that capacity utilisation among companies eased slightly, but remained around normal levels. Total hours worked increased in the three months to February, as strong employment growth outweighed a modest fall in average hours. The unemployment rate fell further. Following a review of the evidence on potential supply, the MPC's best collective judgement is that the degree of slack is broadly in the region of ½% of GDP.

**Table 3.A** Monitoring the MPC's key judgements

| Developments anticipated in February  | Developments since February  |
|---|--|
| <b>Unemployment</b>   | <b>Broadly as expected</b>   |
| <ul style="list-style-type: none"> <li>Headline LFS unemployment rate to decline to around 5½% by mid-2015.</li> </ul>                                | <ul style="list-style-type: none"> <li>The unemployment rate fell to 5.6% in the three months to February, and is expected to be around 5.4% by mid-2015.</li> </ul> |
| <b>Participation</b>  | <b>Broadly as expected</b>   |
| <ul style="list-style-type: none"> <li>The labour market participation rate to pick up to around 63½% by 2015 Q3.</li> </ul>                          | <ul style="list-style-type: none"> <li>Participation rate was 63.5% in the three months to February. Projected to remain unchanged in Q2.</li> </ul>                 |
| <b>Average hours</b>  | <b>Weaker than expected</b>  |
| <ul style="list-style-type: none"> <li>Average hours worked to increase by almost 1% in the year to 2015 Q3.</li> </ul>                               | <ul style="list-style-type: none"> <li>Average hours fell by 0.3% in the three months to February.</li> </ul>  |
| <b>Capacity utilisation</b>   | <b>Broadly as expected</b>   |
| <ul style="list-style-type: none"> <li>Indicators of spare capacity within companies to show little intensification of capacity pressures.</li> </ul> | <ul style="list-style-type: none"> <li>Survey indicators eased slightly, but remained around normal levels in 2015 Q1.</li> </ul>                                    |
| <b>Productivity</b>   | <b>Weaker than expected</b>  |
| <ul style="list-style-type: none"> <li>Hourly labour productivity to average a little under ¾% in the first three quarters of 2015.</li> </ul>        | <ul style="list-style-type: none"> <li>Hourly labour productivity growth was 0.3% in 2014 Q4.</li> </ul>   |

**Chart 3.1** GDP growth was weaker than expected in Q1

Bank staff projections for near-term output growth<sup>(a)</sup>



Sources: ONS and Bank calculations.

(a) Chained-volume measures. GDP is at market prices.

(b) The magenta diamond shows Bank staff's central projection for the preliminary estimate of GDP growth for Q1 at the time of the February Report. The green diamond shows the current staff projection for the preliminary estimate of GDP growth for Q2. The bands on either side of the diamonds show uncertainty around those projections based on one root mean squared error of forecasts for quarterly GDP growth made since 2004. As the staff projections are for the preliminary estimates of GDP, they can differ from those used to construct the GDP fans in Section 5, which are based on the MPC's best collective judgement of the final estimate of GDP.

## 3.1 Recent developments in output

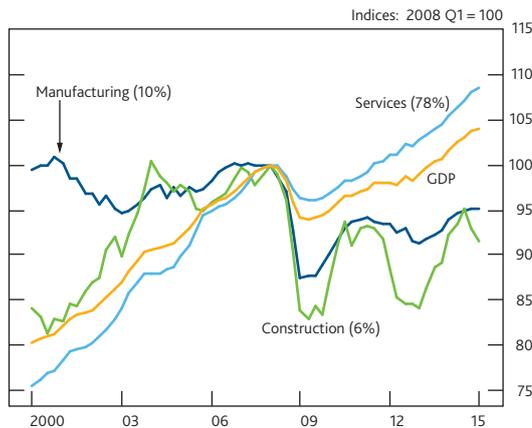
According to the ONS preliminary estimate, quarterly output growth was 0.3% in 2015 Q1, down from 0.6% in 2014 Q4, and weaker than anticipated in February (**Chart 3.1**). Weaker service sector — in particular, business services and finance — growth was the main source of the slowdown (**Chart 3.2**). Construction activity fell for the second consecutive quarter, driven by repair and maintenance, subtracting 0.1 percentage points from GDP growth. Following robust growth in 2014 H1, manufacturing output growth has slowed over the past few quarters (**Chart 3.2**), and was only 0.1% in Q1.

It is possible that some temporary factors weighed a little on growth in Q1. Uncertainty over the result and effects of the UK general election may have delayed some spending — for example in the construction sector — but reports from the Bank's Agents suggest little impact. The net support to demand from lower oil prices may also have been a little smaller in Q1 than had been anticipated, but it is too early to assess whether that might have been the case or whether there may be commensurately more support still to come.

It is likely that some of the weakness in the Q1 data may be revised away. Survey indicators suggest that growth was higher in Q1 than indicated by the official data, for example in the construction sector (**Chart 3.3**). Taking the strength of the surveys together with the pattern of past revisions to the official data, Bank staff's central expectation is that Q1 growth will be revised up to 0.5% as the data mature.

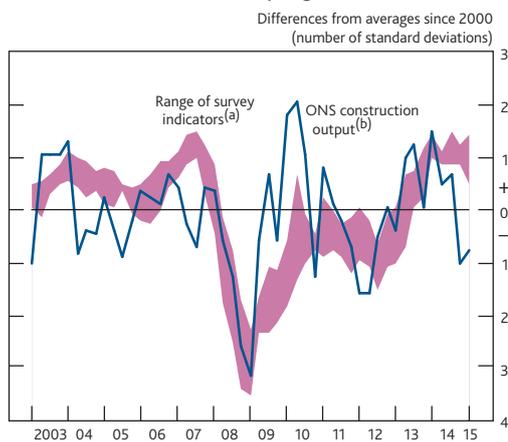
Overall, the official GDP data for Q1 are not judged to signal a weaker outlook for near-term growth. Survey indicators for Q2 have remained relatively robust and Bank staff project the preliminary estimate for Q2 GDP growth to be 0.6% (**Chart 3.1**). The final estimate incorporated into the MPC's GDP fan chart is 0.7%.

**Chart 3.2 Service sector output growth slowed in Q1**  
GDP and sectoral output<sup>(a)</sup>



(a) Chained-volume measures. GDP is at market prices. Indices of sectoral output are at basic prices. The figures in parentheses show 2011 weights in gross value added.

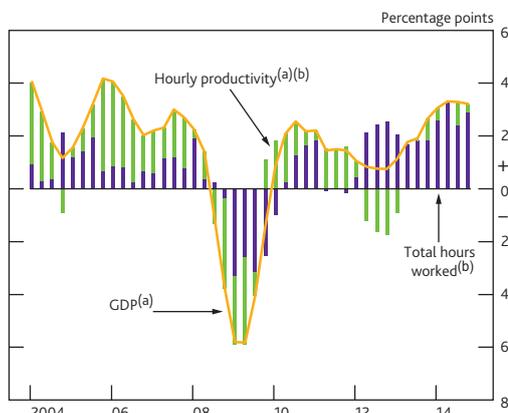
**Chart 3.3 Survey indicators suggest construction growth remained positive in Q1**  
Indicators of construction output growth



Sources: Bank of England, Experian, Markit/CIPS and ONS.

(a) Measures included are the Bank's Agents' end-quarter score for construction output relative to a year ago, the quarterly average of the Markit/CIPS construction activity index and the quarterly average of the Experian construction activity index. Data are to 2015 Q1.  
(b) Chained-volume measure. Quarterly growth.

**Chart 3.4 GDP growth has been associated with strong growth in hours worked but little growth in productivity**  
Decomposition of four-quarter GDP growth



Sources: ONS and Bank calculations.

(a) Chained-volume measure, based on the MPC's best collective judgement of the final estimate of GDP. Percentage change on a year earlier.  
(b) Based on Bank staff's assumption for population growth, as explained in footnote (a) of Chart 3.9.

## 3.2 Potential supply and slack in the economy

The outlook for output growth depends on demand (Section 2) and also, over the medium term, on the supply capacity of the economy. The balance between demand and potential supply — that is, the degree of slack or spare capacity — is an important determinant of inflationary pressures in the medium term. In May, the MPC reassessed the outlook for potential supply and the implications for the degree of slack in the economy. The box on page 24 summarises its findings.

The supply side of the economy cannot be directly observed and there is significant uncertainty around the extent to which output can grow before it generates upward pressure on costs and prices. The MPC, therefore, monitors a range of indicators of the level of potential supply, its likely evolution and the extent to which current activity is above or below it.

One common approach is to use statistical techniques to estimate potential supply from a top-down perspective using past observations of GDP and other indicators of slack, such as unemployment. In addition to looking at those top-down measures, the MPC also assesses the components of supply from a bottom-up perspective: productivity and capacity utilisation are discussed in Section 3.2.1, and the supply of labour in Section 3.2.2. Statistical estimates of potential supply that include nominal indicators, such as wages, suggest that slack could be notably greater than an assessment of the bottom-up components would imply. But the degree of uncertainty around these estimates is large and there is a range of views on the MPC as to how much weight to place on them. Overall, as discussed in Section 3.2.3, the MPC's best collective judgement is that slack is broadly in the region of ½% of GDP.

### 3.2.1 Productivity growth and capacity utilisation

#### Productivity growth

Growth in labour productivity, defined as output per hour worked, fell sharply during the financial crisis. Previous analysis by Bank staff identified a number of factors that are likely to have contributed to persistent weakness in productivity following the financial crisis.<sup>(1)</sup> Despite robust output growth in the past few years, productivity growth has remained subdued with the increases in output having been met mainly through an increase in total hours worked (Chart 3.4).

Labour productivity growth can be decomposed into the contribution from two factors: growth in the amount of

(1) See Barnett, A, Batten, S, Chiu, A, Franklin, J and Sebastián-Barriol, M (2014), 'The UK productivity puzzle', *Bank of England Quarterly Bulletin*, Vol. 54, No. 2, pages 114–28; [www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2014/qb14q201.pdf](http://www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2014/qb14q201.pdf).

## The MPC's assessment of potential supply

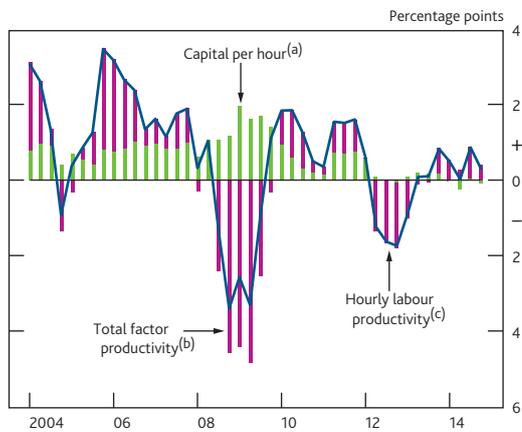
In May, the MPC reassessed the outlook for potential supply in the medium term and the degree of slack in the economy. That assessment is set out throughout this section, with the implications for the outlook set out in Section 5; this box summarises the findings. Combining all the evidence, including top-down statistical estimates and bottom-up

evidence on the components of supply, the MPC's best collective judgement is that slack is broadly in the region of ½% of GDP and that supply growth is likely to pick up over the forecast period, reflecting a revival in productivity growth. But there is considerable uncertainty around the current degree of slack and its likely evolution, and a wide range of views on the Committee.

| Component   | Evidence  | Implications   |
|---|---|--|
| <b>Overall supply (Section 3.2.3)</b>   | Potential supply has grown modestly over the past couple of years, particularly relative to GDP. Robust labour supply growth has been partially offset by exceptionally weak productivity growth (Chart 3.4). While evidence on the components of supply suggests there is probably only a small degree of slack, top-down statistical measures that include nominal indicators, such as wage growth, suggest that slack could be notably greater.  | Overall, slack in the economy is judged to be broadly in the region of ½% of GDP. Supply growth in the medium term is likely to be supported by a resumption in productivity growth as labour supply growth wanes.   |
| <b>Productivity and capacity utilisation within companies (Section 3.2.1)</b> | Productivity growth has been persistently weak since the start of the crisis and, despite the pickup in output growth, has remained subdued in recent years (Chart 3.5). Some of that weakness is likely to be accounted for by a shift in the composition of employment growth towards lower-skilled occupations (Chart 3.6). A lack of reallocation of resources from low to high-productivity companies may also be weighing on growth.<br><br>Indicators suggest that capacity utilisation within companies is broadly around normal levels, although there is a wide variation between measures (Chart 3.7). | Compositional effects will only bear down on productivity growth as long as such shifts continue. As business investment picks up and the normal process of reallocation of resources between companies resumes, productivity growth is likely to return gradually towards its historical average growth rate. |
| <b>Labour supply (Section 3.2.2)</b>  |   |  |
| <b>Population growth</b>  | Population growth is likely to have been robust in the past few years, reflecting stronger-than-expected net inward migration.  | Population growth is assumed to remain strong in the near term before falling back towards its average rate over the past two decades (Chart 3.9).   |
| <b>Participation</b>  | Participation was on an upward trend in the decade prior to the crisis, but then fell sharply (Chart 3.10). Over the past two years, the participation rate has recovered then broadly stabilised: a range of evidence suggests that reflected a cyclical rise back to its equilibrium rate.  | The cyclical recovery in participation is likely to have broadly taken place. The medium-term equilibrium participation rate is likely to remain flat as the drag from an ageing population broadly offsets the upward pressure from a shift towards longer working lives.                                     |
| <b>Unemployment</b>   | The unemployment rate has fallen substantially over the past two years (Chart 3.13), although the proportion of those out of work for more than a year remains elevated.<br><br>Although there is uncertainty about the long-term equilibrium unemployment rate, structural changes in the labour market and evidence on recruitment difficulties point to two-sided risks around a central judgement that it is about 5%.  | The medium-term equilibrium unemployment rate is likely to be only slightly below the current unemployment rate and will fall back towards its long-term rate of around 5% as the share of long-term unemployed continues to decline (Chart 3.14).   |
| <b>Average hours</b>  | Average hours worked have continued to increase over the past two years (Chart 3.15). Signs of underemployment remain, with average weekly hours worked still below the hours people, on average, report that they would like to work. There is evidence to suggest that people may be satisfied with smaller increases in hours, however.  | The medium-term equilibrium level of average hours is probably slightly higher than current average hours worked (Chart 3.15), but is likely to fall a little over the forecast period.  |

### Chart 3.5 Weak growth in capital per hour and total factor productivity have both contributed to subdued labour productivity growth

Contributions to four-quarter hourly labour productivity growth

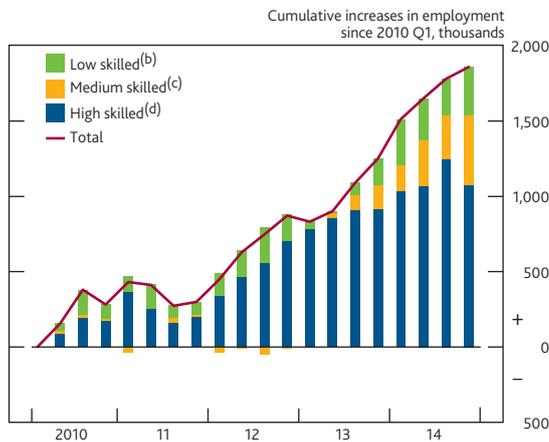


Sources: ONS and Bank calculations.

- (a) Fixed capital stock, including structures, machinery, vehicles, computers, purchased software, own-account software, mineral exploration, artistic originals and R&D. Calculations are based on Oulton, N and Wallis, G (2015), 'Integrated estimates of capital stocks and services for the United Kingdom: 1950–2013', *Centre for Economic Performance Discussion Papers No. 1342*.
- (b) Total factor productivity is calculated as a residual.
- (c) Hourly productivity is based on the MPC's best collective judgement about the final estimate of GDP and Bank staff's assumption for population growth, as explained in footnote (a) of Chart 3.9. Percentage change on a year earlier.

### Chart 3.6 Recent employment growth has been concentrated in lower-skilled jobs

Employment growth by occupational skill level<sup>(a)</sup>



Sources: Labour Force Survey and Bank calculations.

- (a) Uses the Standard Occupational Classification (SOC) 2010. The data for estimates prior to 2011 were collected on the previous SOC basis (SOC 2000) and have been mapped to an equivalent SOC 2010 basis. Seasonally adjusted by Bank staff.
- (b) Includes elementary occupations, plant machine operatives, sales and customer services.
- (c) Calculated as total employment less employment in high and low-skilled occupations.
- (d) Includes managers, professional and associate professional and technical occupations.

capital per hour worked — that is, the equipment and resources that are available to produce output — and growth in total factor productivity (TFP), which is the efficiency with which a given amount of inputs (labour and capital) can be used to produce output.

Although growth in capital per hour worked and total factor productivity are difficult to measure, Bank staff estimates suggest that both have weakened over the past few years (Chart 3.5). Weak growth in capital per hour, in part, reflects falls in business investment during the financial crisis, which will have fed through into the capital stock with a lag, as well as robust growth in total hours worked (Section 3.2.2). But the contribution from TFP growth to labour productivity growth has been particularly weak over the past few years (Chart 3.5). Bank staff analysis points to a number of factors that could have acted as a drag on TFP growth over the past three years.

First, changes in the composition of the labour force will have implications for measured aggregate TFP growth, even if they do not affect the productivity of any individual. Since mid-2013, employment growth has been more concentrated in lower-skilled occupations (Chart 3.6) and among employees with fewer qualifications and those who are new to their roles. To the extent that these characteristics are associated with lower levels of productivity, this shift in the composition of the labour force could have dragged on aggregate productivity growth over the past two years; broadly similar to its impact on overall average wage growth (Section 4). But these compositional effects will only drag on productivity growth for as long as such shifts continue.

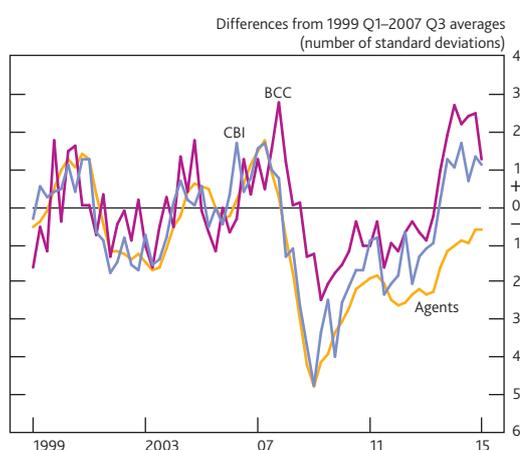
Second, it is possible that some of the factors associated with the financial crisis may be having a persistent impact on TFP growth. For example, forbearance and a low level of Bank Rate could have allowed businesses that face persistently lower demand to remain operational. This may have impaired the reallocation of resources to new or more dynamic companies with the potential to achieve higher productivity, weighing on overall productivity growth in the economy.

