

Inflation Report

May 2016



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 *Inflation Report* is available in PDF alongside PowerPoint™ versions of the charts and Excel spreadsheets of the data underlying most of them at www.bankofengland.co.uk/publications/Pages/inflationreport/2016/may.aspx.

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Monetary Policy Summary

The Bank of England's Monetary Policy Committee (MPC) sets monetary policy to meet the 2% inflation target and in a way that helps to sustain growth and employment. At its meeting ending on 11 May 2016 the MPC voted unanimously to maintain Bank Rate at 0.5%. The Committee also voted unanimously to maintain the stock of purchased assets financed by the issuance of central bank reserves at £375 billion.

Twelve-month CPI inflation increased to 0.5% in March but remains well below the 2% inflation target. This shortfall is due predominantly to unusually large drags from energy and food prices, which are expected to fade over the next year. Core inflation also remains subdued, largely as a result of weak global price pressures, the past appreciation of sterling and restrained domestic cost growth.

Globally, sentiment in financial markets has improved. There has been a broad-based recovery in risky asset prices, a resumption of capital flows to emerging market economies, and a sharp rise in the price of oil. Near-term prospects for China and other emerging market economies have improved a little, although medium-term downside risks remain. In the advanced economies, growth has picked up in the euro area in Q1 but slowed in the United States. A modest pace of growth in the United Kingdom's main trading partners is likely over the forecast period, broadly similar to that in the February *Inflation Report* projections.

In the United Kingdom, activity growth slowed in Q1 and a further deceleration is expected in Q2. There are increasing signs that uncertainty associated with the EU referendum has begun to weigh on activity. This is making the relationship between macroeconomic and financial indicators and underlying economic momentum harder to interpret at present. In the Committee's latest projections, activity growth recovers later in the year, but to rates that are a little below their historical average. Growth over the forecast horizon is expected to be slightly weaker than in the February projection. The May projection is conditioned on a path for Bank Rate implied by market rates and on continued UK membership of the European Union, including an assumption for the exchange rate consistent with that.

As the dampening influence of past falls in energy and food prices unwinds over the next year, inflation should rise mechanically. Under the same forecast conditioning assumptions described above, spare capacity is projected to be eliminated by early next year, increasing domestic cost pressures and supporting a return of inflation to the 2% target by mid-2018. Thereafter, as in the February *Inflation Report*, inflation is forecast to rise slightly above the target, conditioned on the path for Bank Rate implied by market rates.

Given the outlook described in the May *Inflation Report* projections, returning inflation to the 2% target requires achieving a balance between the drag on inflation from external factors and the support from gradual increases in domestic cost growth. Fully offsetting the drag from external factors over the short run would, in the MPC's judgement, involve too rapid an acceleration in domestic costs, one that would risk being excessive and lead to undesirable volatility in output and employment. Given these considerations, the MPC intends to set monetary policy to ensure that growth is sufficient to return inflation to the target in around two years and keep it there in the absence of further shocks.

Consistent with the projections and conditioning assumptions set out in the May *Inflation Report*, the MPC judges that it is more likely than not that Bank Rate will need to be higher by the end of the forecast period than at present to ensure inflation returns to the target in a sustainable manner. All members agree that, given the likely persistence of the headwinds weighing on the economy, when Bank Rate does begin to rise, it is expected to do so more gradually and to a lower level than in recent cycles. This guidance is an expectation, not a promise. The actual path Bank Rate will follow over the next few years will depend on economic circumstances. With macroeconomic and financial indicators likely to

be less informative than usual in light of the referendum, the Committee is currently reacting more cautiously to data releases than would normally be the case.

The most significant risks to the MPC's forecast concern the referendum. A vote to leave the EU could materially alter the outlook for output and inflation, and therefore the appropriate setting of monetary policy. Households could defer consumption and firms delay investment, lowering labour demand and causing unemployment to rise. At the same time, supply growth is likely to be lower over the forecast period, reflecting slower capital accumulation and the need to reallocate resources. Sterling is also likely to depreciate further, perhaps sharply. This combination of influences on demand, supply and the exchange rate could lead to a materially lower path for growth and a notably higher path for inflation than in the central projections set out in the May *Inflation Report*. In such circumstances, the MPC would face a trade-off between stabilising inflation on the one hand and output and employment on the other. The implications for the direction of monetary policy will depend on the relative magnitudes of the demand, supply and exchange rate effects. Whatever the outcome of the referendum and its consequences, the MPC will take whatever action is needed to ensure that inflation expectations remain well anchored and inflation returns to the target over the appropriate horizon.

Against that backdrop, at its meeting on 11 May, the MPC voted unanimously to maintain Bank Rate at 0.5% and to maintain the stock of purchased assets, financed by the issuance of central bank reserves, at £375 billion.

1 Global economic and financial developments

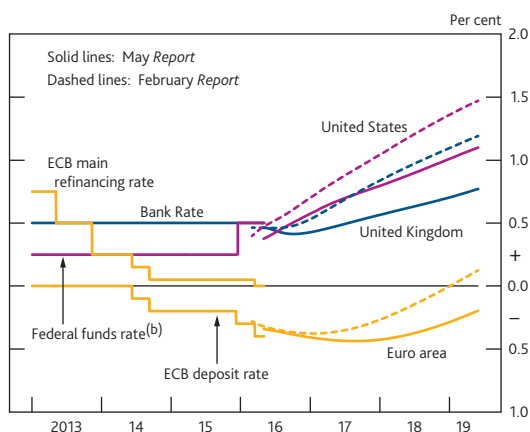
Global activity growth was subdued in 2015 H2, as the pace of recovery in advanced economies softened alongside slower growth in emerging market economies. Inflation remains low globally, primarily due to past falls in commodity prices. After increased financial market volatility around the turn of the year, a number of factors, including policy announcements, appear to have contributed to a recovery in the prices of risky assets and should support the outlook for global activity. Sterling is 9% below its November peak, a material proportion of which appears to reflect the referendum on UK membership of the European Union.

Table 1.A Monitoring the MPC's key judgements

Developments anticipated in February	Developments since February
Advanced economies	Broadly as expected
<ul style="list-style-type: none"> Quarterly euro-area growth to average a little below ½%. Inflation expected to remain close to zero. Quarterly US GDP growth to average a little above ½%; PCE inflation of around 1%. 	<ul style="list-style-type: none"> Euro-area GDP increased by 0.6% in Q1. Inflation was -0.2% in April 2016. US GDP rose by 0.1% in Q1. PCE inflation was 0.8% in March.
Rest of the world	Broadly as expected
<ul style="list-style-type: none"> Average four-quarter PPP-weighted EME growth of around 3¾%; Chinese GDP growth to average around 6½%. 	<ul style="list-style-type: none"> EME GDP growth was 3.8% in Q4. Chinese GDP growth was 6.7% in Q1.
Commodity prices and the exchange rate	Oil prices higher; sterling lower
<ul style="list-style-type: none"> Commodity prices and sterling ERI to evolve in line with the conditioning assumptions. 	<ul style="list-style-type: none"> US dollar oil prices are around 50% higher. The sterling ERI depreciated by around 3%.

Following the volatility in financial markets around the turn of the year, sentiment in risky asset markets appears to have improved since the February Report (Section 1.1). One factor supporting that recovery has been communication by several central banks suggesting more stimulative monetary policy than had previously been expected. This was accompanied by a further material flattening in benchmark yield curves (Chart 1.1). In addition, the relative stability of the renminbi and some reduction in concerns about near-term growth prospects in China (Section 1.2) have provided a fillip to risk sentiment and commodity prices (Section 1.1). An improvement in sentiment has also been reflected in measures of financial market risk aversion, such as option-implied equity price volatility, which has fallen back to mid-2015 levels (Chart 1.2). Overall, these developments should support the outlook for global growth, which remains broadly unchanged from the February Report.

Chart 1.1 Market-implied paths for US, UK and euro-area policy rates have all flattened International forward interest rates^(a)



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

(a) The May 2016 and February 2016 curves are estimated using instantaneous forward overnight index swap rates in the fifteen working days to 4 May and 27 January respectively.

(b) Upper bound of the target range.

Sterling is 9% below its November peak (Section 1.1). As explained in the box on page 5, there is evidence to suggest that roughly half of that decline reflects perceived risks associated with the referendum on UK membership of the European Union. So far, there is much more limited evidence of effects on UK interest rates and equity prices.

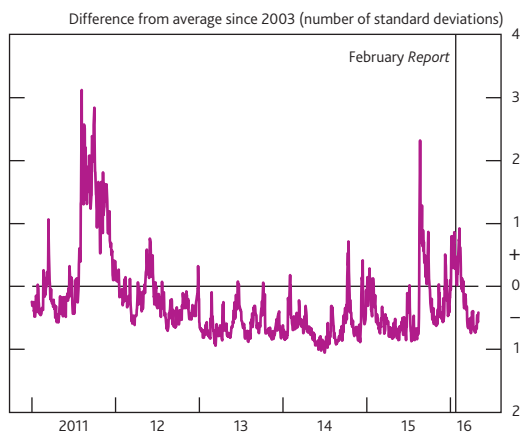
1.1 Developments in financial markets

Monetary policy and short-term interest rates

In recent months, monetary policy actions and communications by several central banks are likely to have supported sentiment in risky asset markets and are probably one factor behind lower expectations of future policy rates: benchmark yield curves in the United Kingdom, United States and the euro area were materially flatter in the run-up to the May Report than in February (Chart 1.1).

Chart 1.2 Market-based measures of risk premia have fallen back

Implied volatility for US equity prices^(a)

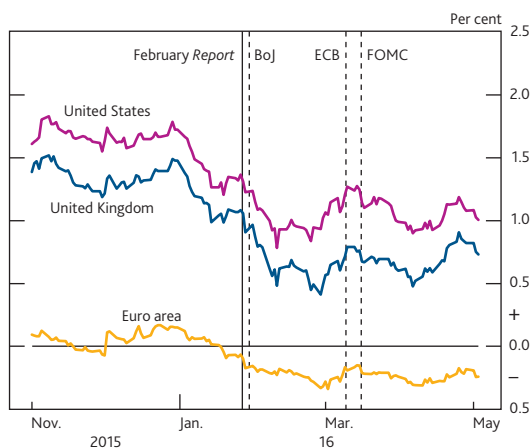


Sources: Bloomberg and Bank calculations.

(a) VIX measure of 30-day implied volatility of the S&P 500 equity index.

Chart 1.3 International short-term interest rates are lower

International three-year forward interest rates^(a)



Sources: Bloomberg and Bank calculations.

(a) Instantaneous three-year forward overnight index swap rates. Dashed lines mark selected policy announcements by central banks.

Table 1.B The ECB announced a number of policy easing measures in March

Policy announcements by the ECB at its March meeting

	Policy instrument	Announcement
Interest rates	Main refinancing operations	Reduce from 0.05% to 0.00%.
	Deposit facility	Reduce from -0.30% to -0.40%.
	Marginal lending facility	Reduce from 0.30% to 0.25%.
Asset purchases	Asset purchase scheme	Increase purchase rate from €60 billion to €80 billion per month from April.
		Extend eligible assets to include euro-denominated investment-grade bonds issued by non-banks.
Market operations	Targeted long-term refinancing operations (TLTROs)	A new series of TLTROs with a maturity of four years to be launched in June. Structured so as to further incentivise bank lending to the real economy.

Source: ECB.

One driver of lower short-term interest rates was the announcement by the Bank of Japan (BoJ) on 29 January, in the run-up to the February Report, that it would introduce negative interest rates. This announcement took markets by surprise and, in the following weeks, interest rates fell in several other economies (Chart 1.3). On 27 April, the BoJ left policy unchanged against expectations among market contacts for a further loosening, although there was limited reaction in short-term interest rates.

The announcement on 10 March of a number of easing measures by the European Central Bank (ECB) (Table 1.B) appears to have had little impact on short-term interest rates (Chart 1.3), although the effect on risky asset markets was more pronounced. In part, that was because several of those measures — such as changes in policy rates and an increase in the programme of asset purchases — had been widely anticipated by market participants. In addition, the measures that had been less widely anticipated — such as the extension of the scope of asset purchases and amendments to the long-term refinancing scheme — would tend to support financing conditions by lowering the cost of issuing corporate bonds or supporting bank lending, rather than directly lowering short-term market interest rates. The ECB made no further policy changes at its meeting on 21 April.

In the United States, the Federal Open Market Committee (FOMC) kept rates on hold in March and April, as expected by market participants. The average of FOMC members' expected future paths for interest rates was, however, revised down in March by more than had been expected and market interest rates fell in response (Chart 1.3).

In the United Kingdom, the market-implied path for Bank Rate reaches 0.8% in three years' time, compared with a little over 1% at the time of the February Report (Chart 1.1). The box on page 3 discusses the factors behind the MPC's decisions in March and April, while the factors underpinning the Committee's May decision are set out in the Monetary Policy Summary on pages i–ii of this Report, and in more detail in the Minutes of the meeting. As set out in the box on page 5, while the referendum on UK membership of the European Union may be having some effect on UK short-term interest rates, there is little evidence that this has been a significant factor so far.

Longer-term interest rates

Longer-term interest rates in the United Kingdom, United States and euro area have been more stable than short-term rates in recent months, although they remain lower than in mid-2015 (Chart 1.4). Some of the fall over this period was due to lower real rates (Chart 1.5). While that may have reflected perceptions of a weaker global growth outlook or increased downside risks, it is also likely to have reflected continuing asset purchases by the ECB and BoJ. Purchases of

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 rise to around 2½% over the forecast period, driven by private domestic demand growth. CPI inflation in two years' time was expected to exceed the 2% target slightly and then rise further, as domestic cost pressures built and the drags from past falls in energy and imported goods prices unwound.

At its meeting ending on 16 March, the MPC noted that GDP growth in Q4 was unchanged from the ONS's initial estimate of 0.5% and data releases showed little change in the near-term outlook for growth in the United Kingdom's main trading partners since the time of the February *Report*. The prices of risky assets had risen, however, and short-term interest rates had fallen, since the MPC's February meeting, which if sustained would tend to support UK activity. Sterling had depreciated by around 3% in effective terms since the February *Report*, a significant proportion of which was likely to have reflected uncertainty surrounding the forthcoming referendum on UK membership of the European Union.

CPI inflation had risen to 0.3% in January, slightly weaker than Bank staff projections. The downside news was largely due to changes in component weights and had not changed the near-term forecast materially. Wage growth had evolved broadly as expected. A key judgement remained how wages would respond to the past declines in unemployment and prospective rises in inflation. The latest household survey measures of inflation expectations had provided conflicting signals and market-based measures suggested little change in market participants' long-term inflation expectations.