Third, weaker investment in not only physical but also 'intangible' capital, such as employees' skills, may have reduced the pace of innovation and hindered companies' ability to adopt more innovative processes. Indeed, Bank staff analysis suggests that TFP has grown more slowly in the United Kingdom than in some other advanced economies, notably the United States.

The MPC's best collective judgement is that productivity growth will pick up gradually over the forecast, boosting the supply capacity of the economy, as the impact of these factors gradually wanes (Section 5).

**Chart 3.7 Capacity utilisation little changed over the past year**

Survey indicators of capacity utilisation<sup>(a)</sup>



Sources: Bank of England, BCC, CBI, CBI/PwC, ONS and Bank calculations.

(a) Measures are produced by weighting together surveys from the Bank's Agents (manufacturing and services), the BCC (non-services and services) and the CBI (manufacturing, financial services, business/consumer/professional services and distributive trades) using nominal shares in value added. The surveys are adjusted to have a mean of zero and a variance of one over 1999 Q1 to 2007 Q3. The BCC data are non seasonally adjusted.

## Capacity utilisation

One way in which productivity growth could pick up in the short term is if companies have unused capacity: companies could then use their existing capital and labour more intensely as demand increases. As capacity utilisation rises, however, companies are likely to face increasing cost pressures and are more likely to raise their prices, putting upward pressure on inflation. In the medium term, the rate at which capacity can increase in response to higher demand will depend on the extent to which companies invest in capital, innovate and are able to hire employees with relevant skills (Section 3.2.2).

Capacity utilisation cannot be directly measured, so the MPC monitors a range of survey indicators to assess the extent to which companies are operating above or below normal levels of capacity. Measuring the normal level of capacity utilisation is not straightforward, particularly given that most of these surveys are qualitative. One approach is to compare recent survey data to historical averages. There is currently an unusually wide degree of variation among survey measures. But, taken together, they appear broadly around past average levels and slightly lower than in Q4 (Chart 3.7).

Survey indicators may not, however, be a good guide as to whether capacity utilisation is close to rates that companies would have considered normal in the past. For example, the protracted period of low demand following the crisis may mean that companies have become used to operating with a greater degree of spare capacity. Almost half of the respondents to a recent Markit/CIPS survey indicated that they could increase output by more than 10% without putting upward pressure on prices, with 35% of respondents indicating that they could accommodate a 5%–10% increase. It is difficult to know, however, whether that is higher than the utilisation rates typically seen in the past: companies are likely to prefer to maintain some spare capacity to allow for fluctuations in demand. Overall, the MPC judges that capacity utilisation is broadly around normal.

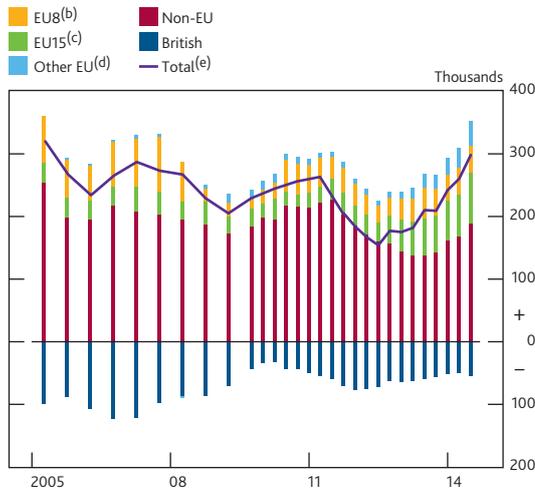
## 3.2.2 Labour market developments

A key component of potential supply in the economy is the potential supply of labour, measured in terms of total potential hours worked. Labour market slack represents the extent to which total hours worked are below potential hours. In assessing labour market slack, the MPC considers three components of it: participation, average hours worked and unemployment.

Overall, the MPC judges that the margin of labour market slack is broadly similar to that in February, but that its composition is likely to be slightly different. The MPC previously judged that slack was concentrated in participation, with some slack in unemployment and a very small amount in average hours. The MPC now judges there is likely to be less

**Chart 3.8 Net migration has increased over the past few years**

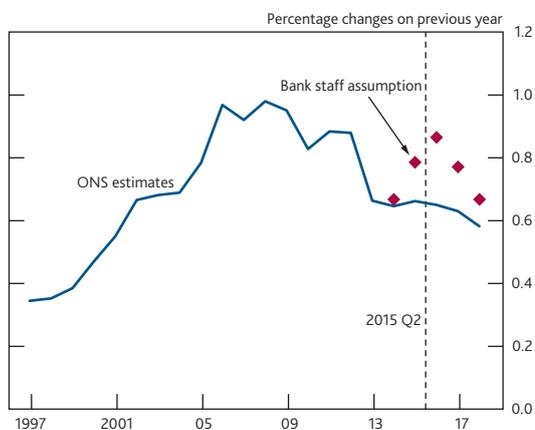
Net inward migration by nationality<sup>(a)</sup>



Sources: ONS and Bank calculations.

- (a) Rolling four-quarter flows. Data are half-yearly to December 2009 and quarterly thereafter, unless otherwise stated. Total net migration figures between 2001 and 2011 have been revised in light of the 2011 Census. These revisions are not reflected in the figures by nationality, so these will not sum to the total.
- (b) Includes Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia.
- (c) Includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Luxembourg, Netherlands, Portugal, Republic of Ireland, Spain and Sweden. Excludes the United Kingdom.
- (d) Includes Bulgaria, Croatia, Cyprus, Malta and Romania.
- (e) Data are half-yearly to December 2011 and quarterly thereafter.

**Chart 3.9 ONS population growth is likely to be revised up**  
Population<sup>(a)</sup>



Sources: ONS and Bank calculations.

- (a) 16+ population, calendar-year averages. The ONS's population estimates, used in the Labour Force Survey, were last updated using data for 2012 and are based on the assumption of net inward migration of around 165,000 per year from 2013 onwards. Higher-frequency data suggest the increase has averaged around 250,000 per year during this time. Bank staff's assumption, shown in the red diamonds as calendar-year averages, is based on the ONS's population estimates, adjusted for the latest migration statistics. The projection assumes that net migration gradually falls from recent highs so that net migration is around its 2004–14 average by late 2016. These stronger net migration flows will be incorporated into the ONS's population statistics later this year, involving a thorough process involving aggregation at a regional level and by age and gender, and will hence differ from the simple calculations undertaken by Bank staff. The ONS's revised population statistics will be reflected in the Labour Force Survey in 2016.

slack in participation, but more in average hours. There is, however, significant uncertainty around these judgements and a range of views within the Committee.

### Population and participation in the labour market

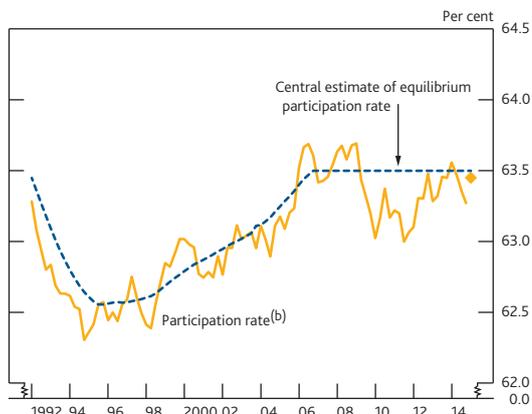
Sustained growth in the supply of labour derives mainly from growth in the overall population. High net inward migration in the past two years (Chart 3.8) means that population growth and the overall potential supply of labour has probably been greater than previously assumed. Net inward migration was close to a historical high of just under 300,000, around 0.5% of the population, in the four quarters to 2014 Q3. That is well above the 165,000 per year assumed in the ONS's population projections, which were last updated in 2012, and upon which the Labour Force Survey is based. The ONS's population projections are likely to be revised up later this year when new information, including recent data on migration, is incorporated. In anticipation of this, Bank staff have revised up their assumptions about population growth from 2013 onwards on the basis of higher net migration (Chart 3.9). The outlook for net migration is highly uncertain, and is likely to depend on a number of factors such as the United Kingdom's relative economic performance and also UK government policy. In the MPC's central projection, population growth slows over the forecast period towards its average rate over the past two decades.

Participation rates are another key determinant of labour supply. In the decade prior to the financial crisis, labour participation was on an upward trend (Chart 3.10), in part reflecting an increase in female participation and older people working for longer.<sup>(1)</sup> Following the recession, participation fell sharply as labour market conditions deteriorated. Changes in participation among young and older age groups had a significant impact on the aggregate participation rate: deteriorating labour market conditions appear to have encouraged more young people to study and older people to retire early during the recession.

Participation has since risen from its post-recession trough and was 63.5% of the 16+ population in the three months to February. A key uncertainty is the extent to which the participation rate is now in line with its medium-term equilibrium rate, or is still below it due to cyclical factors. Participation among older age groups appears largely to have returned to its upward pre-crisis trend, while participation among younger age groups is now only slightly below its pre-crisis declining trend (Chart 3.11). In addition, the number of economically inactive people responding to the Labour Force Survey that they want a job has fallen back to pre-crisis levels after having risen during the recession. It therefore appears possible that the cyclical recovery in participation

(1) For a further discussion of the trends in labour participation, see the box on pages 30–31 of the November 2014 Report; [www.bankofengland.co.uk/publications/Documents/inflationreport/2014/ir14nov.pdf](http://www.bankofengland.co.uk/publications/Documents/inflationreport/2014/ir14nov.pdf).

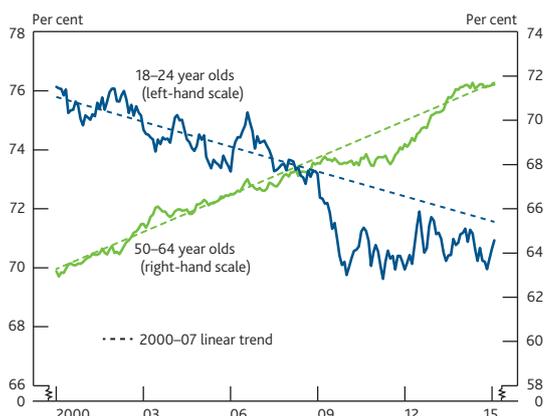
**Chart 3.10 Participation is likely to be close to its trend rate**  
Actual participation rate and Bank staff estimate of the medium-term equilibrium participation rate<sup>(a)</sup>



Sources: Labour Force Survey and Bank calculations.

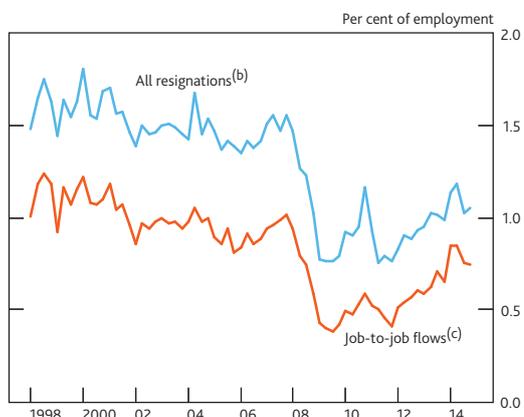
- (a) Percentages of 16+ population.  
(b) The diamond shows Bank staff's projection for 2015 Q1, based on ONS data up to February 2015.

**Chart 3.11 Participation rates among young and older age groups are close to pre-crisis trends**  
Participation rates for 18–24 and 50–64 year olds



Sources: Labour Force Survey and Bank calculations.

**Chart 3.12 Labour market turnover has picked up, but remains below pre-crisis levels**  
Resignations and job-to-job flows<sup>(a)</sup>



Sources: Labour Force Survey and Bank calculations.

- (a) Expressed as percentages of employment among 16 to 64 year olds. Based on two-quarter longitudinal microdata. Seasonally adjusted by Bank staff.  
(b) Number of people who report resigning three months ago, and report being employed, unemployed or inactive.  
(c) Number of people who report resigning three months ago, and report being in employment for less than three months.

associated with the recovery in labour market conditions has largely taken place.

Bank staff have therefore revised down their estimate of the medium-term equilibrium participation rate and hence the gap between actual and medium-term equilibrium participation (**Chart 3.10**). The outlook for participation is subject to considerable uncertainty and depends on two broadly offsetting structural factors: the desire of older age groups to work longer, which is likely to boost participation, offset by a drag from an ageing population. Bank staff, overall, judge that the medium-term equilibrium participation rate is likely to remain broadly flat (**Section 5**).

### Employment and unemployment

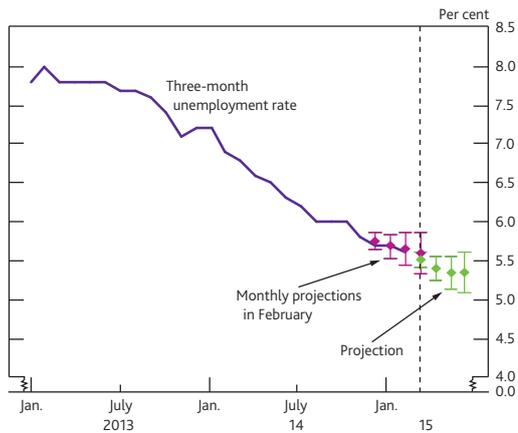
Labour market conditions have continued to improve, although turnover remains below pre-crisis rates (**Chart 3.12**). Indicators suggest that the demand for labour was strong in early 2015: employment grew by around 248,000 in the three months to February, more than anticipated three months ago. The rise was driven by an increase in full-time employees; self-employment was broadly unchanged. Surveys of employment intentions point to further steady growth in employment in Q2. These indicators, together with a historically high level of vacancies, suggest that labour demand growth is likely to remain relatively strong in the near term.

Reflecting the growth in employment, the unemployment rate fell to 5.6% in the three months to February compared with 5.8% in the three months to November, broadly as expected. Further falls are likely in the near term (**Chart 3.13**). Indeed, the claimant count, a timely indicator of the unemployment rate, fell further in March.

The unemployment rate is now close to Bank staff's estimate of the medium-term equilibrium unemployment rate (**Chart 3.14**). The difference between unemployment and its medium-term equilibrium rate attempts to capture the pressure the unemployed exert on wage growth. This pressure is likely, in part, to reflect the length of time people have been out of work: the longer-term unemployed tend to exert less downward pressure on wages than the short-term unemployed. With long-term unemployment remaining relatively high, the unemployed are currently assumed to be exerting relatively little downward pressure on wages. There is, however, scope for the unemployment rate to fall further without putting excess upward pressure on wage growth as, over time, the medium-term equilibrium rate should tend towards its long-term equilibrium rate, which is determined by structural characteristics of the labour market such as out-of-work benefits. That long-term rate is estimated by Bank staff to be around 5% (**Chart 3.14**).

There is considerable uncertainty around the long-term equilibrium unemployment rate. It may be lower than

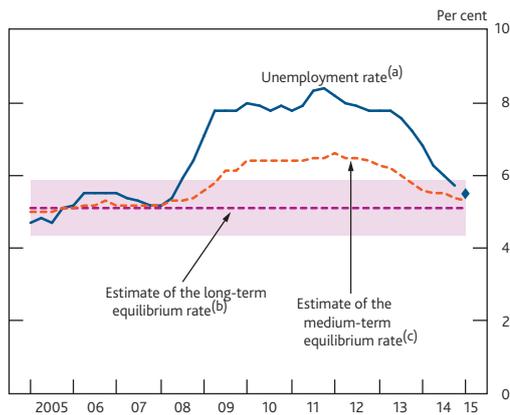
**Chart 3.13 Unemployment likely to fall further**  
Bank staff's near-term unemployment rate projection<sup>(a)</sup>



Sources: Labour Force Survey (LFS) and Bank calculations.

(a) The magenta diamonds show Bank staff's central projections for the headline unemployment rate for December 2014 and January, February and March 2015, at the time of the February Report. The green diamonds show the current staff projections for the headline unemployment rate for March, April, May and June 2015. The bands on either side of the diamonds show uncertainty around those projections based on one root mean squared error of past Bank staff forecasts for the three-month LFS unemployment rate.

**Chart 3.14 Unemployment is currently close to its estimated medium-term equilibrium rate**  
Unemployment and its equilibrium rates



Sources: Labour Force Survey and Bank calculations.

(a) Percentage of the economically active population. Quarterly data. The diamond shows Bank staff's projection for 2015 Q1, based on official data up to February 2015.  
(b) Bank staff estimate. The swathe around the central staff estimate of the natural rate reflects uncertainty about the parameters in the estimated model, but does not capture uncertainty about model misspecification. The true uncertainty is likely to be much larger.  
(c) Bank staff estimate. This proxy measure is based on a simple calculation rather than an estimated model, so there are no associated errors bands to reflect estimation uncertainty, but there is considerable uncertainty about how well this proxy measure captures the medium-term equilibrium unemployment rate.

**Table 3.B Labour market conditions have tightened over the past year**

Indicators of labour market tightness

|  | Averages                 |         |      |         |         |         |
|--|--------------------------|---------|------|---------|---------|---------|
|  | 1998–2007 <sup>(a)</sup> | 2010–12 | 2013 | 2014 H1 | 2014 H2 | 2015 Q1 |
| Vacancies/unemployed ratio <sup>(b)(c)</sup>   | 0.41                     | 0.18    | 0.22 | 0.30    | 0.36    | 0.39    |
| People working part-time because they could not find a full-time job <sup>(b)(d)</sup> | 2.2                      | 4.3     | 4.8  | 4.5     | 4.3     | 4.3     |
| Agents' scores of companies' recruitment difficulties <sup>(e)</sup>                   | 0.5                      | -1.1    | -0.4 | 0.7     | 1.7     | 1.5     |

Sources: Bank of England and Labour Force Survey.

(a) Unless otherwise stated.  
(b) The figure for 2015 Q1 shows data for the three months to February.  
(c) Number of vacancies (excluding agriculture, forestry and fishing) divided by LFS unemployment. Average since 2001 Q2.  
(d) As reported to the LFS. Percentage of LFS total employment.  
(e) End-quarter observations on a scale of -5 to +5, with positive scores indicating greater recruitment difficulties in the most recent three months compared with a year earlier. Average since 2005 Q1.

currently assumed, for example due to improved job search technology and changes to the tax and benefit system over many years. Alternatively, it could be higher, if there is mismatch between the skills of the unemployed and the skills that companies are seeking; surveys such as that conducted by the Bank's Agents, for example, suggest that recruitment difficulties have increased over the past year (Table 3.B).