All Committee members considered the current stance of monetary policy to be appropriate. There remained a range of views about the balance of risks to inflation relative to the best collective judgement presented in the February *Report*.

Developments in the global economy ahead of the MPC meeting ending on 13 April had been mixed. Downside risks to near-term Chinese growth had lessened following the authorities' announcement that they would target only a modest slowing in demand growth in 2016, while US data releases suggested weakness in 2016 Q1. Prices of risky assets had continued to rise internationally, while risk-free interest rates had fallen further. Sterling had continued to depreciate.

Following the 2015 Q4 UK National Accounts release, the slowdown between 2014 and 2015 looked shallower than had previously been the case. More recently, there were some signs that increased uncertainty related to the referendum had begun to weigh on certain areas of activity: for example, survey measures of investment intentions had eased, and there had been a striking fall in commercial property transactions, consistent with the likelihood that some business decisions may be delayed pending the outcome of the vote. This could lead to some softening in growth during 2016 H1.

Twelve-month CPI inflation had been 0.5% in March, broadly in line with Bank staff's expectation at the time of the February *Report*. There had been no official labour market data release since the Committee's March meeting.

The Committee voted unanimously to maintain the current stance of policy. The MPC's best collective judgement was that it was more likely than not that Bank Rate would need to increase over the forecast period to return inflation to the target in a sustainable fashion. Referendum effects were judged likely to make it harder to interpret macroeconomic and financial market indicators over the next few months, however, and the Committee concluded that it was likely to react more cautiously to data news over this period.

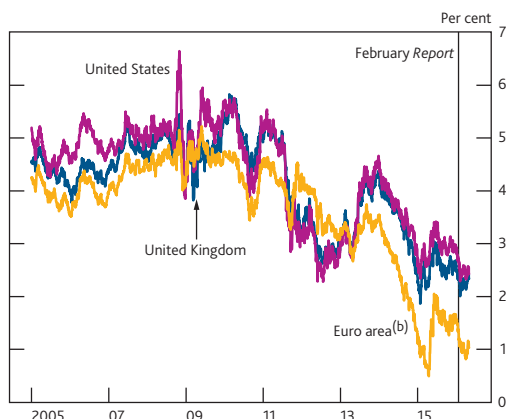
The policy decision at the meeting ending on 11 May, and the factors behind that decision, are set out in the Monetary Policy Summary on pages i–ii of this *Report*, and in more detail in the Minutes of the meeting.⁽¹⁾

(1) The Minutes are available at www.bankofengland.co.uk/publications/minutes/Documents/mpc/pdf/2016/may.pdf.

long-term bonds by central banks increase the demand for these assets, raising their prices and lowering their yields. In addition, other long-term bonds that are seen as close substitutes, such as those issued in sterling, will also see their prices rise and yields fall. The fall in long-term interest rates since mid-2015 was also associated with lower implied inflation rates: market-based measures of long-term inflation expectations have fallen in the United Kingdom, United States and the euro area. Despite having fallen, UK implied inflation rates remain close to past averages (Section 4). These falls may reflect lower long-term inflation expectations but these

Chart 1.4 Longer-term nominal interest rates remain lower than in mid-2015

Five-year, five-year forward nominal interest rates^(a)

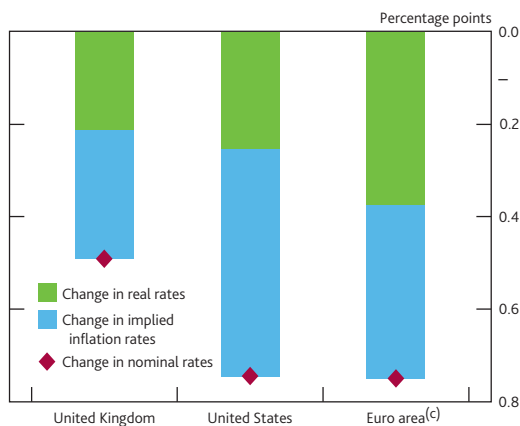


Sources: Bloomberg and Bank calculations.

- (a) Zero-coupon five-year, five-year forward rates derived from government bonds.
 (b) An estimate based on French and German government bonds.

Chart 1.5 Real rates and implied inflation have fallen since mid-2015

Contributions to the fall in five-year, five-year forward nominal interest rates since mid-2015^{(a)(b)}

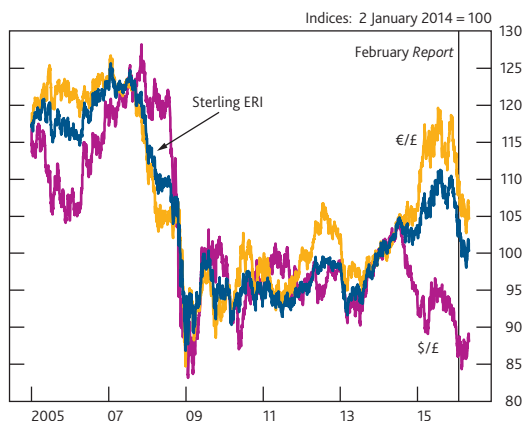


Sources: Bloomberg and Bank calculations.

- (a) Zero-coupon five-year, five-year forward rates derived from government bonds. The contribution of real rates and implied inflation to the change in nominal rates is calculated using inflation swap rates for the United Kingdom and the euro area and inflation-linked government bond rates for the United States. These instruments reference the RPI, HICP and CPI measures of inflation respectively.
 (b) Change between the average over June–July 2015 and the fifteen working days to 4 May 2016.
 (c) Nominal rate is an estimate based on French and German government bonds.

Chart 1.6 Sterling has depreciated significantly over the past six months

Sterling exchange rates



market-based measures will also reflect other factors: for example, market contacts attribute some of the falls in the US measures to the illiquidity of inflation-linked bonds relative to nominal bonds.

Exchange rates

According to market contacts, one factor behind some of the financial market volatility around the turn of the year, and that has since diminished, was uncertainty about China's exchange rate regime. This, together with concerns about Chinese growth prospects, had resulted in net private sector capital outflows from China (Section 1.2). That put downward pressure on the renminbi and the Chinese authorities intervened to smooth the depreciation of the currency. In turn, China's foreign exchange reserves fell markedly and some market contacts had been expecting the Chinese authorities to allow the renminbi to depreciate. Since February, however, the pace of reserves depletion has fallen notably. Furthermore, the falls in US short-term interest rates have been accompanied by a depreciation in the US dollar, which helped to stabilise the renminbi-US dollar exchange rate. Market contacts suggest that, as a result, the weight placed on the possibility that the renminbi would depreciate sharply has fallen.

Having appreciated steadily during 2013–15, the sterling effective exchange rate has depreciated significantly over the past six months. In the run-up to the *May Report*, sterling was 9% below its peak in November (Chart 1.6). That depreciation has been broad-based, with sterling falling against both the US dollar and the euro. As set out in the box on page 5, the referendum on UK membership of the European Union is estimated to account for roughly half of this depreciation.