### Hours worked

The contribution of each person in work to overall labour supply will depend on the number of hours that they work. Over the past few years, additional output has been produced by more people working and by higher average hours worked per person. In the three months to February, growth in total hours was 0.5%, slightly weaker than expected at the time of the February Report. While employment growth was strong, average hours fell, compared with expectations of a rise. Average hours are likely to pick up in Q2, however, reflecting continued strength in labour demand.

A key question is the extent to which companies can increase the average hours of their employees in the face of tightening labour market conditions without putting upward pressure on wage costs. Average hours have risen strongly from their trough following the crisis, but, on balance, there remain signs of underemployment. For example, desired hours reported in the Labour Force Survey remain above actual average hours (Chart 3.15) and the proportion of part-time staff who report that they would prefer a full-time job remains high (Table 3.B). But there is evidence to suggest that people are, on average, satisfied by smaller increases in hours than they previously reported they wanted.<sup>(1)</sup> For example, some of the strength in average desired hours is likely to reflect households wishing to work more to make up for the past squeeze in their real income. If so, as real incomes rise, they may be less keen to work these extra hours. In addition, some of the rise in average hours reflects a decline in leave taken since the crisis. As people start to feel more secure in their jobs, some of that decline could unwind, reducing average hours.

Average hours are nonetheless estimated to be somewhat below their medium-term equilibrium level. That medium-term level, which attempts to abstract from short-term influences such as cyclical fluctuations in income growth, is estimated to have risen during the crisis, albeit by less than the increase in reported desired hours. The continued rise in average hours over the past year, together with indicators of underemployment remaining elevated, led Bank staff to revise up the estimate of the medium-term level in May, relative to that estimated in February. In Q1, average hours are estimated to have been well below their medium-term level, suggesting scope for further rises in

(1) For a discussion, see Weale, M (2014), 'Slack and the labour market'; [www.bankofengland.co.uk/publications/Documents/speeches/2014/speech716.pdf](http://www.bankofengland.co.uk/publications/Documents/speeches/2014/speech716.pdf).

## The impact of alternative paths for labour supply

Medium-term economic growth depends crucially on how quickly the supply capacity of the economy can expand. Potential labour supply — the total number of hours households are willing to work — is a key aspect of overall supply capacity, and depends on a number of factors. First, the size of the population. Second, the proportion of the population that wants to work (the equilibrium participation rate). Third, how easily those people can find a suitable job (the equilibrium unemployment rate). And fourth, how many hours each person would like to work when employed (equilibrium average hours).

The MPC's assessment of potential labour supply is set out in the box on page 24. How fast potential labour supply will grow is highly uncertain. This box sets out some of the key risks to potential labour supply growth and, using a model-based simulation, what the consequences for output and CPI inflation might be if potential labour supply evolved differently to the assumptions underlying the MPC's projections.

### Key risks to the outlook for labour supply

The MPC's projections assume that potential labour supply growth slows over the next three years. That reflects: a slowing in population growth, as net migration flows return to their average over the past decade; a flat equilibrium participation rate; and small declines in equilibrium unemployment and average hours. There are a number of reasons why potential labour supply could grow more quickly than that. Concerns about retirement income could lead to larger increases in the participation rates of older workers, and the overall participation rate could rise. There may be more scope for the equilibrium unemployment rate to fall, for example if matching technology has improved. There are also, however, a number of reasons why potential labour supply may grow more slowly. Equilibrium average hours could fall back further than assumed if, for example, people on average decided that they would prefer to work shorter hours. The aggregate participation rate could fall if the participation rates for older workers stop rising, for example if pensioners begin to feel more secure about their retirement income.

### The transmission of faster growth in labour supply

One way to understand how a different path for potential labour supply could affect the outlook for GDP and CPI inflation is to use an illustrative model-based simulation. This box considers the scenario where potential labour supply growth is 0.5 percentage points higher over the next year, so growth remains around its current level for a further year, before subsequently falling back towards its historical average. Slower, rather than faster, labour supply growth would work

through the same channels discussed below, but with opposite effects.

As with any model-based simulation, there is a great deal of simplification relative to the real world, and the impact is highly uncertain. Specific assumptions made in this scenario include:<sup>(1)</sup>

- that the way in which labour supply adjusts — be that through population, or equilibrium participation, unemployment or average hours — and how it is distributed across the population do not matter for the impact;
- that the higher potential labour supply is not anticipated;
- that, once households know potential labour supply is higher, they start to increase consumption before their income rises;
- that hourly productivity growth does not change following the increase in potential labour supply;
- that the monetary policy maker does not respond to stronger potential labour supply, and the exchange rate does not move; and
- that the path for labour supply over the past is unchanged.

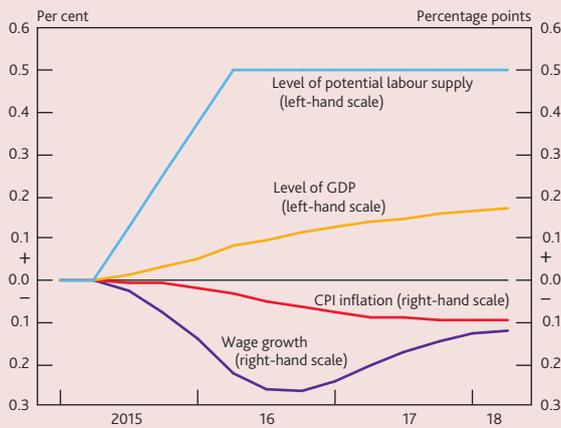
While there is uncertainty around the precise estimates from the simulation, the results suggest that higher potential labour supply would reduce inflationary pressures, but raise the level of GDP, during the forecast period, albeit by a small amount. Inflationary pressures fall because a wider margin of slack opens up as the additional labour supply is not initially employed. The extra slack increases competition for jobs and reduces the pressure on businesses to raise wages. The model-based simulation suggests that wage growth would be around 0.3 percentage points weaker after about a year (**Chart A**). Although lower wage growth will reduce household income initially, the number of hours households expect to work in aggregate will increase their future income expectations. Some households will therefore start to increase consumption in anticipation of higher future income. To satisfy this demand, businesses will increase their labour demand. Businesses will also increase investment to maintain the level of capital for each hour of labour they employ, and so the level of productivity. Higher consumption and investment mean that the level of GDP would be around 0.2% higher after three years.

In this simulation, slack is a little wider throughout the forecast period despite higher labour demand. Although GDP and labour demand grow more strongly that is not enough to

(1) This simulation has been produced by unexpectedly shocking the number of hours people would want to work if wages and prices are fully flexible in the Bank's central forecasting model. For more information about the Bank's central forecasting model and range of supporting models, see Burgess *et al* (2013), 'The Bank of England's forecasting platform: COMPASS, MAPS, EASE and the suite of models', *Bank of England Working Paper No. 471*; [www.bankofengland.co.uk/research/Documents/workingpapers/2013/wp471.pdf](http://www.bankofengland.co.uk/research/Documents/workingpapers/2013/wp471.pdf).

**Chart A Higher labour supply would tend to be associated with higher GDP and lower inflation**

Model-based response to higher labour supply



absorb all the increase in potential labour supply (Table 1). That additional slack weighs on wage growth throughout the forecast period. Lower wage growth reduces the pressure on businesses to raise their prices. In this scenario, CPI inflation would be around 0.1 percentage points lower after three years.

**Table 1 An initially wider margin of slack gradually narrows**

Additional potential labour supply and hours worked

| Per cent difference from baseline  | 2016 Q2 | 2017 Q2 | 2018 Q2 |
|------------------------------------|---------|---------|---------|
| Potential labour supply            | 0.5     | 0.5     | 0.5     |
| Total hours worked                 | 0.1     | 0.2     | 0.2     |
| Labour market slack <sup>(a)</sup> | 0.4     | 0.3     | 0.3     |

(a) Per cent of potential labour supply.

### Sensitivities in the scenario

The model-based simulation presented in this box is highly stylised, and sensitive to how quickly households increase their spending in response to higher potential labour supply. The smaller or slower the demand response, the stronger the disinflationary pressures from higher potential labour supply will be. Conversely, if demand picked up by a greater amount or more quickly, the disinflationary effects would be weaker.

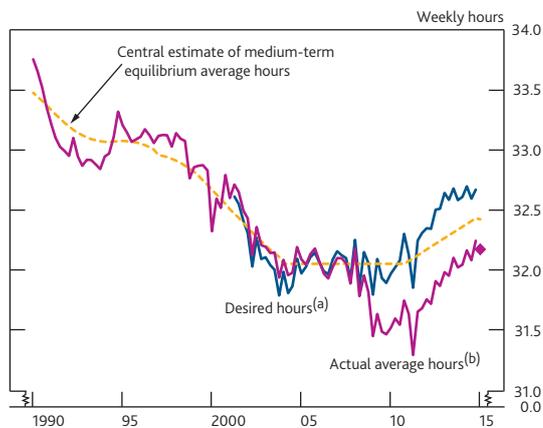
One factor that will affect how quickly demand responds to higher labour supply will be the response of the monetary policy maker. The results of this scenario assume that there is no response. A simple mechanical policy reaction function, responding to inflation and slack, would suggest a loosening in monetary policy in this scenario. In practice, the policymaker's response would take into account broader economic developments and conditions. In response to looser monetary policy, demand would grow more quickly, and more of the additional potential labour supply would be employed, reducing disinflationary pressure.

Another factor that will affect the response of demand will be the extent to which households anticipate faster potential labour supply growth. If households anticipate that growth will be quicker, some would be likely to increase their consumption sooner, in anticipation of higher income. Whether households anticipate that their income is likely to be higher will probably depend, in part, on the reason for stronger potential labour supply. For example, households may be quick to increase their consumption if they expect to be able to work more hours in the future. Similarly, if potential labour supply increased because of higher net inward migration, consumption is likely to increase relatively quickly as migrants will face expenses before they necessarily get a job. In contrast, households may be less likely to foresee an increase in the likelihood of finding a job, and hence may increase their consumption only very gradually in response.

How much demand increases also depends on how much is produced in the extra hours worked. The scenario assumes that hourly productivity on average across the economy does not change as the number of hours worked increases. But if the increase in potential labour supply were concentrated in particularly productive jobs, productivity could also increase. That could lead to a larger increase in demand. Conversely if the increase were concentrated in less productive jobs, demand might increase by less.

### Chart 3.15 Average hours remain below desired and equilibrium average hours

Average weekly hours: actual, desired and Bank staff's estimate of medium-term equilibrium



Sources: Labour Force Survey and Bank calculations.

- (a) Number of hours that the currently employed report that they would like to work, on average per week calculated from LFS microdata, which have been seasonally adjusted by Bank staff. Calculation based on Bell, D and Blanchflower, D (2013), 'How to measure underemployment?', *Peterson Institute for International Economics Working Paper No. 13-7*. Data available up to 2014 Q4.
- (b) The diamond shows Bank staff's projection for 2015 Q1, based on official data to February 2015.

hours without excess upward pressure on wages. Although the outlook for average hours is highly uncertain, equilibrium average hours are likely to fall gradually as the share of older people, who typically work shorter hours, increases.

### 3.2.3 Overall slack in the economy

Combining all the evidence, including top-down statistical estimates and bottom-up evidence on the components of supply, the MPC's best collective judgement is that slack in the economy is broadly in the region of ½% of GDP in 2015 Q2, having narrowed slightly from the previous quarter. But there is considerable uncertainty around the current degree of slack and its likely evolution, and there is a wide range of views on the Committee.

It is possible that there is more slack than in the central view. That would be consistent with weaker wage growth recently. And the potential for net inward migration could mimic the effects of slack in terms of its impact on wage pressures. If potential employees currently not resident in the United Kingdom, but available for work here, can search for jobs from overseas that could make wages less responsive to domestic labour market pressures. Consistent with this, the number of migrants arriving that already have a UK job has increased in recent years. Future migration flows are uncertain, however, and will depend, in part, on the availability of jobs in other EU countries.

Alternatively, it is possible that the current degree of slack is smaller than in the central view. And the absorption of slack could be associated with smaller increases in output than assumed — for example, if employment growth continues to be more concentrated in lower-skilled jobs with relatively low productivity.

The MPC will continue to monitor developments in potential supply and their implications for slack carefully.

# 4 Costs and prices

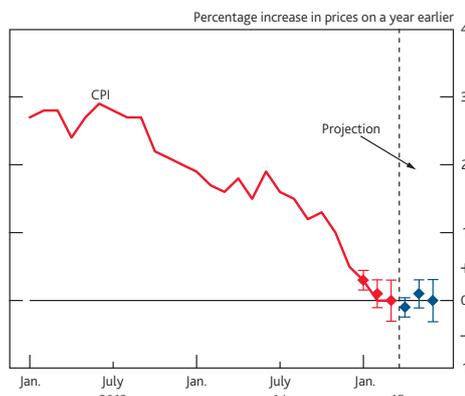
CPI inflation was 0.0% in February and March. The current low level of inflation can largely be explained by lower energy, food and imported goods prices, although it also reflects subdued growth in domestic costs. Inflation is likely to remain around zero in the very near term. Sterling oil prices, although higher, remain around 40% below their mid-2014 peak. Wage growth remained weak in early 2015. Inflation expectations remain broadly consistent with the MPC's 2% target.

**Table 4.A** Monitoring the MPC's key judgements

| Developments anticipated in February  | Developments since February   |
|---|---|
| <b>Inflation expectations</b>   | <b>Broadly on track</b>   |
| <ul style="list-style-type: none"> <li>Indicators of inflation expectations consistent with meeting the 2% target in the medium term.</li> </ul>  | <ul style="list-style-type: none"> <li>Movements in indicators of inflation expectations have been mixed. On balance, longer-term measures appear to be broadly consistent with the 2% target.</li> </ul>   |
| <b>Earnings growth</b>  | <b>Weaker than expected</b>   |
| <ul style="list-style-type: none"> <li>Four-quarter AWE growth of around 3½% in 2015 Q3.</li> </ul>   | <ul style="list-style-type: none"> <li>Four-quarter AWE growth was 1.7% in the three months to February.</li> </ul>   |
| <b>Unit labour costs</b>  | <b>Broadly on track</b>   |
| <ul style="list-style-type: none"> <li>Four-quarter whole-economy unit labour cost growth to rise to around 1½% by mid-2015.</li> </ul>   | <ul style="list-style-type: none"> <li>Unit labour costs grew by a little under 1% in the four quarters to 2014 Q4.</li> </ul>  |
| <b>The exchange rate, utility bills and commodities</b>   | <b>Exchange rate and oil prices higher than expected; fuel and utilities prices as expected</b>   |
| <ul style="list-style-type: none"> <li>Commodity prices and sterling ERI to evolve in line with conditioning assumptions.</li> <li>Domestic petrol prices to fall in 2015 Q1.</li> <li>Domestic gas prices to fall by a little over 4% in H1, in line with recent announcements.</li> </ul> | <ul style="list-style-type: none"> <li>US dollar oil futures higher, gas futures broadly as expected. Sterling ERI was higher in Q1 than expected.</li> <li>Petrol prices fell by around 10% over 2015 Q1.</li> <li>Domestic gas prices have fallen in line with previous announcements.</li> </ul> |
| <b>Import prices</b>  | <b>Weaker than expected</b>   |
| <ul style="list-style-type: none"> <li>Non-fuel import prices to fall by around 1% in the year to 2015 Q3.</li> </ul>   | <ul style="list-style-type: none"> <li>Non-fuel import prices estimated to have fallen by 0.5% in the year to 2015 Q1.</li> </ul>   |

**Chart 4.1** CPI inflation expected to remain around zero over the next few months

Bank staff projection for near-term CPI inflation<sup>(a)</sup>



(a) The red diamonds show Bank staff's central projection for CPI inflation in January, February and March 2015 at the time of the February *Inflation Report*. The blue diamonds show the staff projection for April, May and June 2015. The bands on either side of the diamonds show uncertainty around these projections based on one root mean squared error of projections for CPI inflation one, two and three months ahead made since 2004.

CPI inflation was 0.0% in March, as expected at the time of the February *Report*. Since inflation remains more than 1 percentage point away from the MPC's 2% target, the Governor has written a second consecutive open letter to the Chancellor.<sup>(1)</sup> As explained in that letter, the weakness in inflation is primarily a consequence of past falls in the prices of commodities and some other imported goods, although domestic cost pressures also remain subdued (Section 4.1).

CPI inflation is likely to remain around zero in the very near term, and could temporarily turn negative. But as past falls in energy and food prices drop out of the annual comparison towards the end of the year, inflation is expected to pick up. The outlook for inflation will remain sensitive to global influences (Section 4.2) and developments in domestic costs (Section 4.3).

## 4.1 Consumer prices

CPI inflation was 0.0% in February and March, down from 0.5% in December (Chart 4.1), broadly as expected at the time of the February *Report*.

Around three quarters of the weakness in inflation relative to the 2% target can be attributed to smaller than average contributions from energy, food and other goods prices (Table 4.B). A fall in petrol prices, due to a fall in global oil prices, subtracted nearly 0.7 percentage points from CPI inflation in March relative to its pre-crisis average contribution. After recent reductions in household gas prices, the contribution from household energy utilities to inflation was 0.3 percentage points below its pre-crisis average. Lower food price inflation subtracted 0.5 percentage points relative to its pre-crisis average, driven by a combination of lower agricultural prices, the appreciation of sterling relative to the euro and competition among supermarkets. The appreciation of sterling has also weighed on the prices of other imported

(1) The letter is available on the Bank's website at [www.bankofengland.co.uk/monetarypolicy/Documents/pdf/cpiletter130515.pdf](http://www.bankofengland.co.uk/monetarypolicy/Documents/pdf/cpiletter130515.pdf).

**Table 4.B** Around three quarters of the weakness in inflation is due to food, energy and other goods prices

Contributions to March 2015 CPI inflation relative to the pre-crisis average

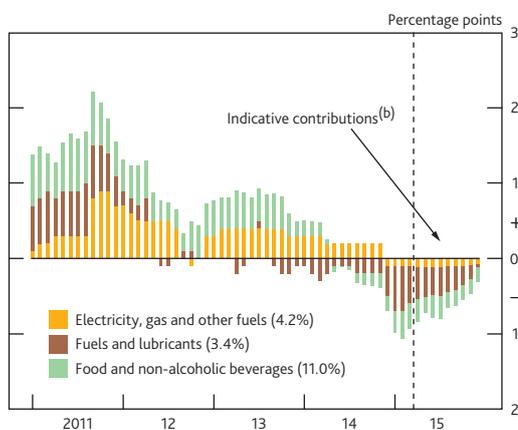
| Percentage points                           | 1997–2007 average | March 2015 | Difference  |
|---|-------------------|------------|-------------|
| Energy, food and other goods <sup>(a)</sup> | 0.4               | -1.1       | -1.5        |
| Services                                    | 1.6               | 1.1        | -0.5        |
| <b>Total<sup>(a)(b)</sup></b>               | <b>2.0</b>        | <b>0.0</b> | <b>-2.0</b> |

Sources: ONS and Bank calculations.

(a) Adjusted for the 0.37 percentage point downward bias from clothing that existed until 2010.  
 (b) Totals may not sum exactly due to rounding.

**Chart 4.2** The drag on inflation from food and energy prices will diminish over 2015

Contributions to CPI inflation<sup>(a)</sup>

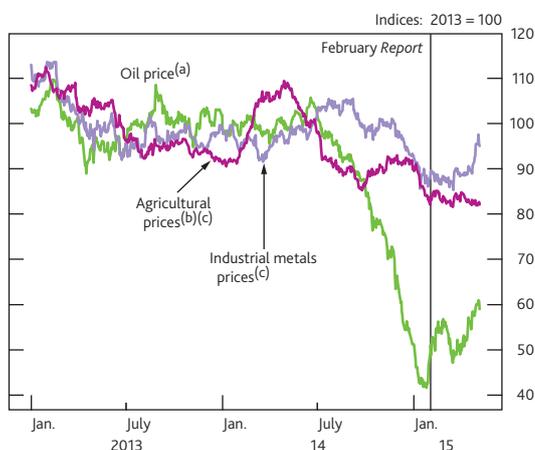


Sources: Bloomberg, Department of Energy and Climate Change, ONS and Bank calculations.

(a) Contributions to annual CPI inflation. Data are non seasonally adjusted.  
 (b) Bank staff estimates. Fuels and lubricants estimates use Department of Energy and Climate Change petrol price data for April 2015 and are then based on the May 2015 sterling oil futures curve shown in **Chart 4.4**. The CPI weights used to produce these contributions are 2015 weights, shown in parentheses.

**Chart 4.3** Oil prices have risen since February

US dollar oil and commodity prices



Sources: Bloomberg, S&P indices and Thomson Reuters Datastream.

(a) US dollar Brent forward prices for delivery in 10–21 days' time.  
 (b) Total agricultural and livestock S&P commodity index.  
 (c) Calculated using S&P US dollar commodity price indices.

goods and on the prices of goods with a sizable imported content (Section 4.2).

Lower prices for a range of goods with a sizable import content is likely to be one reason why measures of core inflation — which attempt to strip out volatile components such as food and energy — have fallen recently. These measures are also likely to pick up weakness in domestic price pressures. These domestic price pressures remain subdued, but as in February are judged to account for only around 0.5 percentage points, or one quarter, of the weakness in inflation relative to the target.

CPI inflation is expected to remain around zero for the next few months, as past falls in energy and food prices remain in the annual comparison (Section 4.2). Factors such as the timing of summer sales may lead to some near-term volatility in inflation, and there is a possibility that inflation temporarily turns negative. This would not, however, be associated with the potentially damaging consequences of persistent deflation, as discussed in the box on page 35.

As past falls in food and energy prices start to drop out of the annual comparison towards the end of 2015 (**Chart 4.2**), inflation is likely to rise notably. Beyond that, the path of inflation will be sensitive to developments in global prices (Section 4.2) and domestic costs (Section 4.3).

## 4.2 Global costs and prices

Falls in global commodity prices and the appreciation in sterling have been key factors pulling down UK CPI inflation over the past year. The extent to which inflation remains low will depend, in part, on the evolution of these factors.

### Global commodity prices

The Brent crude spot oil price has risen significantly since the *February Report* (**Chart 4.3**), to around US\$63 in the fifteen working days to 7 May. One driver of that rise is likely to have been an unexpected slowing in the growth of US oil inventories, which indicates less of an imbalance between oil supply and demand. A reduction in the perceived likelihood that Iranian sanctions will be lifted in the second half of the year may also have played a role.

The oil price futures curve, on which the MPC conditions its forecast, reaches US\$73 by 2018 Q2, but there are significant risks around that path. In the near term, further rises in inventories, which are already at high levels, could increase the cost of storage, which may lead to falls in spot oil prices in order to make storage economical. In the medium term, there remains uncertainty about the degree to which low oil prices will reduce extraction investment and future supply. And oil prices will remain sensitive to the outlook for global demand growth.

## Deflation

CPI inflation was 0.0% in March, and the United Kingdom could experience a period of temporary deflation at some point over the next few months. Current low inflation is judged to be largely a consequence of positive supply shocks, in the form of lower energy and food prices. This, in turn, has boosted real incomes and domestic demand (Section 2).

In certain circumstances, particularly if it becomes widespread and persistent, deflation may itself have adverse consequences. This was the case during the periods of deflation in the United Kingdom and the United States in the 1920s and early 1930s, and to some extent in Japan in the late 1990s and early 2000s.

As this box sets out, it is the ability of monetary policy to respond to changes in inflation that matter for the economy, rather than falling prices as such. The current evidence suggests little sign that a period of temporary price deflation in the United Kingdom would be associated with any adverse consequences.

### Deflation can generate adverse consequences...

There are two main channels by which low, or negative, inflation can generate adverse consequences:

- **Delayed consumption:** for a given nominal interest rate, lower inflation, or lower expected inflation, raises the real interest rate. As the real interest rate rises, households can buy more in the future with income saved today. So lower inflation could, unless it is counteracted by a rise in real incomes, lead to delayed consumption and weaker demand. That, in turn, could cause prices to fall further and lead to persistently weak demand.
- **Debt deflation:** the value of debt is often fixed in nominal terms, and the ability to repay debt depends on the nominal interest rate and on nominal income growth. If price

deflation is accompanied by low — or negative — nominal income growth and relatively high nominal interest rates, households, companies and the government may find it progressively harder to repay debt. In response, they may be forced to cut back on spending in order to meet debt repayments, further reducing demand and prices, and any resulting arrears and defaults may lead to stress for financial institutions.

In both cases, however, what matters is not deflation directly but rather the extent to which policymakers are able to respond. The appropriate response to signs that deflation may become persistent would be to lower nominal interest rates in order to offset rising real interest rates and counteract falling nominal incomes. Indeed, cuts in interest rates during the crisis were necessary to limit the extent of the downturn. Where monetary policy makers' toolkits are constrained — for example by having a fixed exchange rate or from a lack of tools to reduce nominal interest rates and increase monetary stimulus — the risk of delayed consumption and debt deflation may increase, which in turn could lead to more persistently weak demand.

### ...but in current UK circumstances, it is highly unlikely

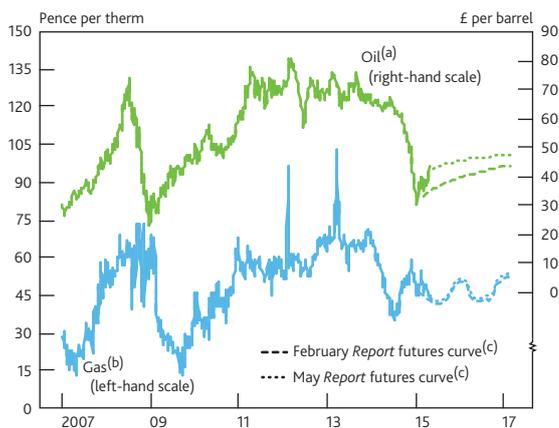
Recently, real incomes in the United Kingdom have been growing at their strongest rate since 2008. There is little evidence of consumers delaying purchases (Section 2). Most measures of inflation expectations are broadly consistent with the 2% target (Section 4.4). There are also few signs of either debt deflation or increases in financial stress due to debt affordability concerns. The ratio of household debt to income has continued to fall — albeit from a relatively high level. Nominal interest rates faced by households for new borrowing remain low. And indicators of household debt affordability — such as arrears and mortgagors reporting financial distress — remain benign. Moreover, the MPC has the tools to bring inflation back to the target, and stands ready to use such measures as appropriate.

Wholesale gas prices, which influence CPI inflation predominantly through their impact on household utility bills, have been broadly unchanged since February (**Chart 4.4**). Cuts to household gas prices — announced earlier in 2015 in response to past falls in wholesale gas prices — by five of the six largest domestic utility suppliers have already affected CPI, and the remaining company's price cut will do so in May.

There have been mixed moves in non-energy commodity prices since February (**Chart 4.3**). Prices of industrial metals have risen by around 5%, in part due to growing evidence that metal producers may be starting to reduce supply. Agricultural commodity prices, in contrast, have been broadly stable since February, having fallen at the end of 2014.

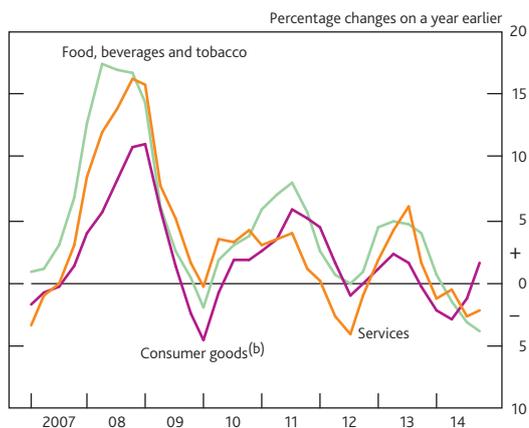
**Chart 4.4 The oil futures curve has flattened**

Sterling oil and wholesale gas prices



Sources: Bank of England, Bloomberg, Thomson Reuters Datastream and Bank calculations.

- (a) Brent forward prices for delivery in 10–21 days' time converted into sterling.  
 (b) One-day forward price of UK natural gas.  
 (c) Futures prices at the time of the February Report are averages during the fifteen working days to 4 February 2015. Futures prices at the time of the May Report are averages during the fifteen UK working days to 7 May for gas and averages during the fifteen US working days to 7 May for oil.

**Chart 4.5 Components of import price inflation have diverged**Import price inflation by category<sup>(a)</sup>

- (a) Deflators for imported consumer goods and services from the ONS National Accounts.  
 (b) Excludes imports of cars.

**Table 4.C Wage growth remains below pre-recession rates**

Whole-economy earnings

|  | Averages |                 |      |         | 2014 |     | 2015 |
|--|----------|-----------------|------|---------|------|-----|------|
|  | 2001–07  | 2008 Q3–2010 Q2 | 2013 | 2014 H1 | Q3   | Q4  | Q1   |
| Percentage changes on a year earlier                                   |          |                 |      |         |      |     |      |
| (1) Total AWE <sup>(a)</sup>   | 4.3      | 1.4             | 1.2  | 0.9     | 1.0  | 2.1 | 1.8  |
| (2) AWE regular pay <sup>(a)(b)</sup>                                  | 4.0      | 2.1             | 0.9  | 1.0     | 1.2  | 1.7 | 2.1  |
| (1)–(2) Bonus contribution <sup>(a)(c)</sup>                           | 0.3      | -0.7            | 0.2  | 0.0     | -0.2 | 0.4 | -0.3 |
| Pay settlements <sup>(d)</sup>   | 3.2      | 2.5             | 1.8  | 2.0     | 2.0  | 1.9 | 1.9  |
| Memo: three-month on three-month annualised regular pay <sup>(a)</sup> |          |                 |      |         |      |     |      |
|  | 4.0      | 1.7             | 1.0  | 0.7     | 2.6  | 3.0 | 2.4  |

Sources: Bank of England, Incomes Data Services, the Labour Research Department, ONS and XperTHR.

- (a) Figures for 2015 Q1 are estimated based on data for January and February and Bank staff's projections for March.  
 (b) Whole-economy total pay excluding bonuses and arrears of pay.  
 (c) Percentage points. The bonus contribution does not always equal the difference between total AWE growth and AWE regular pay growth due to rounding.  
 (d) Average over the past twelve months, based on monthly data.

**Non-energy import prices**

Import prices have a direct effect on CPI through their impact on the cost of imported goods and services bought by households, as well as an indirect effect through their impact on the cost of inputs for businesses. Import prices, excluding fuel, fell by 1.2% in the year to 2014 Q4, as the significant appreciation of sterling since March 2013 continued to weigh on prices.

The sterling ERI is 16% higher than its trough in March 2013, but this masks a more significant appreciation against the euro and a sizable depreciation against the US dollar (Section 1). This may have implications for the timing of pass-through to CPI inflation. The prices of food-related imports are closely linked to the euro exchange rate, due to trade links and product competition. Prices of other consumer goods, by contrast, tend to be relatively more sensitive to the US dollar. Consistent with this, imported food prices have been falling, while the prices of other imported consumer goods have risen over the four quarters to 2014 Q4 (Chart 4.5). As a consequence, imported food prices are expected to continue pulling down CPI inflation over the coming months, while imported consumer goods prices are expected to start supporting CPI inflation to some extent, although pass-through here is likely to take longer than for food since prices in this sector change less frequently.

In the central projection, import prices are assumed to be pulling down CPI inflation a little in early 2015, with more downward pressure to come over the forecast period. The extent to, and speed at, which movements in import prices feed through to inflation remains highly uncertain, however, and there are risks in both directions.

**4.3 Domestic influences on inflation**

Domestic cost pressures, particularly wage and unit labour cost growth, have picked up relative to a year ago, but remained subdued relative to historical averages.

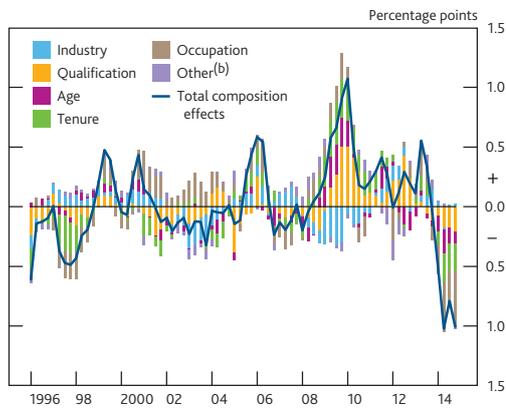
**Recent developments in nominal wages**

Wage growth has been weak since the 2008/09 recession (Table 4.C). This is likely to have been largely a result of weak productivity growth and significant slack in the labour market. Despite a significant narrowing in labour market slack since mid-2013 (Section 3), however, wage growth has remained weak: annual pay growth was 1.7% in the three months to February, below expectations at the time of the February Report (Table 4.A). There are several factors that might explain why wages have remained weak, some of which are likely to persist for longer than others.

The composition of employment growth may explain some of the recent weakness in average wage growth. Employment growth since mid-2013 has been disproportionately in lower-skilled jobs, with a rising proportion of staff who are

### Chart 4.6 The changing composition of employment weighed on average wage growth in 2014

Estimates of the contribution of employment characteristics to four-quarter wage growth<sup>(a)</sup>

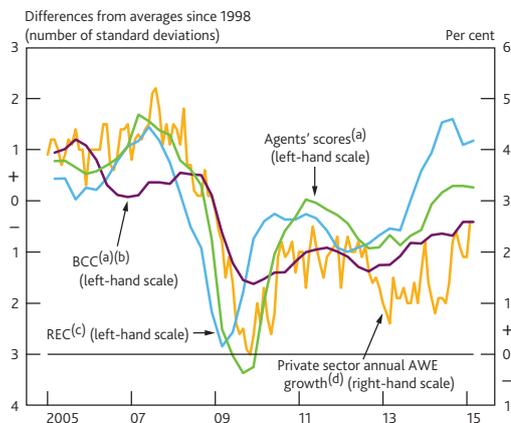


Sources: Labour Force Survey and Bank calculations.

- (a) Estimates are shown relative to their averages over 1995 Q2–2014 Q4. Estimates of the effect of individual and job characteristics are derived from a regression of these characteristics on levels of employee pay using Labour Force Survey data. The estimate of the total compositional effect is obtained by combining these estimates with changes in the composition of the labour force.
- (b) Other includes gender, region of residence, whether working full-time and whether in public sector employment.

### Chart 4.7 Some survey indicators point to stronger pay growth

Private sector earnings and indicators of pay growth



Sources: Bank of England, BCC, KPMG/REC/Markit and ONS.

- (a) The Bank's Agents' scores and the BCC survey are produced by weighting together indices for the manufacturing and service sector according to their employment shares. The Bank's Agents' scores are the end-quarter score, and are available from June 1998.
- (b) Four-quarter moving average measure. Non seasonally adjusted.
- (c) The REC measure is produced by weighting together survey indices for the pay of permanent and temporary placements using shares in employment; quarterly averages.
- (d) Excludes bonuses and arrears of pay.

new to roles (Section 3). Assuming that those employees are earning commensurately lower wages, this would push down growth in measured average earnings. Bank staff estimates suggest that the changing composition of employment growth — including the mix of occupations, industries, ages and job tenures — could explain around 1 percentage point of the recent weakness in average annual earnings growth (Chart 4.6). Compositional effects will only suppress wage growth for as long as such shifts continue.

Another explanation for weak wage growth that might be more persistent is if there were a greater degree of slack in the labour market. At the time of the August 2014 Report, the MPC judged that some of the unexplained weakness in wage growth was due to a greater degree of slack than it had previously thought.<sup>(1)</sup> Having assessed the evidence on the degree of slack, including that of wage growth, the best collective judgement of the MPC is that slack is broadly in the region of ½% (Section 3). There is, however, considerable uncertainty around this judgement and a range of views on the Committee.