Commodity prices

Reduced concerns about near-term Chinese growth prospects and an improvement in risk sentiment are likely to have helped support the recovery in commodity prices. The prices of industrial metals and agricultural commodities have risen by 12% and 4% since February respectively (Chart 1.7). More substantially, the Brent crude spot oil price has increased by US\$15 per barrel — around 50% — since the *February Report*, although it remains around 60% below its peak in June 2014. Reductions in expected oil supply are also likely to have supported prices. There were supply disruptions in Nigeria, Iraq and the United Arab Emirates, and the International Energy Agency revised down its projections for non-OPEC oil production in 2016.

Corporate capital markets

Over the past three months, the recovery in oil prices, together with lower benchmark interest rates, central bank asset purchases and reduced concerns about growth prospects (Section 1.2) have supported conditions in corporate capital markets.

Asset prices and the referendum on membership of the European Union

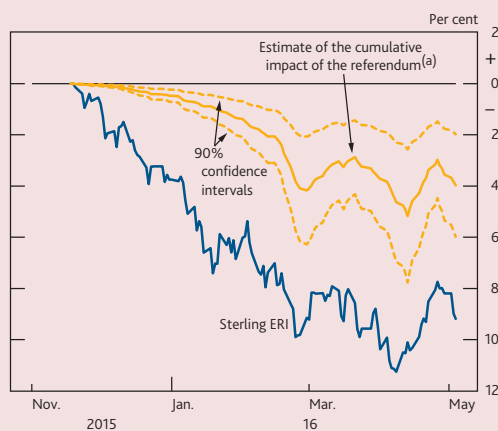
As set out in the box on pages 41–43, risks associated with the 23 June referendum on UK membership of the European Union are likely to affect asset prices. As this box sets out, the exchange rate appears to have been most affected so far. There is much more limited evidence of effects on interest rates and equity prices.

Exchange rates

Sterling is 9% below its November peak (**Chart A**), and implied volatilities from sterling options — measures of perceived risk around the exchange rate — have increased at maturities spanning the referendum date. Further, the cost of insuring against a depreciation compared to an appreciation has increased markedly, suggesting that market participants place a relatively large weight on the risk of a significant further depreciation in sterling following the referendum (**Chart B**).

Chart A Roughly half of sterling's depreciation is estimated to be attributed to the referendum

Cumulative change in sterling since 18 November 2015 and estimated referendum impact



Sources: Bloomberg and Bank calculations.

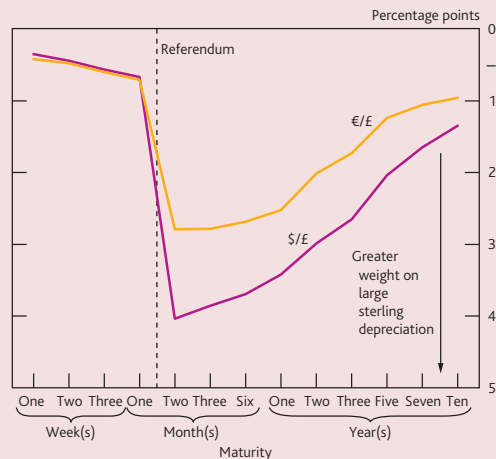
(a) Cumulative change in the sterling ERI since 18 November 2015 explained by referendum news flow in a regression of changes in the ERI on a measure of referendum news flow, changes in relative short-term interest rates, the VIX and macroeconomic data surprises. The referendum news flow measure is based on the frequency of Bloomberg news articles that mention the terms 'Brexit' or 'EU referendum'. As the frequency of news articles does not separately identify the effect of falls and rises in the perceived likelihood of a leave vote, information gathered as part of the Bank's market intelligence activities — along with implied betting odds, online and telephone polls and risk reversals from sterling option prices — has been used to identify periods in which the change in news flow was related to falls or rises in the perceived likelihood of a leave vote, and the sign on the referendum news measure during those periods adjusted accordingly. Estimating the regression using the frequency of news articles and a dummy variable for this set of days, confirmed at the 1% level the statistical significance of the chosen set.

Simple regression estimates suggest that only around 1 percentage point of the fall in sterling can be explained by news in economic data releases and relative interest rates, consistent with a substantial role for referendum effects. Indeed, market contacts suggest that a material proportion of the depreciation has been related to the referendum. One way of attempting to quantify those effects is by assessing

how the exchange rate has changed in response to information relating to the referendum, proxied by the frequency of media references. One such model suggests that the referendum has accounted for roughly half of the depreciation in sterling (**Chart A**).

Chart B Options prices point to a risk of further sterling depreciation following the referendum

Difference between implied volatilities from call and put options by currency and maturity^(a)



Sources: Bloomberg and Bank calculations.

(a) Data are for 4 May 2016. The series shows the difference between implied volatilities from 25-delta call and put options.

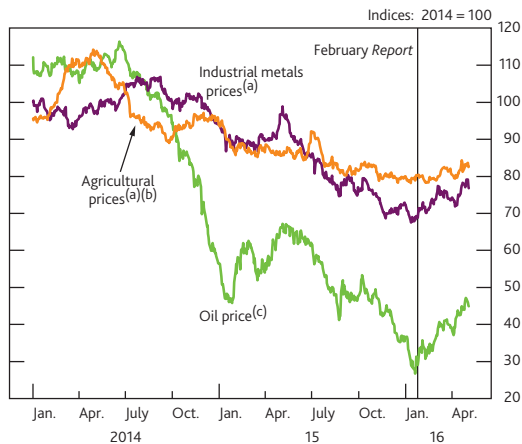
Interest rates

It is harder to identify a significant impact on UK short-term market interest rates related to the referendum. Using a similar approach to quantify the impact of referendum news to that used above, interest rates appear to have moved little in response to referendum-related news. This absence of a clear effect on interest rates might, in part, reflect different views among market participants about how the referendum outcome would affect the yield curve: a recent Reuters survey found that there were mixed views as to how short-term interest rates would respond in the event of a vote to leave the European Union. Perhaps consistent with this, uncertainty around future interest rates appears to have risen: implied volatilities for short-term interest rates are elevated for maturities spanning the referendum date.

Equity prices

The impact of the referendum on equity prices is also difficult to quantify as it is likely to differ significantly across companies depending on the industry and the regions in which they generate revenues. A similar approach to quantify the impact of referendum news to that used above for sterling and interest rates does not suggest any clear referendum impact. The equities of UK-focused companies have, however, recently underperformed the overall FTSE All-Share index, and part of that underperformance might reflect a referendum effect.

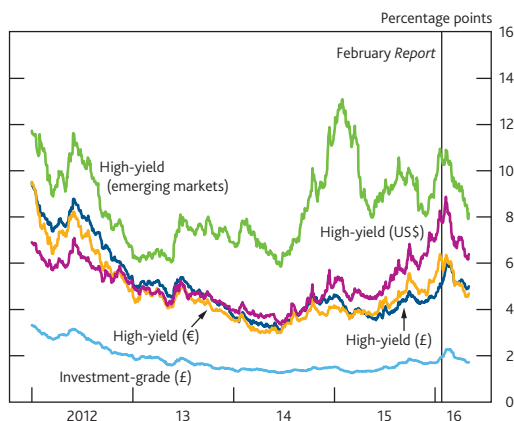
Chart 1.7 Commodity prices have risen since February
US dollar oil and commodity prices



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

- (a) Calculated using S&P GSCI US dollar commodity price indices.
 (b) Total agricultural and livestock S&P commodity index.
 (c) US dollar Brent forward prices for delivery in 10–25 days' time.

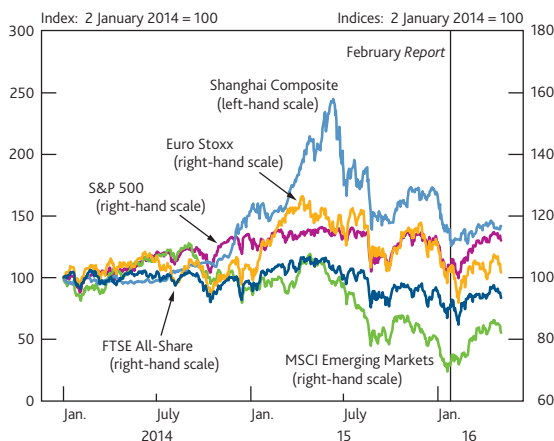
Chart 1.8 Corporate bond spreads have narrowed
relative to their February peaks
International corporate bond spreads^(a)



Source: BofA Merrill Lynch Global Research.

- (a) Spreads on government bond yields. Investment-grade bond yields are calculated using an index of bonds with a rating of BBB3 or above. High-yield corporate bond yields are calculated using aggregate indices of bonds rated lower than BBB3. Due to monthly index rebalancing, movements in yields at the end of each month might reflect changes in the population of securities within the indices.

Chart 1.9 Equity prices have recovered somewhat
International equity prices^(a)



Sources: Thomson Reuters Datastream and Bank calculations.

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

Corporate bond spreads have narrowed, particularly for advanced-economy non-investment grade companies, although they remain above 2013–15 levels (Chart 1.8). For energy companies, commodity prices are likely to have played a significant role: spreads on those companies' bonds widened relative to non-energy bond spreads around the turn of the year as oil prices fell, and their subsequent narrowing — as oil prices have risen — has been greater. In addition, the ECB's announcement that it intends to purchase non-bank euro-denominated corporate bonds (Table 1.B) will have helped to narrow spreads on the bonds eligible for the scheme. That should help to support euro-denominated corporate bond issuance, a significant proportion of bond financing for UK companies. It will have also helped to compress spreads, and will support issuance, in other bond markets that are seen by investors as close substitutes, such as the sterling bond market.

Having fallen during 2015 H2, equity prices have also recovered somewhat (Chart 1.9). For the FTSE All-Share index, while that recovery was broad-based, it was most pronounced in the equity prices of mining and quarrying companies (Chart 1.10), which is likely to reflect the increase in oil and other commodity prices since February.

Bank funding costs

The recovery in UK bank equity prices has been more limited than in other sectors (Chart 1.10). Indicative measures of bank funding spreads — such as senior unsecured bond spreads and CDS premia — have widened over the past three months (Chart 1.11). Overall bank funding costs are also a little higher than in February, as that widening has not been fully offset by falls in benchmark interest rates. As discussed in the 2016 Q1 *Credit Conditions Review*, lenders attributed the rise in funding spreads to greater uncertainty about the global economic outlook and weaker investor sentiment about prospects for banking sector profitability.⁽¹⁾ Uncertainty associated with the referendum was also reported by some banks as one factor affecting UK wholesale funding markets.

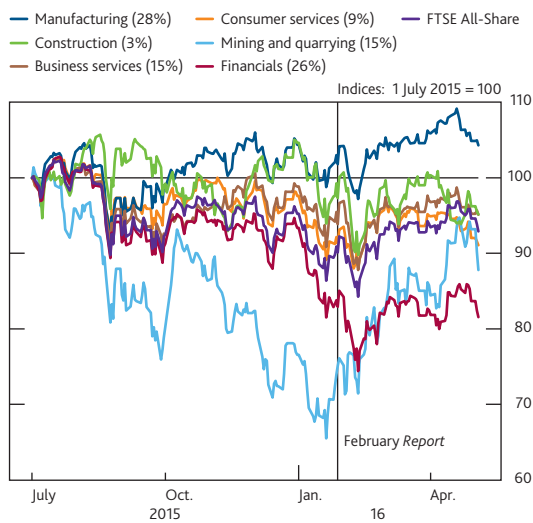
Overall, conditions in corporate capital markets have stabilised and should continue to support a recovery in capital market issuance, bank lending and UK domestic demand (Section 2). While respondents to the *Bank Liabilities Survey* reported that they expected spreads on wholesale funding to widen a little further in 2016 Q2, a larger more persistent increase in bank funding costs would be needed to lead to materially tighter UK credit conditions.⁽²⁾

(1) www.bankofengland.co.uk/publications/Documents/creditconditionsreview/2016/ccrq116.pdf.

(2) www.bankofengland.co.uk/publications/Documents/other/monetary/bls/16q1.pdf.

Chart 1.10 The recovery in UK equity prices has been most pronounced in the energy sector

UK equity indices for selected sectors^(a)

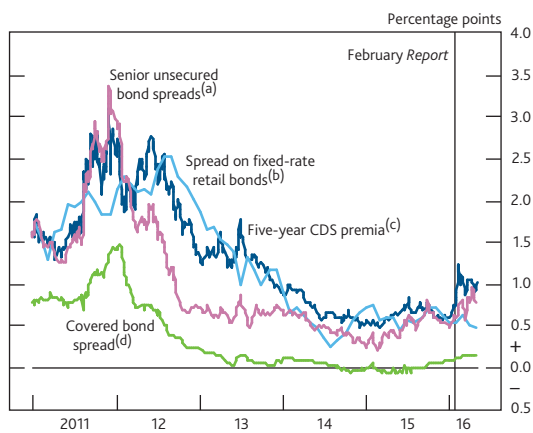


Sources: Thomson Reuters Datastream and Bank calculations.

(a) Sectors capture around 96% of the FTSE All-Share. Sectoral indices are calculated as an average of sub-indices of the FTSE All-Share, weighted by daily shares in market capitalisation. The average weights of each sector in the FTSE All-Share since July 2015 are shown in parentheses.

Chart 1.11 Bank funding spreads have widened

Indicative long-term UK bank funding spreads



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

- (a) Constant-maturity unweighted average of secondary market spreads to mid-swaps for the major UK lenders' five-year euro senior unsecured bonds or a suitable proxy when unavailable.
 (b) Unweighted average of spreads for two-year and three-year sterling fixed-rate retail bonds over equivalent-maturity swaps. Bond rates are end-month rates and swap rates are monthly averages of daily rates.
 (c) Unweighted average of five-year euro 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.

1.2 Global economic developments

Global growth and inflation

Global growth has remained subdued in recent years. Initially, the recovery in advanced economies was offset by slowing growth in emerging market economies (EMEs). More recently, advanced-economy growth has softened (Table 1.C). As explained in the November 2015 *Report*, following a period in which EME growth repeatedly slowed by more than anticipated, the MPC revised down its estimate of their medium-term growth prospects. Since then, outturns have been broadly in line with expectations.

Past falls in oil and other commodity prices (Section 1.1) have weighed on headline inflation rates globally (Table 1.D). Core inflation — which excludes food and energy prices — is, however, also weak in many economies. In part this is likely to reflect remaining slack and the wider effects of commodity price falls. Accordingly, a measure of world export price inflation excluding oil, weighted by UK import shares, remained subdued at -1.2% in the four quarters to 2015 Q4, compared to its pre-crisis average rate of around 1%.