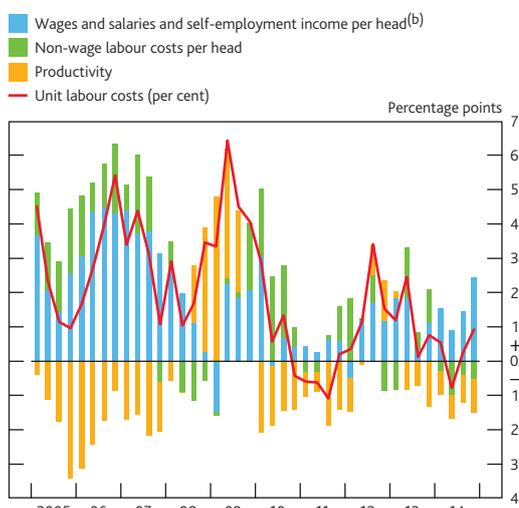
The past narrowing in slack may be taking longer than usual to feed through to wage growth, in which case the weakness may be more temporary. There is evidence from the REC survey of strong growth in starting salaries (Chart 4.7). Job moves have risen but remain below their pre-crisis average rate (Section 3), suggesting that it may take longer than usual for these higher pay pressures to feed through to average wages. As confidence about job prospects strengthens and the number of job moves increases further, those higher starting salaries and the need to retain staff are likely to pull up aggregate wage growth.

A further explanation is that there may have been a change in the relationship between domestic labour market slack and wage growth. For example, it is possible that it may have become easier to recruit employees for some occupations from outside the United Kingdom. This may have reduced the sensitivity of wages to domestic slack.

Wage growth may also remain weak for longer if low inflation, or low expectations of wage growth, influence wage bargaining. Lower food and energy prices mean that households are better off for a given level of nominal income, which may lead them to be satisfied with smaller pay increases. And they may be slow to adjust pay expectations upwards in response to an improving labour market following the extended period of low pay growth. Perhaps consistent with this, according to a recent survey by the CIPD, the mean expectation of employees for pay growth in 2015 was lower than in 2014.

(1) For a summary of that judgement see the box on page 28 of the August 2014 Report; [www.bankofengland.co.uk/publications/Documents/inflationreport/2014/ir14aug.pdf](http://www.bankofengland.co.uk/publications/Documents/inflationreport/2014/ir14aug.pdf).

**Chart 4.8 Unit labour cost growth picked up in 2014 Q4**  
Decomposition of four-quarter whole-economy unit labour cost growth<sup>(a)</sup>

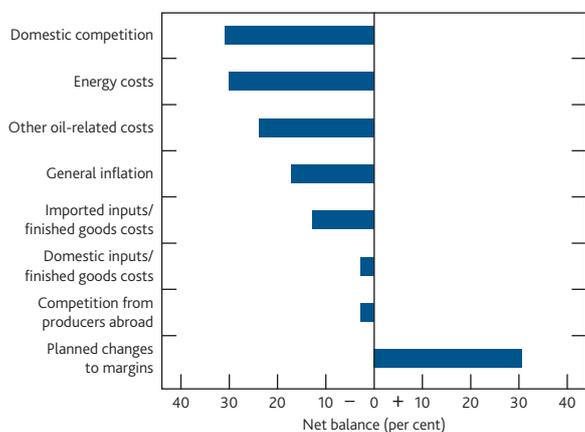


Sources: ONS and Bank calculations.

- (a) Unit labour costs are calculated as total labour costs divided by GDP. GDP is based on the MPC's best collective judgement of the final estimate of GDP. Estimates are consistent with the Bank staff estimates of population growth, which are explained in footnote (a) of Chart 3.9.
- (b) Self-employment income is calculated from mixed income, assuming that the share of employment income in that is the same as the share of employee compensation in nominal GDP less mixed income.

**Chart 4.9 A desire to increase margins may support prices to some extent**

Agents' survey: factors affecting companies' pricing decisions<sup>(a)</sup>



- (a) The survey asked respondents how they expected the factors listed to affect the change in their output prices in the year ahead, compared with the change over the past year. Based on 424 responses to a survey carried out by the Bank's Agents between 6 February and 25 March 2015. Responses have been weighted by turnover. A positive net balance indicates a greater proportion of companies responded that the factor would support prices.

### Near-term outlook for wages

In the near term, pay growth is expected to strengthen, driven by the narrowing in slack and a pickup in productivity growth, and as the temporary factors weighing on pay growth — such as compositional effects and subdued job turnover — diminish. The continued weakness in wage growth has led the MPC to reassess the persistence of the factors dragging on pay growth, and in particular the possibility that the compositional effects may be slow to fade. As a consequence, wage growth is expected to pick up at a slower rate than at the time of the February Report. The uncertainty around the path for wages is considerable.

### Unit wage and unit labour costs

A key determinant of the cost of producing goods and services is the extent to which growth in labour costs is accompanied by growth in labour productivity. Unit labour costs — based on the MPC's GDP backcast — rose by 0.9% in the four quarters to 2014 Q4 (Chart 4.8), as strength in the National Accounts measure of wages and salaries was only partially offset by productivity growth. The non-wage component — which includes costs such as pension contributions and which can be erratic — dragged on unit labour cost growth. There is uncertainty about the wages and salaries measure of earnings, however, and growth in the average weekly earnings measure, which is probably a better indicator of current earnings growth, grew by around 1 percentage point less over the same period. Overall, therefore, unit labour costs probably provide a reasonable measure of companies' true labour cost growth at present.

Unit labour cost growth is expected to pick up to 1.8% in the four quarters to 2015 Q1. In the medium term, wages are expected to continue to grow faster than productivity, consistent with CPI inflation returning to the 2% target within two years (Section 5).

### Companies' pricing decisions

A key factor in the evolution of inflation is how companies set prices relative to their production costs. Cost pressures are subdued at present, given relatively subdued labour cost growth, combined with the appreciation in sterling and weak global cost pressures (Section 4.2). So an important question is the extent to which competitive pressures will cause companies to reflect this in lower prices, or whether strong demand will instead lead them to pass through less to prices and increase their margins.

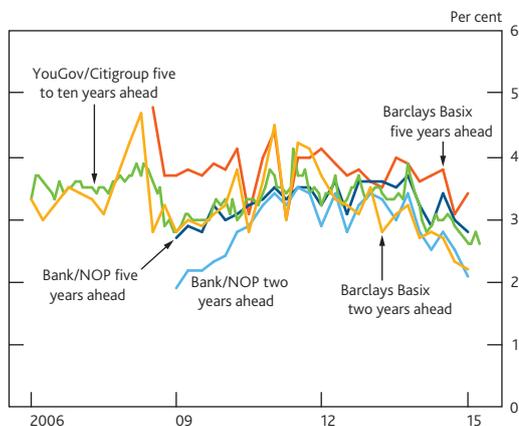
In aggregate, companies' profit margins do not appear particularly low relative to their pre-crisis averages. A recent survey conducted by the Bank's Agents, however, suggests that there is a significant minority of companies for whom profit margins remain below normal levels. Furthermore, the survey suggests that some companies intend to use the opportunity of weak cost pressures to rebuild profit margins (Chart 4.9).

**Table 4.D Inflation expectations**Indicators of inflation expectations<sup>(a)</sup>

| Per cent  | 2000 (or start of series) to 2007 averages <sup>(b)</sup> | Averages since 2008 | 2013 | 2014 |     |     | 2015 |                   |
|---|---|---------------------|------|------|-----|-----|------|-------------------|
|   |   |                     |      | H1   | Q3  | Q4  | Q1   | Q2 <sup>(c)</sup> |
| <b>One year ahead inflation expectations</b>            |   |                     |      |      |     |     |      |                   |
| <b>Households<sup>(d)</sup></b>                         |   |                     |      |      |     |     |      |                   |
| Bank/NOP  | 2.4   | 3.2                 | 3.5  | 2.7  | 2.8 | 2.5 | 1.9  | n.a.              |
| Barclays Basix  | 2.8   | 3.0                 | 2.8  | 2.4  | 2.4 | 1.9 | 1.7  | n.a.              |
| YouGov/Citigroup (Nov. 2005)                            | 2.5   | 2.6                 | 2.7  | 2.2  | 2.1 | 1.7 | 1.2  | 1.1               |
| Companies (2008 Q2) <sup>(e)</sup>                      | n.a.  | 0.5                 | 0.4  | 0.7  | 0.6 | 0.3 | 0.4  | n.a.              |
| Financial markets (Oct. 2004) <sup>(f)</sup>            | 2.6   | 2.7                 | 3.0  | 2.9  | 3.0 | 2.6 | 2.5  | 2.5               |
| <b>Two to three year ahead expectations</b>             |   |                     |      |      |     |     |      |                   |
| <b>Households<sup>(d)</sup></b>                         |   |                     |      |      |     |     |      |                   |
| Bank/NOP (2009 Q1)                                      | n.a.  | 2.9                 | 3.3  | 2.7  | 2.8 | 2.5 | 2.1  | n.a.              |
| Barclays Basix  | 3.2   | 3.3                 | 3.2  | 2.8  | 2.7 | 2.3 | 2.2  | n.a.              |
| <b>Professional forecasters (2006 Q2)<sup>(g)</sup></b> |   |                     |      |      |     |     |      |                   |
| Financial markets (Oct. 2004) <sup>(h)</sup>            | 2.8   | 3.0                 | 3.1  | 3.1  | 3.1 | 3.0 | 2.9  | 3.0               |
| <b>Five to ten year ahead expectations</b>              |   |                     |      |      |     |     |      |                   |
| <b>Households<sup>(d)</sup></b>                         |   |                     |      |      |     |     |      |                   |
| Bank/NOP (2009 Q1)                                      | n.a.  | 3.2                 | 3.6  | 3.1  | 3.4 | 3.0 | 2.8  | n.a.              |
| Barclays Basix (2008 Q3)                                | n.a.  | 3.8                 | 3.8  | 3.7  | 3.8 | 3.1 | 3.4  | n.a.              |
| YouGov/Citigroup (Nov. 2005)                            | 3.5   | 3.3                 | 3.5  | 3.0  | 3.0 | 2.8 | 2.7  | 2.6               |
| Financial markets (Oct. 2004) <sup>(i)</sup>            | 3.0   | 3.5                 | 3.5  | 3.4  | 3.4 | 3.3 | 3.1  | 3.2               |
| Memo: CPI inflation                                     | 1.6   | 2.8                 | 2.6  | 1.7  | 1.5 | 0.9 | 0.1  | n.a.              |

Sources: Bank of England, Barclays Capital, Bloomberg, CBI (all rights reserved), Citigroup, GfK NOP, ONS, YouGov and Bank calculations.

- (a) Data are non seasonally adjusted.  
 (b) Dates in parentheses indicate start date of the data series.  
 (c) Financial markets data are averages from 1 April to 7 May 2015. YouGov/Citigroup data are for April.  
 (d) The household surveys ask about expected changes in prices but do not reference a specific price index, and the measures are based on the median estimated price change.  
 (e) CBI data for the manufacturing, business/consumer services and distribution sectors, weighted together using nominal shares in value added. Companies are asked about the expected percentage price change over the coming twelve months in the markets in which they compete.  
 (f) Instantaneous RPI inflation one year ahead implied from swaps.  
 (g) Bank's survey of external forecasters, inflation rate three years ahead.  
 (h) Instantaneous RPI inflation three years ahead implied from swaps.  
 (i) Five-year, five-year forward RPI inflation implied from swaps.

**Chart 4.10 Households' longer-term inflation expectations**Survey measures of households' inflation expectations beyond one year ahead<sup>(a)</sup>

Sources: Bank of England, Barclays Capital, Citigroup, GfK NOP and YouGov.

- (a) Measures do not reference a specific price index and are based on median estimated price changes. Data are non seasonally adjusted.

## 4.4 Inflation expectations

How persistent below-target CPI inflation proves to be will depend, in part, on inflation expectations and the extent to which they influence households' and companies' spending, and wage and price-setting decisions.

Most measures of short-term inflation expectations fell further in Q1, taking them well below their levels in mid-2014 (Table 4.D). Short-term expectations would, however, be expected to respond to changes in actual inflation and the near-term inflation outlook, both of which are much lower than they were a year ago.

Longer-term inflation expectations are potentially more informative when judging whether expectations remain well anchored. Most measures of households' longer-term inflation expectations fell in Q1 (Chart 4.10) and remain low relative to their past averages. That could suggest a downside risk from inflation expectations, but there are a number of factors that make it hard to interpret the level of those measures. Households' expectations are likely to be particularly sensitive to changes in current inflation. Historical averages may also not be an appropriate comparison for judging whether expectations remain consistent with the 2% target: most of these measures have a short backrun during which CPI inflation was above 2% on average. Furthermore, the proportion of respondents to the Bank/NOP survey reporting that they were confident inflation would be within 1 percentage point of the 2% inflation target in two to three years' time rose in 2015 Q1 to its highest level since 2011. There is also little evidence at present that lower expected inflation has reduced household spending (Section 2).

Recent changes in other longer-term measures of inflation expectations were more mixed. Professional forecasters' expectations and financial markets based measures — such as those derived from swaps — have changed little since February, and remain at around their pre-crisis averages. According to the *Deloitte CFO Survey*, however, the proportion of companies expecting inflation in two years' time to be lower than 1.5% rose in 2015 Q1. Nevertheless, around 60% of survey respondents expected inflation to be within 0.5 percentage points of the 2% target.

Overall, taking into account the range of indicators, the MPC continues to judge that inflation expectations remain broadly consistent with the 2% target. There is a risk that lower expectations begin to affect spending and wage and price-setting decisions, causing low inflation to be more persistent. The MPC will continue to monitor measures of expectations closely.

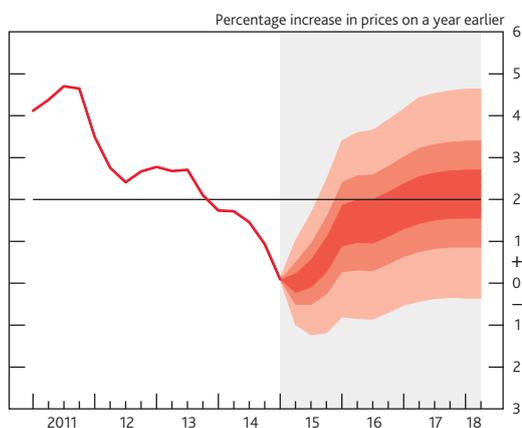
# 5 Prospects for inflation

CPI inflation was 0.0% in March, well below the MPC's 2% target. That undershoot largely reflects falls in the prices of commodities and some other imported goods. Those falls will bear down on inflation for much of this year, but the path of inflation thereafter is expected to depend more on domestic cost pressures. Domestic pressures have been weak, as seen in low wage growth in recent years. They are likely to build over the forecast period, as a steady expansion in demand absorbs the remaining economic slack. The MPC judges that it is currently appropriate to set policy so that it is likely that inflation will return to the 2% target within two years. Conditional on Bank Rate following the path currently implied by market yields — such that it rises gradually over the forecast period — that is judged likely to be achieved.

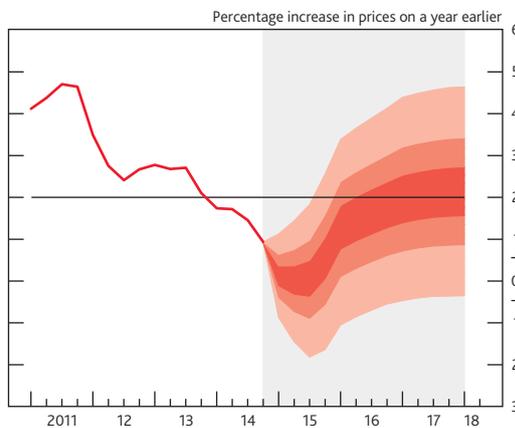
CPI inflation was 0.0% in March, necessitating a second successive letter from the Governor to the Chancellor of the Exchequer.<sup>(1)</sup> As set out in that letter, the MPC judges that roughly three quarters of the weakness in inflation relative to the target, or 1.5 percentage points, can be explained by falls in the prices of commodities and some other imported goods. The remainder reflects relatively weak growth in domestic costs. Inflation is likely to remain close to zero in the very near term (**Chart 5.1**) and could briefly turn negative. In the absence of further external shocks, the path of inflation further out will reflect domestic conditions.

(1) That letter can be found at [www.bankofengland.co.uk/monetarypolicy/Documents/pdf/cpiletter130515.pdf](http://www.bankofengland.co.uk/monetarypolicy/Documents/pdf/cpiletter130515.pdf).

**Chart 5.1** CPI inflation projection based on market interest rate expectations and £375 billion purchased assets



**Chart 5.2** CPI inflation projection in February based on market interest rate expectations and £375 billion purchased assets

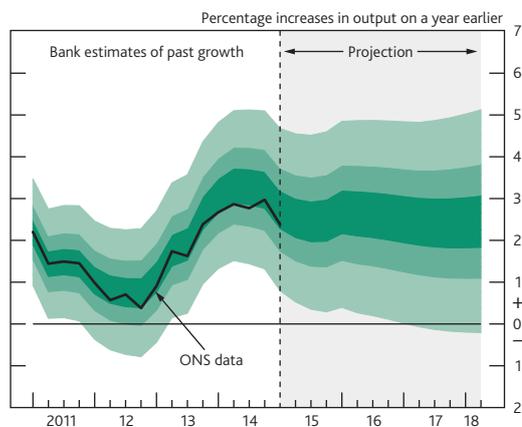


Charts 5.1 and 5.2 depict the probability of various outcomes for CPI inflation in the future. They have been conditioned on the assumption that the stock of purchased assets financed by the issuance of central bank reserves remains at £375 billion throughout the forecast period. If economic circumstances identical to today's were to prevail on 100 occasions, the MPC's best collective judgement is that inflation in any particular quarter would lie within the darkest central band on only 30 of those occasions. The fan charts are constructed so that outturns of inflation are also expected to lie within each pair of the lighter red areas on 30 occasions. In any particular quarter of the forecast period, inflation is therefore expected to lie somewhere within the fans on 90 out of 100 occasions. And on the remaining 10 out of 100 occasions inflation can fall anywhere outside the red area of the fan chart. Over the forecast period, this has been depicted by the light grey background. See the box on pages 48–49 of the May 2002 *Inflation Report* for a fuller description of the fan chart and what it represents.