Euro area

Having slowed during 2015 H2, euro-area GDP growth picked up in 2016 Q1 (Table 1.C) to 0.6%, somewhat stronger than expected three months ago. Euro-area GDP has now recovered to around its pre-crisis peak (Chart 1.12).

Much of this recovery has been a consequence of strong export performance during 2010–13. In contrast, over the past year, domestic demand — supported by falls in commodity prices, improvements in credit conditions and accommodative monetary policy — has been the main contributor to euro-area growth. Domestic demand remains below its pre-crisis level (Chart 1.12), however, and the performance has varied starkly across countries: domestic demand is above its pre-crisis levels in France and Germany, but it remains lower, in some cases significantly so, in Italy, Spain, Portugal and Greece.

As activity has recovered, overall spare capacity has diminished markedly, although in some countries significant slack probably remains. While the overall euro-area unemployment rate has continued to decline to a little over 10%, it remains more elevated in some countries. Further, there is likely to be some slack in average hours and participation, as well as within companies. In the near term, euro-area growth is projected to fall back a touch and average a little below ½% per quarter, as ECB policy easing (Section 1.1) and a slight easing in fiscal policy continue to support activity as the boost from the past falls in energy prices fades. That is likely to be associated with a gradual absorption of remaining slack.

Table 1.C Activity growth across countries slowed in 2015 H2
GDP in selected countries and regions^(a)

	Averages					
	1998–2007	2012–13	2014	2015 H1	2015 H2	2016 Q1
United Kingdom	2.9	1.9	2.8	2.1	2.1	1.6
Euro area (39%)	2.3	-0.2	1.0	1.9	1.2	2.2
United States (16%)	3.0	1.9	2.5	2.3	1.7	0.5
China (4%) ^(b)	10.0	7.7	7.3	7.0	6.9	6.7
Japan (2%)	1.1	1.1	-0.8	1.6	0.2	n.a.
India (2%) ^(b)	n.a.	6.2	7.0	7.1	7.5	n.a.
Russia (1%) ^(c)	7.8	1.6	-0.7	-4.9	-2.3	n.a.
Brazil (1%)	3.1	2.5	-0.7	-5.7	-6.2	n.a.
UK-weighted world GDP ^(d)	3.0	1.6	2.1	2.2	1.9	n.a.

Sources: IMF *World Economic Outlook (WEO)*, OECD, ONS, Thomson Reuters Datastream and Bank calculations.

- (a) Real GDP measures. Figures in parentheses are shares in UK goods and services exports in 2014.
 (b) Data are four-quarter growth. The earliest observation for India is 2012 Q2.
 (c) The earliest observation for Russia is 2003 Q2. Figure for 2015 H2 is based on data to 2015 Q3.
 (d) Constructed using data for real GDP growth rates for 146 countries weighted according to their shares in UK exports. For the vast majority of countries, the latest observation is 2015 Q4. For those countries where data are not yet available, Bank staff's projections are used.

Table 1.D Inflation remains weak across countries
Inflation in selected countries and regions

Per cent	Monthly averages					2016			
	1998–2007	2014	2015 H1	2015 Q3	2015 Q4	Jan.	Feb.	Mar.	Apr.
Annual headline consumer price inflation									
United Kingdom	1.6	1.5	0.1	0.0	0.1	0.3	0.3	0.5	n.a.
Euro area ^(a)	2.0	0.4	-0.1	0.1	0.2	0.3	-0.2	0.0	-0.2
United States ^(b)	2.0	1.4	0.2	0.3	0.5	1.3	1.0	0.8	n.a.
UK-weighted world inflation ^(c)	2.0	1.0	0.4	0.5	0.5	n.a.	n.a.	n.a.	n.a.
Annual consumer price inflation excluding food and energy^(d)									
United Kingdom	1.2	1.6	1.0	1.1	1.2	1.2	1.2	1.5	n.a.
Euro area ^(a)	1.6	0.8	0.7	0.9	1.0	1.0	0.8	1.0	0.7
United States ^(b)	1.8	1.5	1.3	1.3	1.4	1.7	1.7	1.6	n.a.

Sources: Eurostat, IMF *WEO*, ONS, Thomson Reuters Datastream, US Bureau of Economic Analysis and Bank calculations.

- (a) Data point for April 2016 is a flash estimate.
 (b) Personal consumption expenditure price index inflation. Data point for March 2016 is a preliminary estimate.
 (c) Constructed using data for consumption deflators for 51 countries weighted according to their shares in UK exports. For the vast majority of countries, the last observation is 2015 Q4. For those countries where data are not yet available, Bank staff's projections are used.
 (d) For the euro area and the United Kingdom, excludes energy, food, alcoholic beverages and tobacco. For the United States, excludes food and energy.

This remaining slack, together with the past falls in energy prices, has kept euro-area inflation subdued. Headline inflation was -0.2% according to the flash estimate for April (Table 1.D), slightly weaker than expected, while core inflation was 0.7%, compared with 1.6% on average prior to the crisis. As past falls in energy prices drop out of the annual comparison, headline inflation should pick up, but further increases are likely to be gradual while significant spare capacity remains.

United States

US GDP growth slowed somewhat during 2015 (Table 1.C). Alongside lower extraction investment in response to the past falls in oil prices, this slowing may in part have reflected the effect of the slowing in EME growth on trade and financial conditions. The slowing in US activity growth continued into 2016 Q1: growth was just 0.1% on the quarter, weaker than anticipated in February, largely on account of subdued consumption growth. Much of that weakness is, however, expected to be temporary; growth is projected to recover to 0.6% in 2016 Q2.

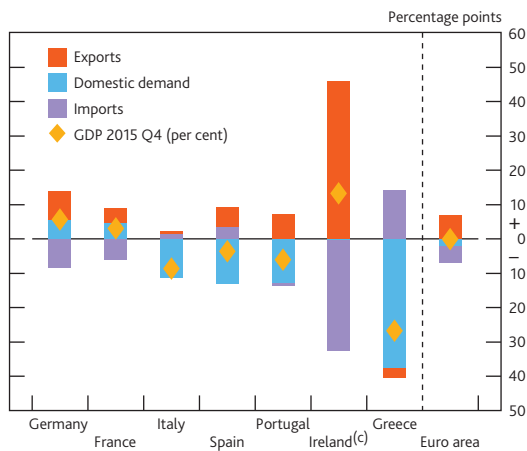
In contrast to the slowing in activity growth, a range of labour market indicators remain strong: employment growth has been robust (Chart 1.13) and, while the unemployment rate has stabilised at around 5%, the participation rate has picked up. The combination of slowing activity growth and robust employment growth has been reflected in productivity growth of only 0.6% in the four quarters to 2016 Q1, compared with its pre-crisis average rate of 2.3%. Accordingly, wage growth has also remained subdued at 2% in Q1 on the Employment Cost Index measure, compared with its past average of around 3%.

Despite the weakness in nominal wage growth, total real disposable income growth has been robust, supported both by employment growth and the past falls in energy prices. This strength in income growth, combined with weak consumption growth, was reflected in a rise in the household saving ratio in Q1. Measures of consumer confidence have held up, however, so some of this increase in saving is likely to prove temporary. In addition, as the labour market continues to tighten and productivity growth recovers, that should help to underpin a gradual recovery in nominal wage growth. These factors should support a recovery in activity growth in the near term. There is a risk, however, that the recent weakness in productivity growth reflects a more persistently weak underlying trend, and so activity growth remains sluggish (Section 5).