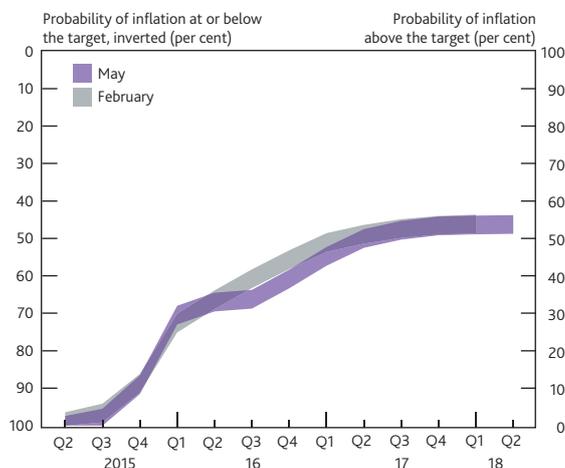
**Table 5.A** Conditioning path for Bank Rate implied by forward market interest rates<sup>(a)</sup>

| Per cent | 2015              |     |     | 2016 |     |     |     | 2017 |     |     |     | 2018 |     |
|----------|-------------------|-----|-----|------|-----|-----|-----|------|-----|-----|-----|------|-----|
|          | Q2 <sup>(b)</sup> | Q3  | Q4  | Q1   | Q2  | Q3  | Q4  | Q1   | Q2  | Q3  | Q4  | Q1   | Q2  |
| May      | 0.5               | 0.5 | 0.5 | 0.6  | 0.7 | 0.8 | 0.9 | 1.0  | 1.1 | 1.2 | 1.3 | 1.3  | 1.4 |
| February | 0.4               | 0.5 | 0.5 | 0.6  | 0.6 | 0.7 | 0.8 | 0.9  | 1.0 | 1.0 | 1.1 | 1.1  |     |

(a) The data are fifteen working day averages of one-day forward rates to 7 May 2015 and 4 February 2015 respectively. The curve is based on overnight index swap rates.  
 (b) May figure for 2015 Q2 is an average of realised spot rates to 7 May 2015, and forward rates thereafter.

**Chart 5.3** GDP projection based on market interest rate expectations and £375 billion purchased assets

The fan chart depicts the probability of various outcomes for GDP growth. It has been conditioned on the assumption that the stock of purchased assets financed by the issuance of central bank reserves remains at £375 billion throughout the forecast period. To the left of the vertical dashed line, the distribution reflects the likelihood of revisions to the data over the past; to the right, it reflects uncertainty over the evolution of GDP growth in the future. If economic circumstances identical to today's were to prevail on 100 occasions, the MPC's best collective judgement is that the mature estimate of GDP growth would lie within the darkest central band on only 30 of those occasions. The fan chart is constructed so that outcomes are also expected to lie within each pair of the lighter green areas on 30 occasions. In any particular quarter of the forecast period, GDP growth is therefore expected to lie somewhere within the fan on 90 out of 100 occasions. And on the remaining 10 out of 100 occasions GDP growth can fall anywhere outside the green area of the fan chart. Over the forecast period, this has been depicted by the light grey background. See the box on page 39 of the November 2007 *Inflation Report* for a fuller description of the fan chart and what it represents.

**Chart 5.4** Inflation probabilities relative to the target

The May and February swaths in this chart are derived from the same distributions as Charts 5.1 and 5.2 respectively. They indicate the assessed probability of inflation relative to the target in each quarter of the forecast period. The 5 percentage points width of the swaths reflects the fact that there is uncertainty about the precise probability in any given quarter, but they should not be interpreted as confidence intervals.

UK GDP grew by only 0.3% in Q1 according to the ONS's preliminary estimate, considerably less than expected three months ago. But output surveys continue to point to growth around pre-crisis average growth rates in early 2015, and the MPC judges that Q1 growth is likely to be revised up a little over time. Moreover, conditions remain supportive of domestic expansion: lower oil prices should boost real incomes, as should the low yield curve. The path for Bank Rate underlying the MPC's projections rises to 1.4% by 2018 Q2 (Table 5.A),<sup>(1)</sup> a little higher than three months ago, but considerably more gradual than in past tightening cycles (Section 1).

Under that path for Bank Rate, four-quarter GDP growth is judged likely to be at or a little below its historical average rate throughout the forecast period (Chart 5.3). Growth is, however, high enough to absorb the slack remaining in the economy. Wage growth and unit labour cost growth are therefore expected to rise, helping to return inflation to the 2% target. Under the same path for Bank Rate, the MPC's best collective judgement is that inflation is as likely to be above as below the 2% target by early 2017 (Chart 5.4), with the likelihood of inflation being above the target rising a little further into 2018.

## 5.1 Key judgements and risks

The Committee's projections are underpinned by four key judgements, described below. Table 5.B provides projections for variables that illustrate those judgements; Table 5.C provides a range of indicators to monitor them; and Table 5.D shows indicative projections for a range of other variables.

### Key Judgement 1: global growth picks up slightly, particularly in the euro area

A range of factors are supporting euro-area growth, which appears to have picked up around the turn of the year. Household and business confidence has improved. Real incomes have been boosted by the fall in oil prices since last summer. Borrowing costs have fallen in a range of countries (Section 2). And the European Central Bank's (ECB's) asset purchases have been associated with rises in asset prices, falls in yields and a depreciation in the euro effective exchange rate over the past six months, although those moves have reversed a little recently (Section 1). In the central projection, euro-area GDP growth picks up to around 2% by early 2016 (Chart 5.5), causing slack to narrow and CPI inflation to rise from its current low level. The ECB's asset purchases are likely

(1) Unless otherwise stated, the projections shown in this section are conditioned on: Bank Rate following a path implied by market yields; a constant stock of asset purchases; the Recommendations of the Financial Policy Committee and the current regulatory plans of the Prudential Regulation Authority; the Government's tax and spending plans as set out in the March 2015 *Budget*; commodity prices following market paths; and the sterling exchange rate remaining broadly stable. The main assumptions are set out in a table at [www.bankofengland.co.uk/publications/Documents/inflationreport/2015/mayca.pdf](http://www.bankofengland.co.uk/publications/Documents/inflationreport/2015/mayca.pdf).

**Table 5.B MPC key judgements<sup>(a)(b)</sup>**

**Key Judgement 1: global growth picks up slightly, particularly in the euro area**

|   | Average<br>1998–<br>2007 | Projections |         |         |
|---|--------------------------|-------------|---------|---------|
|   |                          | 2015        | 2016    | 2017    |
| World GDP (UK-weighted) <sup>(c)</sup>  | 3                        | 2¼ (2½)     | 2¾ (2¾) | 2¾ (2¾) |
| World GDP (PPP-weighted) <sup>(d)</sup> | 4                        | 3¼ (3½)     | 3¾ (3¾) | 3¾ (3¾) |
| Euro-area GDP <sup>(e)</sup>            | 2¼                       | 1½ (1¼)     | 2 (2)   | 2 (1¾)  |
| US GDP <sup>(f)</sup>                   | 3                        | 2½ (3)      | 2½ (2¾) | 2¼ (2½) |
| Dollar oil price <sup>(g)</sup>         | 39                       | 68 (58)     | 71 (65) | 73 (69) |

**Key Judgement 2: robust domestic demand is sustained by the recovery in real incomes**

|   | Average<br>1998–<br>2007 | Projections |          |           |
|---|--------------------------|-------------|----------|-----------|
|   |                          | 2015        | 2016     | 2017      |
| Credit spreads <sup>(h)</sup>                   | ¾ <sup>(i)</sup>         | 2 (2)       | 2 (2)    | 2 (2)     |
| Household saving ratio <sup>(j)</sup>           | 8¾                       | 6¾ (6½)     | 6 (6¼)   | 5½ (6)    |
| Business investment to GDP ratio <sup>(k)</sup> | 10                       | 10½ (11)    | 11 (11½) | 11¾ (12¼) |

**Key Judgement 3: a revival in productivity supports supply and real income growth**

|                                   | Average<br>1998–<br>2007 | Projections |           |           |
|-----------------------------------|--------------------------|-------------|-----------|-----------|
|                                   |                          | 2015        | 2016      | 2017      |
| Productivity <sup>(l)</sup>       | 2¼                       | ¼ (¾)       | 1¼ (1½)   | 1¾ (1¾)   |
| Participation rate <sup>(m)</sup> | 63                       | 63½ (63½)   | 63½ (63¾) | 63½ (63¾) |
| Average hours <sup>(n)</sup>      | 32¼                      | 32¼ (32½)   | 32½ (32½) | 32¼ (32¼) |

**Key Judgement 4: wage growth picks up so that inflation returns to the 2% target as the price-level effects associated with lower energy, food and import prices dissipate**

|                                  | Average<br>1998–<br>2007 | Projections |        |         |
|----------------------------------|--------------------------|-------------|--------|---------|
|                                  |                          | 2015        | 2016   | 2017    |
| UK import prices <sup>(o)</sup>  | ¼                        | -4¾ (-3¼)   | 1¼ (¾) | ¾ (½)   |
| Unit labour costs <sup>(p)</sup> | 2¾                       | 1½ (2)      | 3 (2¾) | 2¾ (2¾) |

Sources: Bank of England, BDRC *Continental SME Finance Monitor*, Bloomberg, BofA Merrill Lynch Global Research, used with permission, British Household Panel Survey, Department for Business, Innovation and Skills, Eurostat, IMF *World Economic Outlook (WEO)*, ONS, US Bureau of Economic Analysis and Bank calculations.

- (a) The MPC's projections for GDP growth, CPI inflation and unemployment (as presented in the fan charts) are underpinned by four key judgements. The mapping from the key judgements to individual variables is not precise, but the profiles in the table should be viewed as broadly consistent with the MPC's key judgements.
- (b) Figures show calendar-year growth rates unless otherwise stated. Figures in parentheses show the corresponding projections in the February 2015 *Inflation Report*.
- (c) Chained-volume measure. Constructed using real GDP growth rates of 146 countries weighted according to their shares in UK exports.
- (d) Chained-volume measure. Constructed using real GDP growth rates of 147 countries weighted according to their shares in world GDP using the IMF's purchasing power parity (PPP) weights.
- (e) Chained-volume measure.
- (f) Chained-volume measure.
- (g) Average level in Q4. Dollars per barrel. Projection based on monthly Brent futures prices.
- (h) Level in Q4. Percentage point spread over reference rates. Based on a weighted average of household and corporate loan and deposit spreads over appropriate risk-free rates. Indexed to equal zero in 2007 Q3.
- (i) Based on the weighted average of spreads for households and large companies over 2003 and 2004 relative to the level in 2007 Q3. Data used to construct the SME spread are not available for that period. The period is chosen as broadly representative of one where spreads were neither unusually tight nor unusually loose.
- (j) Calendar-year average. Percentage of total available household resources.
- (k) Calendar-year average. Chained-volume business investment as a percentage of GDP.
- (l) GDP per hour worked. GDP at market prices is based on the mode of the MPC's backcast. Hours worked have been adjusted for expected revisions to the ONS population estimates to incorporate the latest data on net migration.
- (m) Level in Q4. Percentage of the 16+ population.
- (n) Level in Q4. Average weekly hours worked, in main job and second job.
- (o) Four-quarter inflation rate in Q4. Excludes the impact of missing trader intra-community fraud.
- (p) Four-quarter growth in unit labour costs in Q4. Whole-economy total labour costs divided by GDP at market prices, based on the mode of the MPC's GDP backcast. Total labour costs comprise compensation of employees and the labour share multiplied by mixed income.

to have a net positive impact on UK output: the associated fall in the euro relative to sterling will dampen UK export demand, but that effect is probably outweighed by stronger euro-area demand and higher sterling asset prices.

There remain significant risks around the euro-area outlook. There is uncertainty about the scale of support that asset purchases will provide to activity and inflation. Moreover, if inflation were to remain very low, it would be harder for countries with large debt burdens to reduce them, and the process of rebalancing between euro-area countries would be more challenging. The possibility of a disorderly resolution of Greek debt negotiations is judged to pose a downside risk to euro-area and UK growth for much of the forecast period.

US GDP growth was well below expectations in Q1, with household spending growing slowly despite support from lower oil prices (Section 2). That weakness in part reflects temporary factors including harsh winter weather, but productivity growth has also disappointed. US output growth is judged likely to pick up over 2015, but the projection is a little lower than in February (Table 5.B), in part reflecting the higher dollar exchange rate. That outlook is conditioned on a gradually rising path for interest rates (Section 1).

The outlook for emerging economies has weakened a little. In China, a variety of indicators point to a moderation in growth, albeit accompanied by policy stimulus in response. The continuing rebalancing towards domestic consumption is likely to be associated with a further gradual slowing, although risks from property and credit markets could trigger a sharper downturn. Longer-run growth prospects in a number of other economies, particularly commodity exporters, remain muted.

Overall, UK-weighted world GDP growth is nevertheless judged likely to pick up slightly, as in February (Table 5.B). Reflecting the nature of euro-area uncertainty, the risks to the global outlook are now slightly to the downside, rather than balanced.

Global commodity prices will remain sensitive to prospects for world activity and supply conditions. Oil prices have risen from their recent trough, largely due to news on oil supply, but the oil futures curve remains 30% lower than last summer. The outlook for oil prices is uncertain. Further rises in stocks, from already high levels, or a weakening in global demand, would tend to depress prices. Political instability or slowing oil supply growth could put more upward pressure on prices than embodied in the futures curve (Table 5.B).

UK exports are judged likely to grow steadily over the forecast period, although support from global growth is tempered by the appreciation in sterling since 2013. Imports grow a little faster than exports and net trade drags only modestly on UK growth. The nominal trade deficit is projected to remain relatively small, at close to 2% of GDP. The weak global

**Table 5.C** Monitoring risks to the Committee's key judgements

The Committee's projections are underpinned by four key judgements. Risks surround all of these, and the MPC will monitor a broad range of variables to understand the degree to which the risks are crystallising. The table below shows

Bank staff's indicative near-term projections that are consistent with the judgements in the MPC's central view evolving as expected.

| Key judgement   | Likely developments in 2015 Q2 to 2015 Q4 if judgements evolve as expected  |
|---|---|
| <b>1: global growth picks up slightly, particularly in the euro area</b>  | <ul style="list-style-type: none"> <li>Commodity prices and sterling ERI to evolve in line with the conditioning assumptions set out in <a href="http://www.bankofengland.co.uk/publications/Documents/inflationreport/2015/ir15mayca.pdf">www.bankofengland.co.uk/publications/Documents/inflationreport/2015/ir15mayca.pdf</a>.</li> <li>Quarterly euro-area growth to average around ½%.</li> <li>Euro-area inflation to pick up slowly but remain low.</li> <li>Quarterly US GDP growth to average a little below ¾%; non-farm payrolls to increase by around 250,000 per month.</li> <li>Indicators of activity consistent with four-quarter PPP-weighted emerging-economy growth of around 4¼% on average; within that, Chinese GDP growth to average a little below 7%.</li> <li>Average quarterly growth in export volumes of around 1%.</li> </ul> |
| <b>2: robust domestic demand is sustained by the recovery in real incomes</b>   | <ul style="list-style-type: none"> <li>Quarterly consumption growth of around ¾%.</li> <li>Broadly flat household saving ratio.</li> <li>Credit spreads to decline slightly over 2015.</li> <li>A rise in mortgage approvals for house purchase to around 65,000 a month, on average, in 2015 Q4.</li> <li>Rates of increase in the main indices of national house prices to average just under ½% a month in 2015 H2.</li> <li>Quarterly housing investment growth to average ¾%.</li> <li>Quarterly business investment growth of around 1¼%.</li> </ul>  |
| <b>3: a revival in productivity supports supply and real income growth</b>  | <ul style="list-style-type: none"> <li>Hourly labour productivity to be broadly flat during 2015 Q2–2015 Q4.</li> <li>Headline LFS unemployment to fall to 5¼% by the end of the year.</li> <li>Participation rate to remain broadly unchanged over the rest of the year.</li> <li>Average hours to increase by around ½% in the year to 2015 Q4.</li> </ul>  |
| <b>4: wage growth picks up so that inflation returns to the 2% target as the price-level effects associated with lower energy, food and import prices dissipate</b> | <ul style="list-style-type: none"> <li>Petrol prices to increase by around 5% in Q2.</li> <li>A further slight reduction in domestic gas prices in Q2 as the remaining announced cut is incorporated in the CPI.</li> <li>Import prices to fall by around 5% in the year to 2015 Q4.</li> <li>Four-quarter AWE growth to rise to 2¾% by Q3, before temporarily dropping back to 2½% in Q4 due to strong bonus payments in 2014 Q4.</li> <li>Four-quarter growth in whole-economy unit labour costs to average 1½% in 2015 Q2–2015 Q4.</li> <li>Indicators of inflation expectations continue to be broadly consistent with the 2% target.</li> </ul>  |

backdrop has also been reflected in a primary income deficit of 2½% of GDP, as UK income from foreign direct investment has fallen (Section 2). The primary income deficit is not assumed to shrink much in the central projection, but it is possible that it narrows as prospects improve in the countries where UK businesses have invested. As noted by the Financial Policy Committee in the record of its March 2015 meeting, a large and persistent current account deficit could, in adverse circumstances, trigger a deterioration in market sentiment towards the United Kingdom.

**Key Judgement 2: robust domestic demand is sustained by the recovery in real incomes**

Quarterly output growth has slowed from above-trend rates since mid-2014, but the expansion remains fairly firm. Household consumption was weaker than expected in Q4, in

**Table 5.D** Indicative projections consistent with the MPC's modal projections<sup>(a)</sup>

|   | Average<br>1998–<br>2007 | Projections |         |         |
|---|--------------------------|-------------|---------|---------|
|   |                          | 2015        | 2016    | 2017    |
| Household consumption <sup>(b)</sup>          | 3¼                       | 2¾ (3¾)     | 3 (3½)  | 2¾ (2½) |
| Business investment <sup>(c)</sup>            | 2¼                       | 2½ (6¼)     | 6¾ (8½) | 8¼ (9)  |
| Housing investment <sup>(d)</sup>             | 3¾                       | 1 (2)       | 3¼ (6¼) | 5 (5¾)  |
| Exports <sup>(e)</sup>                        | 4½                       | 4 (3¾)      | 3½ (5½) | 3 (4½)  |
| Imports <sup>(f)</sup>                        | 6                        | 4¼ (2)      | 3½ (6¼) | 3½ (5)  |
| Real post-tax household income <sup>(g)</sup> | 3                        | 3¼ (3½)     | 2½ (3)  | 2¼ (2¼) |
| Employment <sup>(h)</sup>                     | 1                        | 1¾ (1½)     | 1 (1)   | ¾ (¾)   |
| Average weekly earnings <sup>(i)</sup>        | 4¼                       | 2½ (3½)     | 4 (4)   | 4 (4)   |

(a) These projections are produced by Bank staff for the MPC to be consistent with the MPC's modal projections for GDP growth, CPI inflation and unemployment. Figures show calendar-year growth rates unless otherwise stated. Figures in parentheses show the corresponding projections in the February 2015 *Inflation Report*.

(b) Chained-volume measure. Includes non-profit institutions serving households.

(c) Chained-volume measure.

(d) Chained-volume measure. Whole-economy measure. Includes new dwellings, improvements and spending on services associated with the sale and purchase of property.

(e) Chained-volume measure. The historical data exclude the impact of missing trader intra-community (MTIC) fraud. Official MTIC-adjusted data are not available for exports, so headline exports data have been adjusted by Bank staff for MTIC fraud by an amount equal to the ONS import adjustment.

(f) Chained-volume measure. The historical data exclude the impact of MTIC fraud.

(g) Total available household resources deflated by the consumer expenditure deflator.

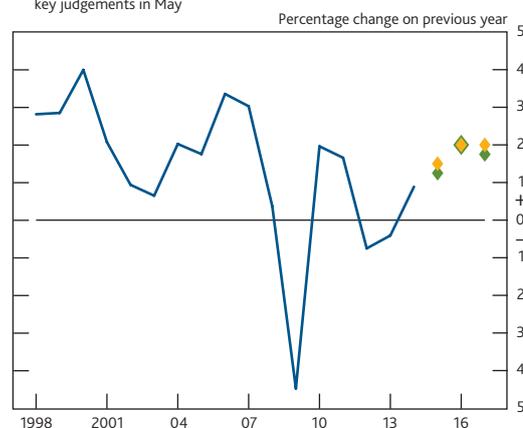
(h) Four-quarter growth rate in Q4. Series has been adjusted for expected revisions to the ONS population estimates to incorporate the latest data on net migration.

(i) Four-quarter growth in Q4 in whole-economy total pay.

**Chart 5.5** Euro-area GDP<sup>(a)</sup>

◆ Projection at the time of the February *Report*

◆ Projection consistent with MPC key judgements in May



Sources: Eurostat and Bank calculations.

(a) Calendar-year growth rates. Chained-volume measure.

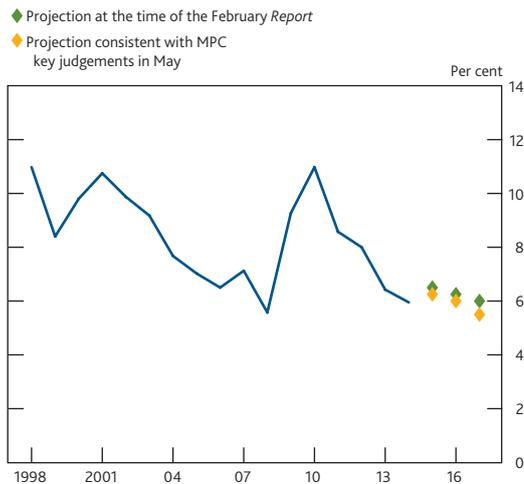
part reflecting a fall in non-profit institutions' spending, an erratic component (Section 2). Measures of confidence remain strong and consumption is projected to have risen by around ¾% in Q1. Spending should be supported for much of the year by the boost to real incomes from lower energy, food and other import prices: 2015 annual growth in real post-tax income is projected to be the highest since 2007 (Table 5.D). Nonetheless, the near-term profile is weaker than expected three months ago. Further out, real incomes are supported by a gradual recovery in productivity growth (Key Judgement 3), with consumption growth remaining below pre-crisis average rates (Table 5.D). The saving ratio falls slightly from late 2015 (Chart 5.6). There are risks to consumption in both directions, stemming both from real incomes (Key Judgements 3 and 4) and saving decisions.

Housing and mortgage market activity remain weak. Despite quoted mortgage rates falling to record lows (Section 1), mortgage approvals have been broadly flat. Housing starts have fallen, following a pickup from 2012. In light of recent developments, housing investment growth is now projected to rise to only a little above historical average rates (Table 5.D). It is possible that growth rebounds more sharply, particularly if some of the recent weakness reflects temporary supply constraints in the construction sector (Section 2).

Business investment fell in Q4 according to the latest ONS data. These data are volatile and particularly subject to revision. Survey indicators, including reports from the Bank's Agents, have remained fairly robust. In the central projection, the weakness is assumed to be temporary and annual investment growth rises above past average rates (Table 5.D), reflecting low financing costs and higher demand. Within that, low oil prices are likely to weigh on investment by oil extraction companies — in the central projection their investment, which accounts for 7% of business investment, falls by more than 30%. There is uncertainty around that assumption and whether non-oil companies will be willing and able to invest as much as is assumed in the central projection. For example, companies might prefer to invest less and to hold more cash in reserve, especially if uncertainty were to rise.

### Key Judgement 3: a revival in productivity supports supply and real income growth

Since the February *Report*, the MPC has reassessed developments in supply and their implications for the outlook (Section 3). The demand expansion seen in recent years has been associated with labour supply growth and a reduction in slack but not gains in productivity. In the MPC's best collective judgement, slack is currently around ½% of GDP, informed by assessing top-down measures and bottom-up estimates of slack within companies and the labour market. Over the forecast period, as remaining slack is absorbed, the speed at which demand can grow without excess inflationary pressure depends on potential supply growth.

**Chart 5.6 Household saving ratio<sup>(a)</sup>**

Sources: ONS and Bank calculations.

(a) Calendar-year average. Percentage of total available household resources.

Strong labour supply growth over recent years in part reflects strong population growth. Net migration flows have been somewhat greater than those built into the ONS projections that were the basis for the MPC's previous forecasts. The May projections are based on a simple update using the latest migration data, and an assumption that net migration flows return to around the average seen over the past decade. There are risks around that assumption on both sides, with flows likely to depend in part on the availability of jobs in other European countries.

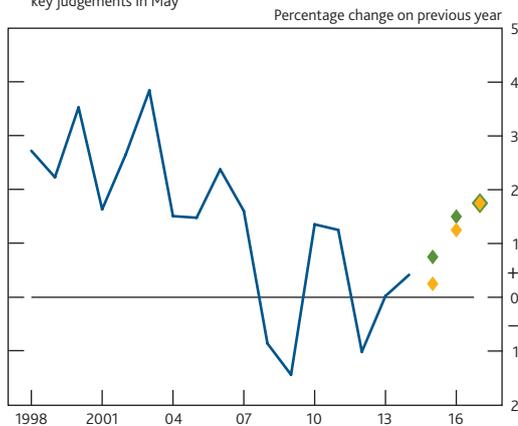
Potential labour supply depends on the proportion of the population who want to work, how many hours they want to work and whether they can easily find suitable work. Potential labour supply appears to have grown faster than population over the past couple of years. There is evidence that people, on average, have been revising up the hours that they would like to work: the MPC continues to judge that only part of that rise reflects higher trend hours, although the assumed trend is currently a little above average hours worked. The medium-term equilibrium unemployment rate also appears to have declined over recent years. In contrast to the assumption underlying previous *Reports*, however, the MPC's reassessment of supply suggests that the trend participation rate has been flat rather than rising recently, as the drag from an ageing population has been broadly offset by upward pressure from other sources including a shift towards longer working lives.

In the central projection, potential labour supply growth slows back towards population growth. Trend working hours fall back a little. The medium-term equilibrium unemployment rate falls only a little further, to around its estimated long-term rate of around 5%. The trend participation rate remains flat. There is wide uncertainty around all of these judgements in both directions. In particular, the long-term equilibrium unemployment rate could have been lowered by factors such as improved job search technology and changes to the tax and benefit system over many years. It could, however, be higher if there is greater mismatch between the skills of the unemployed and those that companies are seeking.

With labour supply growth projected to slow over the forecast period, robust supply growth depends on a revival in productivity. A number of factors have weighed on productivity, which has shown little improvement since the crisis even as GDP growth has been robust. Low investment can account for only some of the weakness. One influence very recently has probably been a shift in the mix of employment growth towards lower-skilled occupations, with a rising proportion of staff new to roles (Section 3). That shift is estimated to have weighed on four-quarter growth in productivity and wages by around 1 percentage point, relative to normal, in 2014. Such shifts do not represent underlying weakness in technical progress and should dissipate over time. A factor weighing on technical progress may, however, be an

**Chart 5.7 Productivity<sup>(a)</sup>**

◆ Projection at the time of the February Report  
 ◆ Projection consistent with MPC key judgements in May



Sources: ONS and Bank calculations.

(a) Calendar-year growth rates. GDP per hour worked. GDP is at market prices and projections are based on the mode of the MPC's backcast. Hours worked have been adjusted for expected revisions to the ONS population estimates to incorporate the latest data on net migration.

inadequate flow of resources to new or dynamic companies with higher productive potential.

The MPC continues to believe that productivity growth will pick up gradually over coming years towards pre-crisis average rates (Chart 5.7) as the impact of the financial crisis wanes. That pickup is a little later than judged likely in February, as compositional effects drag on productivity over the next few quarters. Productivity could pick up faster if, for example, UK companies were able to take advantage of advances made elsewhere: UK productivity remains well below the US level. It could, however, continue to surprise to the downside; for a given demand outlook that would tend to lead to more inflationary pressure.

**Key Judgement 4: wage growth picks up so that inflation returns to the 2% target as the price-level effects associated with lower energy, food and import prices dissipate**

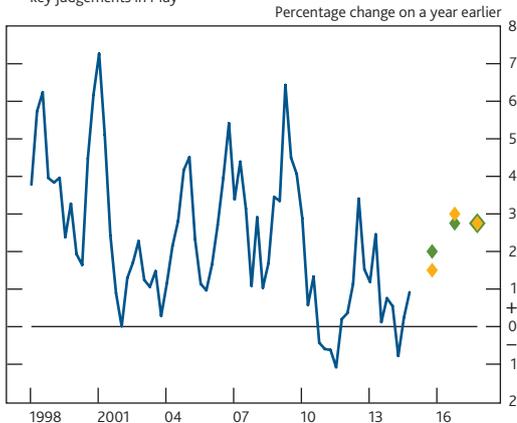
CPI inflation was 0.0% in March, as expected. The undershoot relative to the target reflects falls in the prices of commodities and some other imported goods and, to a lesser extent, weakness in domestic inflationary pressures (Section 4). In the near term, this undershoot is likely to persist and it remains more likely than not that CPI inflation will briefly turn negative. Even though oil prices have risen since February, they remain much lower than a year ago. Cuts in household gas bills in early 2015 will bear down on annual inflation for a year. And annual food price inflation is likely to remain negative in the near term reflecting lower commodity prices, the fall in the euro and domestic competition.

The cost of imported goods and services is a key influence on CPI inflation and depends in part on the exchange rate, which has appreciated further since the February Report. In the central projection, import prices are assumed to be pulling down CPI inflation a little in early 2015, with more downward pressure to come over the forecast period. There are uncertainties around that assumption, especially on the speed with which exchange rate changes pass through into consumer prices.

Without further large declines in global prices, the combined contribution of energy, food and imports to CPI inflation is likely to pick up notably from late 2015 towards more normal rates. There is a risk, however, that the period of very low inflation could affect price and wage-setting decisions. Following earlier falls, some measures of companies' medium-term inflation expectations have declined a little, moves in longer-term measures of household inflation expectations have been mixed and financial market measures of inflation expectations have been broadly stable since the February Report. Overall, the MPC judges that inflation expectations remain broadly consistent with the 2% inflation target but it will continue to monitor those indicators, and whether they are affecting price and wage-setting decisions.

**Chart 5.8 Unit labour costs<sup>(a)</sup>**

◆ Projection at the time of the February Report  
 ◆ Projection consistent with MPC key judgements in May



Sources: ONS and Bank calculations.

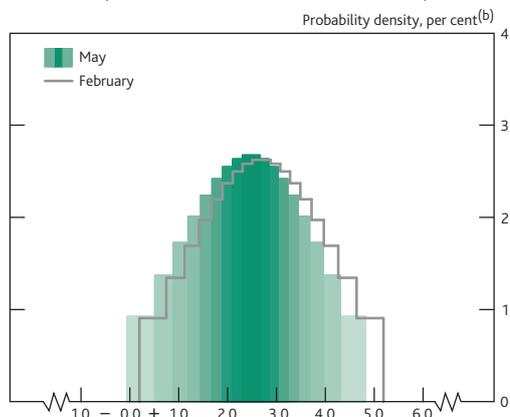
(a) Whole-economy total labour costs divided by GDP at market prices, based on the mode of the MPC's GDP backcast. Total labour costs comprise compensation of employees and the labour share multiplied by mixed income. The chart shows data to 2014 Q4 and projections for four-quarter growth in Q4 thereafter.

**Table 5.E Calendar-year GDP growth rates of the modal, median and mean paths<sup>(a)</sup>**

|                     | Mode      | Median    | Mean      |
|---------------------|-----------|-----------|-----------|
| 2015 <sup>(b)</sup> | 2.6 (2.9) | 2.5 (2.9) | 2.5 (2.9) |
| 2016 <sup>(b)</sup> | 2.6 (2.9) | 2.6 (2.9) | 2.6 (2.9) |
| 2017                | 2.5 (2.7) | 2.4 (2.7) | 2.4 (2.7) |

(a) The table shows the projections for calendar-year growth of real GDP consistent with the modal, median and mean projections for four-quarter growth of real GDP implied by the fan chart. Where growth rates depend in part on the MPC's backcast, revisions to quarterly growth are assumed to be independent of the revisions to previous quarters. The numbers in parentheses show the corresponding projections in the February Inflation Report. The May and February projections have been conditioned on market interest rates, and the assumption that the stock of purchased assets financed by the issuance of central bank reserves remains at £375 billion throughout the forecast period.

(b) The anticipated revisions to recent estimates of quarterly GDP growth has implications for calendar-year growth in 2015 and 2016. Without the anticipated revisions to past GDP growth, the modal path of the Committee's May projections would imply calendar-year growth of 2.2% in 2015 rather than 2.6%, and 2.7% in 2016 rather than 2.6%.

**Chart 5.9 Projected probabilities of GDP growth in 2017 Q2 (central 90% of the distribution)<sup>(a)</sup>**

(a) Chart 5.9 represents the cross-section of the GDP growth fan chart in 2017 Q2 for the market interest rate projection. It has been conditioned on the assumption that the stock of purchased assets remains at £375 billion throughout the forecast period. The coloured bands in Chart 5.9 have a similar interpretation to those on the fan charts. Like the fan charts, they portray the central 90% of the probability distribution. The grey outline represents the corresponding cross-section of the February 2015 Inflation Report fan chart, which was conditioned on market interest rates and the same assumption about the stock of purchased assets financed by the issuance of central bank reserves.

(b) Average probability within each band; the figures on the y-axis indicate the probability of growth being within  $\pm 0.05$  percentage points of any given growth rate, specified to one decimal place.

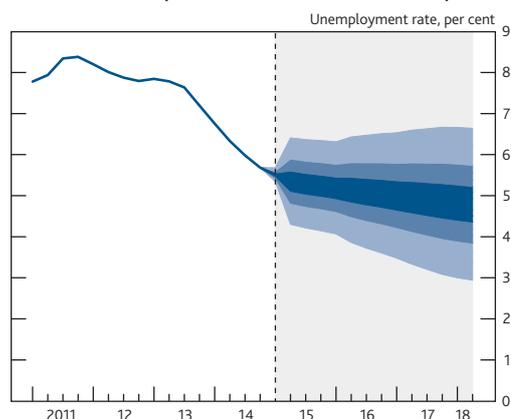
Over the past 18 months, wage growth has been weaker than can be explained by its usual relationship with productivity and slack. This in part reflects a drag from the composition of employment growth (Key Judgement 3): after adjusting pay and productivity for compositional effects, wage growth is somewhat more explicable. There may also have been a drift down in the wage growth people expect to be able to achieve: survey evidence suggests that employees, on average, expect their pay to rise more slowly this year than last (Section 4). That could be because they have become used to subdued growth in pay or because lower inflation means that they are satisfied by small pay rises.

In the central projection, four-quarter wage growth is lower than in February in the near term (Table 5.D), in part reflecting news in the Q1 data. Four-quarter wage growth is expected to be particularly weak in 2015 Q4, due to unexpectedly strong bonuses in 2014 Q4. The assumption that compositional effects will fade more gradually also bears down on wage growth. As the drag from compositional effects eases, productivity revives, slack is absorbed and households and companies see higher headline inflation rates, four-quarter wage growth is assumed to rise, averaging 4% from mid-2016. That is accompanied by a rise in unit labour cost growth (Chart 5.8). There are risks around the path for wages stemming from productivity (Key Judgement 3), as well as other risks that would also have implications for unit labour costs, for example, if there is more or less labour market slack than assumed (Key Judgement 3). Moreover, wage growth may be a little less sensitive to domestic labour market slack if it is also influenced by the potential supply of labour in other countries, and therefore economic conditions outside the United Kingdom. The factors holding wage growth back could prove more persistent — for example, if low inflation affects wage settlements. They could, however, unwind more quickly and wage pressures could pick up quite sharply as unemployment falls towards its long-run rate.

## 5.2 The projections for demand, unemployment and inflation

Based on these judgements and the risks around them, and under the conditioning path for Bank Rate based on market yields, which rises to 1.4% by 2018 Q2, the Committee judges that GDP is likely to grow at or just a little below historical average four-quarter rates throughout the forecast period (Table 5.E). Domestic demand growth is supported initially by lower energy and food prices; further out productivity growth recovers and wage growth picks up. Net exports detract slightly from growth. The central outlook for GDP growth is a little weaker than in February (Chart 5.9), reflecting a higher Bank Rate path and higher exchange rate, together with a downward revision to the outlook for housing investment and a weaker productivity projection. Considerable uncertainty

**Chart 5.10** Unemployment projection based on market interest rate expectations and £375 billion purchased assets



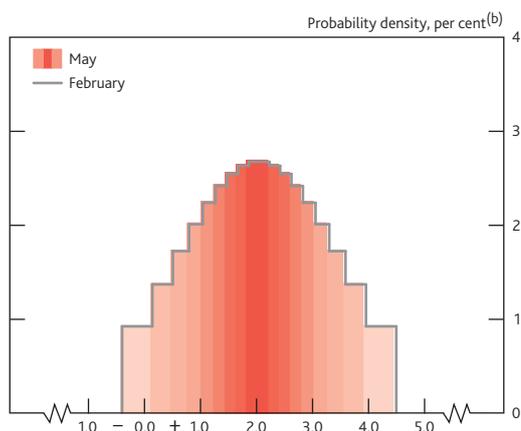
The fan chart depicts the probability of various outcomes for LFS unemployment. It has been conditioned on the assumption that the stock of purchased assets financed by the issuance of central bank reserves remains at £375 billion throughout the forecast period. The coloured bands have the same interpretation as in Chart 5.1, and portray 90% of the probability distribution. The calibration of this fan chart takes account of the likely path dependency of the economy, where, for example, it is judged that shocks to unemployment in one quarter will continue to have some effect on unemployment in successive quarters. The fan begins in 2015 Q1, a quarter earlier than the fan for CPI inflation. That is because Q1 is a staff projection for the unemployment rate, based in part on data for January and February. The unemployment rate was 5.6% in the three months to February, and is projected to fall to 5.5% in Q1 as a whole. In the later part of the forecast period, a significant proportion of this distribution lies below Bank staff's current estimate of the long-term equilibrium unemployment rate. There is therefore uncertainty about the precise calibration of this fan chart.