Although headline PCE inflation remains subdued — at 0.8% in the twelve months to March — this largely reflects the past falls in energy prices (Section 1.1). Core PCE inflation has picked up quite strongly over the same period to 1.6% (Table 1.D). Core inflation is expected to pick up further as

Chart 1.12 The extent of the recovery in GDP has varied across euro-area countries

Contributions to cumulative change in GDP since euro-area pre-recession peak in selected countries^{(a)(b)}



Sources: Eurostat and Bank calculations.

- (a) Chained-volume measures. Contributions may not sum to the total due to rounding, the statistical discrepancy and chain-linking.
 (b) Pre-recession peak is in 2008 Q1.
 (c) Data for Ireland are not calendar adjusted.

Chart 1.13 US employment continues to grow at a robust rate

Monthly changes in US employment^(a)



Source: Bureau of Labor Statistics.

- (a) Total non-farm payroll employment. Three-month moving average.

the labour market continues to tighten and domestic cost pressures strengthen.

Emerging market economies

Although EME growth as a whole has slowed gradually over the past few years, the experience of individual countries has been varied. Brazil and Russia, for example, have seen sharp falls in activity since 2014 (Table 1.C), reflecting both lower commodity prices and country-specific factors. In contrast, growth in India increased from 7% in 2014 to 7½% in 2015 H2.

One factor that may have weighed on activity growth across EMEs in recent years is the pattern of international capital flows.⁽¹⁾ Net private sector capital flows into EMEs have slowed sharply since 2013 and indicators suggest that 2015 saw the first annual net outflow since 1988. More recently, capital flows into EMEs appear to have recovered a little: the Institute of International Finance (IIF) estimates that portfolio flows into EMEs — net purchases of equities and bonds — were positive in March and April. These data tend to be volatile but, were this improvement to persist, it should support financial conditions. Respondents to the IIF banking sector survey report that lending conditions remain tighter than over the past few years.

While some of the slowing in EME growth in recent years is likely to be cyclical, much of it can be attributed to demographic trends and a structural slowing in productivity growth, and is therefore expected to persist. This is particularly true of China — the largest single destination for UK exports among EMEs — where these trends have been behind a steady slowing in GDP growth over the past few years, from an average of around 10% per year to a little under 7%. Chinese growth in 2015 was, however, slightly stronger than expected and the Chinese authorities recently re-emphasised their target to double GDP between 2010 and 2020. These developments, together with the associated policy measures required to achieve the growth target, suggest that near-term growth prospects there have strengthened relative to three months ago. Those announcements may, however, reduce the emphasis on rebalancing the economy away from investment and towards domestic consumption. They are also likely to be associated with a continued robust expansion in domestic credit: total social financing increased materially in Q1.

(1) For more details on the impact of capital flows on EMEs see the box on page 7 of the February 2016 *Inflation Report*; www.bankofengland.co.uk/publications/Documents/inflationreport/2016/feb.pdf.

2 Demand and output

Quarterly GDP growth softened in 2016 Q1 and is projected to slow somewhat further in Q2 as recent increases in uncertainty weigh on activity. Exports fell over the second half of 2015, and the current account deficit widened to 7.0% of GDP. Private final domestic demand growth has remained resilient in the face of continued global and fiscal headwinds. Real income growth is likely to slow, however, as the boost from past falls in energy and food prices continues to fade.

Table 2.A Monitoring the MPC's key judgements

Developments anticipated in February	Developments since February
Cost of credit	Broadly as expected
<ul style="list-style-type: none"> Credit spreads to be broadly flat in 2016. 	<ul style="list-style-type: none"> Corporate bond spreads have fallen since February, but household credit spreads have risen.
Consumer spending	Broadly as expected
<ul style="list-style-type: none"> Quarterly consumption growth of around ¾%. 	<ul style="list-style-type: none"> Quarterly consumption growth was 0.6% in Q4.
Housing market	Broadly as expected
<ul style="list-style-type: none"> Mortgage approvals to average around 76,000 a month in 2016 Q3, following a period of volatility. Rates of increase in the main indices of national house prices to average around ½% per month. Quarterly housing investment growth to average around ¾%. 	<ul style="list-style-type: none"> Mortgage approvals for house purchase averaged 73,000 in Q1. Approvals are expected to average around 75,000 in 2016 H2. Average of Halifax and Nationwide price indices grew by 0.7% per month in Q1 on average. Quarterly housing investment rose by 2¾% in Q4, but estimates can be volatile.
Investment	Weaker than expected
<ul style="list-style-type: none"> Quarterly business investment growth of around 1¼%. 	<ul style="list-style-type: none"> Business investment fell by 2.0% in Q4.

Having been broadly stable during 2015, at around its historical average rate, quarterly GDP growth slowed a little in 2016 Q1. While some of the slowdown may have been related to slow global growth (Section 1), there are some signs that uncertainty relating to the UK referendum on EU membership has begun to weigh on activity. As explained in the box on pages 14–15, heightened uncertainty can have a wide range of effects on spending decisions and growth. Those referendum effects mean that it is hard to judge how much of the slowdown reflects a loss of underlying momentum and so may persist, and how much is likely to unwind if uncertainty recedes following the referendum. Referendum effects will also make it harder to interpret economic indicators over the next few months. This section examines the outlook for growth through the lenses of the output (Section 2.1) and expenditure data (Section 2.2 and Section 2.3).

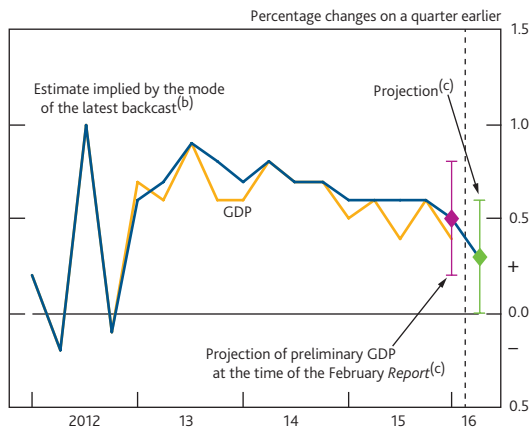
2.1 Output

The preliminary estimate for output growth was 0.4% in 2016 Q1. The MPC's backcast — which uses survey data and the pattern of past revisions to anticipate future revisions — suggests quarterly growth will in time be revised up to 0.5% (**Chart 2.1**). That, nevertheless, represents a slight slowing from 2015, where quarterly growth is expected to have been stable at around 0.6%. That slowdown appears to have been relatively broad-based across sectors.

Having risen in 2015, output within the domestic oil and gas extraction sector fell in 2016 Q1 (**Chart 2.2**). Strong investment spending during 2014 has supported production output, but the more recent steep falls in investment (Section 2.2), following the fall in oil prices since mid-2014, will weigh on output in this sector over the medium term.