**Table 5.F** Q4 CPI inflation

|         | Mode      | Median    | Mean      |
|---------|-----------|-----------|-----------|
| 2015 Q4 | 0.7 (0.6) | 0.7 (0.5) | 0.6 (0.5) |
| 2016 Q4 | 1.7 (1.8) | 1.6 (1.8) | 1.6 (1.8) |
| 2017 Q4 | 2.1 (2.1) | 2.1 (2.1) | 2.1 (2.1) |

The table shows projections for Q4 four-quarter CPI inflation. The numbers in parentheses show the corresponding projections in the February *Inflation Report*. The May and February projections have been conditioned on market interest rates, and the assumption that the stock of purchased assets financed by the issuance of central bank reserves remains at £375 billion throughout the forecast period.

**Chart 5.11** Projected probabilities of CPI inflation in 2017 Q2 (central 90% of the distribution)<sup>(a)</sup>



(a) Chart 5.11 represents the cross-section of the CPI inflation fan chart in 2017 Q2 for the market interest rate projection. It has been conditioned on the assumption that the stock of purchased assets remains at £375 billion throughout the forecast period. The coloured bands in Chart 5.11 have a similar interpretation to those on the fan charts. Like the fan charts, they portray the central 90% of the probability distribution. The grey outline represents the corresponding cross-section of the February 2015 *Inflation Report* fan chart, which was conditioned on market interest rates and the same assumption about the stock of purchased assets.

(b) Average probability within each band; the figures on the y-axis indicate the probability of inflation being within  $\pm 0.05$  percentage points of any given inflation rate, specified to one decimal place.

about the outlook, stemming in particular from global developments and domestic supply growth, remains. The Committee judges that the risks around the central projection are skewed slightly to the downside for much of the forecast period, reflecting the possibility of a disorderly outcome to the current Greek negotiations, rather than balanced as in February.

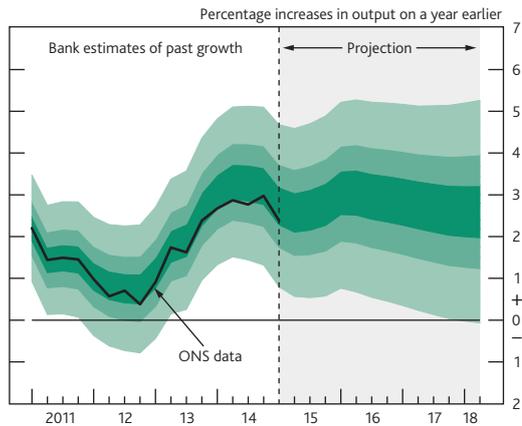
The best collective view of the MPC is that slack is currently in the region of  $\frac{1}{2}\%$  of GDP. There is considerable uncertainty around that judgement, however, and a range of views on the Committee about both the current degree of slack and how quickly it will narrow. In the central projection slack is absorbed next year and the unemployment rate is projected to fall further (Chart 5.10).

Inflation is judged likely to remain close to zero in the very near term, reflecting past falls in energy, food and other import prices and some continued drag from domestic slack (Table 5.F). Further out, the impact of those past price falls begins to drop out and declines in slack are associated with a rise in four-quarter unit labour cost growth. Conditional on the market path for Bank Rate, CPI inflation is judged likely to return to the 2% target by the two-year point (Chart 5.11) and to move slightly above the target in the third year of the forecast period. Considerable risks remain around that central projection. The MPC continues to judge that the period of low inflation expected over 2015 poses a downside risk to inflation over the first half of the projection; the factors pulling inflation down currently could prove more persistent than expected or a period of low inflation could be reflected in weaker wage pressures. Taking into account the central projection and the risks around it, the MPC's best collective judgement is that inflation is as likely to be above as below the 2% target by early 2017 (Chart 5.4), with the likelihood of inflation being above the target rising a little further into 2018. That outlook is very similar to the projection in February (Chart 5.11), despite a higher assumed path for Bank Rate and higher exchange rate, as the resultant downward revisions to the demand outlook have been offset by a downward revision to the path for productivity.

Charts 5.12 and 5.13 show the Committee's GDP and CPI inflation projections under the alternative assumption that Bank Rate remains at 0.5% throughout the forecast period.<sup>(1)</sup> In that case, four-quarter GDP growth is projected to be around historical average rates over the forecast period and CPI inflation is projected to return to the 2% target by late 2016, before rising above it.

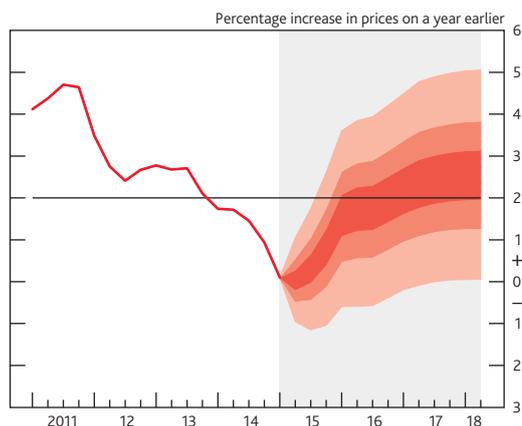
(1) The constant rate projections in this *Report* assume that Bank Rate is 0.5% for the next three years, and then rises towards the market path over the next three years; that path is anticipated by businesses and households.

**Chart 5.12** GDP projection based on constant nominal interest rates at 0.5% and £375 billion purchased assets



See footnote to Chart 5.3.

**Chart 5.13** CPI inflation projection based on constant nominal interest rates at 0.5% and £375 billion purchased assets



See footnote to Chart 5.1.

### 5.3 The policy decision

The UK expansion has continued, but inflation has fallen to 0.0%, well below the MPC's 2% target. The MPC judges that around three quarters of the undershoot in inflation reflects unusually low contributions from energy, food and other goods prices, which will continue to bear down on annual inflation for much of this year. The remainder is accounted for by weak domestic cost growth: although it has been diminishing, slack remains.

The MPC's inflation target is symmetric: deviations of inflation below the target are to be treated with the same importance as deviations above it. As was the case three months ago, inflation is currently below the target with unemployment somewhat above its long-run sustainable rate. Eliminating that remaining economic slack, and so returning output to its sustainable level, should also reduce the drag on domestic costs and prices, helping to return inflation to the target. It therefore remains appropriate to set policy so as to return inflation to the target relatively quickly, once the effects of energy and food price movements have abated. The MPC continues to judge it appropriate to set policy so that it is likely that inflation will return to the 2% target within two years.

In the February 2014 *Inflation Report*, the MPC said that, given the likely persistence of headwinds weighing on the economy, when Bank Rate did begin to rise, it was expected to do so more gradually than in previous cycles. Moreover, the persistence of those headwinds, together with the legacy of the financial crisis, meant that Bank Rate was expected to remain below average historical levels for some time to come.

At its meeting on 8 May, the MPC noted that while those headwinds had begun to ease, a path that implied only gradual rises in Bank Rate over the next few years, broadly in line with the current market path, remained consistent with absorbing slack and returning inflation to the target within two years.

The MPC also noted, however, that, as set out in the February 2014 *Report*, the interest rate required to keep the economy operating at normal levels of capacity and inflation at the target was likely to continue to rise as the effects of the financial crisis faded further. Despite this, beyond the three-year forecast horizon the yield curve had flattened over the past year. There was uncertainty about the reasons for this. Given that uncertainty, there was a risk that longer-term yields would move back up over time, for example, in response to a tightening of US monetary policy.

In the light of the economic outlook, the Committee voted to maintain Bank Rate at 0.5% and the stock of purchased assets at £375 billion.

## Other forecasters' expectations

Every three months, the Bank asks a sample of external forecasters for their latest economic projections. This box reports the results of the most recent survey, carried out in April.<sup>(1)</sup> Respondents' expectations for GDP growth were broadly similar to those at the time of the February Report. On average, respondents expected four-quarter GDP growth of 2.5% one year ahead. And growth was expected to slow slightly to 2.4% in the following two years (Table 1), slightly below its historical average rate. That is a little lower than the MPC's central projection for GDP growth (Chart A).

**Table 1** Averages of other forecasters' central projections<sup>(a)</sup>

|   | 2016 Q2 | 2017 Q2 | 2018 Q2 |
|---|---------|---------|---------|
| CPI inflation <sup>(b)</sup>                          | 1.6     | 2.0     | 2.1     |
| GDP growth <sup>(c)</sup>                             | 2.5     | 2.4     | 2.4     |
| LFS unemployment rate                                 | 5.1     | 4.9     | 4.8     |
| Bank Rate (per cent)                                  | 0.9     | 1.7     | 2.3     |
| Stock of purchased assets (£ billions) <sup>(d)</sup> | 370     | 343     | 309     |
| Sterling ERI  | 91.9    | 92.5    | 91.1    |

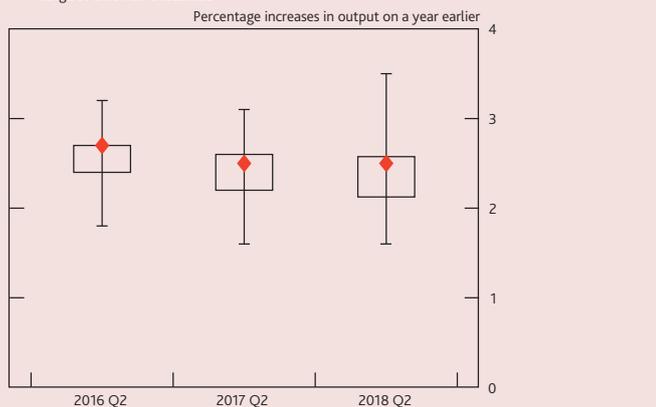
Source: Projections of outside forecasters as of 29 April 2015.

(a) For 2016 Q2, there were 27 forecasts for CPI inflation, GDP growth and Bank Rate, 26 for the unemployment rate, 20 for the stock of asset purchases and 15 for the sterling ERI. For 2017 Q2, there were 23 forecasts for CPI inflation, GDP growth and Bank Rate, 21 for the unemployment rate, 18 for the stock of asset purchases and 12 for the sterling ERI. For 2018 Q2, there were 23 forecasts for CPI inflation, 22 for GDP growth, 23 for Bank Rate, 21 for the unemployment rate, 18 for the stock of asset purchases and 12 for the sterling ERI.  
 (b) Twelve-month rate.  
 (c) Four-quarter percentage change.  
 (d) Original purchase value. Purchased via the creation of central bank reserves.

### Chart A External forecasters expect steady GDP growth over the forecast period

Forecasters' central projections of GDP growth

- ◆ MPC modal projection
- Interquartile range of external forecasters
- Range of external forecasters



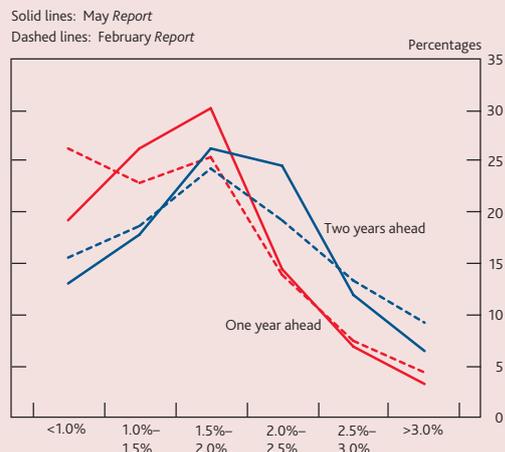
Source: Projections of outside forecasters as of 29 April 2015.

The average of respondents' central expectations for CPI inflation was also little changed from February. On average, respondents expected annual CPI inflation to be 1.6% in a year's time, rising to around 2% in 2017 Q2, in line with the MPC's central projection. The average weight attached by individual respondents to inflation being below 1% has fallen

sharply since February, however, to around 20% in one year's time (Chart B). And a higher proportion of respondents than in February expect inflation to be within half a per cent of the 2% inflation target, one and two years ahead.

### Chart B Expectations of very low CPI inflation have fallen

Average probability of CPI inflation outcomes



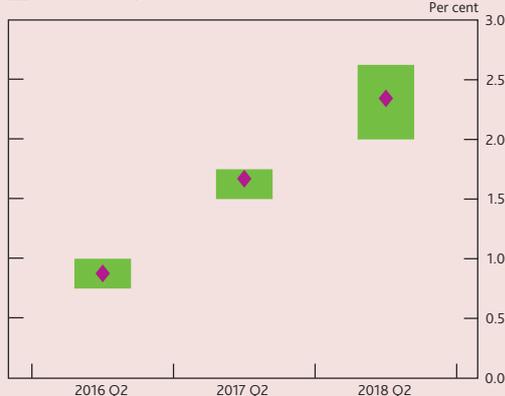
Source: Projections of outside forecasters provided for Inflation Reports in February 2015 and May 2015.

The path for Bank Rate implied by the average of external forecasters' central expectations was also little changed from the time of the February Report. Respondents continued to expect Bank Rate rises to be gradual (Chart C), but faster than implied by market interest rates. Respondents expected an increase in Bank Rate of around 1.8 percentage points over the next three years.

### Chart C External forecasters expect Bank Rate to rise gradually

Forecasters' central projections of Bank Rate

- ◆ Mean of external forecasters
- Interquartile range of external forecasters



Source: Projections of outside forecasters as of 29 April 2015.

(1) For detailed distributions of other forecasters' expectations, see 'Other forecasters' expectations' on the Bank's website, available at [www.bankofengland.co.uk/publications/Documents/inflationreport/2015/mayofe.pdf](http://www.bankofengland.co.uk/publications/Documents/inflationreport/2015/mayofe.pdf).

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**Text of Bank of England press notice of 5 March 2015****Bank of England maintains Bank Rate at 0.5% and the size of the Asset Purchase Programme at £375 billion**

The Bank of England's Monetary Policy Committee at its meeting today voted to maintain Bank Rate at 0.5%. The Committee also voted to maintain the stock of purchased assets financed by the issuance of central bank reserves at £375 billion.

The minutes of the meeting will be published at 9.30 am on Wednesday 18 March.

**Text of Bank of England press notice of 9 April 2015****Bank of England maintains Bank Rate at 0.5% and the size of the Asset Purchase Programme at £375 billion**

The Bank of England's Monetary Policy Committee at its meeting today voted to maintain Bank Rate at 0.5%. The Committee also voted to maintain the stock of purchased assets financed by the issuance of central bank reserves at £375 billion.

The minutes of the meeting will be published at 9.30 am on Wednesday 22 April.

**Text of Bank of England press notice of 11 May 2015****Bank of England maintains Bank Rate at 0.5% and the size of the Asset Purchase Programme at £375 billion**

The Bank of England's Monetary Policy Committee at its meeting on 8 May voted to maintain Bank Rate at 0.5%. The Committee also voted to maintain the stock of purchased assets financed by the issuance of central bank reserves at £375 billion.

The Committee's latest inflation and output projections will appear in the *Inflation Report* to be published at 10.30 am on Wednesday 13 May. At the same time, an open letter from the Governor to the Chancellor of the Exchequer will be published, following the release of data for CPI inflation of 0.0% in March.

The minutes of the meeting will be published at 9.30 am on Wednesday 20 May.

## Glossary and other information

### Glossary of selected data and instruments

**AWE** – average weekly earnings.

**CDS** – credit default swap.

**CPI** – consumer prices index.

**CPI inflation** – inflation measured by the consumer prices index.

**ERI** – exchange rate index.

**GDP** – gross domestic product.

**HICP** – harmonised index of consumer prices.

**LFS** – Labour Force Survey.

**M4** – UK non-bank, non-building society private sector's holdings of sterling notes and coin, and their sterling deposits (including certificates of deposit, holdings of commercial paper and other short-term instruments and claims arising from repos) held at UK banks and building societies.

**PMI** – purchasing managers' index.

**RPI** – retail prices index.

**RPI inflation** – inflation measured by the retail prices index.

### Abbreviations

**BCC** – British Chambers of Commerce.

**CBI** – Confederation of British Industry.

**CCS** – Credit Conditions Survey.

**CFO** – chief financial officer.

**CIPS** – Chartered Institute of Purchasing and Supply.

**EC** – European Commission.

**ECB** – European Central Bank.

**EU** – European Union.

**FLS** – Funding for Lending Scheme.

**FOMC** – Federal Open Market Committee.

**FTSE** – Financial Times Stock Exchange.

**GfK** – Gesellschaft für Konsumforschung, Great Britain Ltd.

**IMF** – International Monetary Fund.

**MMR** – Mortgage Market Review.

**MPC** – Monetary Policy Committee.

**MSCI** – Morgan Stanley Capital International Inc.

**MTIC** – missing trader intra-community.

**NPISH** – non-profit institutions serving households.

**OECD** – Organisation for Economic Co-operation and Development.

**OFCs** – other financial corporations.

**ONS** – Office for National Statistics.

**PNFCs** – private non-financial corporations.

**PPP** – purchasing power parity.

**PwC** – PricewaterhouseCoopers.

**R&D** – research and development.

**REC** – Recruitment and Employment Confederation.

**S&P** – Standard & Poor's.

**SIC** – Standard Industrial Classification.

**SMEs** – small and medium-sized enterprises.

**TFP** – total factor productivity.

**WEO** – IMF *World Economic Outlook*.

### Symbols and conventions

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

n.a. = not available.

Because of rounding, the sum of the separate items may sometimes differ from the total shown.

On the horizontal axes of graphs, larger ticks denote the first observation within the relevant period, eg data for the first quarter of the year.



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