Manufacturing output also fell in Q1 (**Chart 2.2**), as weaker demand for exports weighed on activity. According to intelligence from the Bank's Agents, falls in manufacturing output over the past year have been related to the past appreciation of sterling, the slowdown in global growth

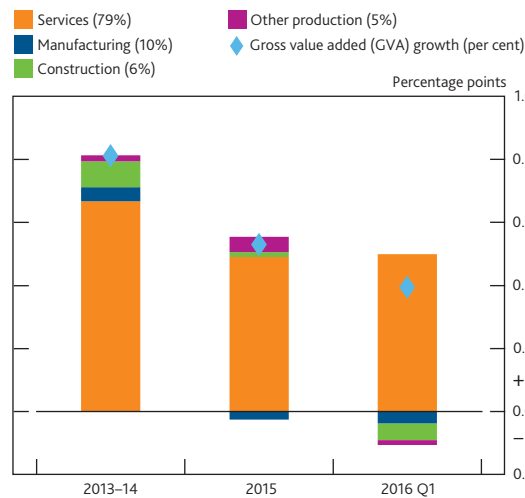
Chart 2.1 GDP growth was 0.4% in Q1
Output growth and Bank staff's near-term projections^(a)



Sources: ONS and Bank calculations.

- (a) Chained-volume measures. GDP is at market prices.
 (b) The latest backcast, shown to the left of the vertical line, is a judgement about the path for GDP in the mature estimate of the data. The observation for 2016 Q2, to the right of the vertical line, is consistent with the MPC's central projection.
 (c) The magenta diamond shows Bank staff's central projection for the preliminary estimate of GDP growth in 2016 Q1 at the time of the February Report. The green diamond shows the current staff projection for GDP growth in 2016 Q2. 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 quarterly GDP growth made since 2004.

Chart 2.2 Output growth has slowed since 2014
Contributions to average quarterly GVA growth by output sector^(a)



- (a) Chained-volume measures at basic prices. Contributions may not sum to the total due to rounding. Figures in parentheses are weights in nominal GDP in 2012.

(Section 1) and, within that, a marked decline in demand from extraction sectors globally. Industry surveys point to a mixed outlook for manufacturing activity. While the CIPS survey suggests that activity slowed further in April, the CBI expectations balance points to above-average growth in Q2.

Construction activity also fell in the first quarter of this year (**Chart 2.2**). Preliminary estimates since 2013 have, however, tended subsequently to be revised up. Construction survey indicators are around average levels, and housing market activity — which tends to be associated with construction output over longer periods — picked up in 2016 Q1 (Section 2.2).

Service sector growth slowed from 0.8% in 2015 Q4 to 0.6% in Q1, in line with its 2015 average rate. Underlying that, growth in business-focused service subsectors slowed, while growth in consumer-focused subsectors remained firm. Some of the slowing in business services growth in Q1 may in part have reflected the postponement of commercial real estate transactions (Section 2.2), IPOs and private equity deals, given uncertainty surrounding the referendum. In addition, business-focused service companies are, on average, more dependent on exports than consumer-facing companies and the Bank's Agents report that the external factors affecting manufacturing activity have also dampened business services output. In contrast, resilient growth of domestic demand, and household consumption in particular, has supported consumer services activity such as retail and motor trade.

Survey indicators suggest that output growth has continued to slow in the second quarter. That slowing may in part reflect uncertainty around the forthcoming referendum, which could build further in May and June. GDP growth is projected to be 0.3% in Q2.

2.2 Domestic demand

On the expenditure side, private sector final domestic demand growth has been resilient over the past few years despite fiscal and global headwinds (**Table 2.B**). The public sector deficit has narrowed (**Chart 2.3**), reflecting the continuing fiscal consolidation, and the current account deficit has widened — mainly due to lower income on UK-owned foreign assets as global growth has been subdued (Section 2.3). One counterpart to these developments has been a fall in the rate of household saving; the household financial balance — which captures the difference between saving and investment — has been in deficit since the end of 2013. The financial balance of private non-financial corporations (PNFCs) has been more stable.

These fiscal and global headwinds are likely to persist over the near term and so the outlook for GDP growth will continue to depend on domestic private sector spending growth. While

Table 2.B Domestic demand growth was resilient in 2015 H2, while net trade subtracted from GDP growth

Expenditure components of demand^(a)

Percentage changes on a quarter earlier

	Averages					2015	
	1998–2007	2008–09	2010–12	2013–14	2015 H1	Q3	Q4
Household consumption ^(b)	0.9	-0.6	0.2	0.6	0.8	0.5	0.6
Private sector investment	0.7	-4.2	1.2	1.6	1.8	0.5	-0.7
of which, business investment ^(c)	0.5	-2.8	1.5	1.2	1.8	1.3	-2.0
of which, private sector housing investment	0.8	-7.0	0.8	3.0	1.8	-1.2	2.1
Private sector final domestic demand	0.8	-1.3	0.4	0.9	1.0	0.5	0.4
Government consumption and investment ^(c)	0.8	0.9	-0.1	0.4	0.5	0.6	-0.1
Final domestic demand	0.8	-0.8	0.3	0.8	0.9	0.5	0.3
Change in inventories ^{(d)(e)}	0.0	0.2	0.1	-0.1	-0.4	0.6	-0.2
Alignment adjustment ^(e)	0.0	-0.1	0.0	0.1	-0.3	0.2	0.5
Domestic demand^(f)	0.8	-0.7	0.4	0.7	0.2	1.4	0.7
'Economic' exports ^(g)	1.1	-1.0	0.8	1.0	1.3	-0.4	0.1
'Economic' imports ^(g)	1.4	-1.1	0.8	1.0	0.5	2.9	0.9
Net trade^{(e)(g)}	-0.1	0.1	0.0	0.0	0.2	-1.1	-0.3
Real GDP at market prices	0.7	-0.7	0.4	0.7	0.5	0.4	0.6
Memo: nominal GDP at market prices	1.3	-0.1	0.9	1.1	0.7	0.6	0.2

(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.

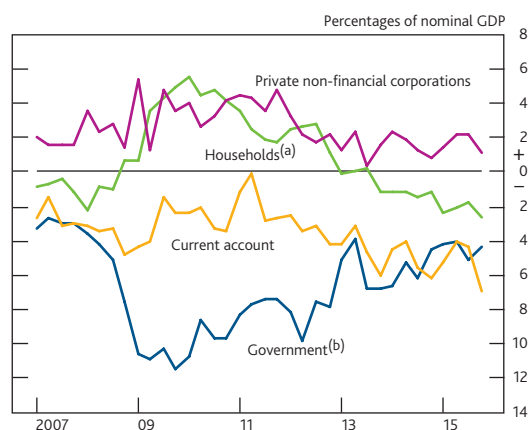
(e) Percentage point contributions to quarterly growth of real GDP.

(f) Includes acquisitions less disposals of valuables.

(g) Excluding the impact of missing trader intra-community (MTIC) fraud.

Chart 2.3 The household financial balance has fallen into deficit over recent years

Financial balances by sector



(a) Includes non-profit institutions serving households.

(b) Excludes public corporations.

the past easing in credit conditions should support domestic private sector spending growth, that growth is likely to be materially affected in the near term by uncertainty relating to the referendum.

Household spending

Consumer spending growth picked up over 2013–14 (**Chart 2.4**), as consumer confidence increased and credit conditions eased. That was associated with a decline in the household saving ratio, as households consumed a greater proportion of their incomes, on average.

Throughout 2015, four-quarter consumer spending growth has been firm at around 2¾%, supported by a pickup in income growth (**Chart 2.4**). Households' real available income — excluding income that goes directly to pension schemes — grew by 3.6% over 2015, above its pre-crisis average of 3.1%. Strong employment growth has supported total nominal income growth, even though average wage growth remains weak (Section 3). Past falls in energy and food prices have also provided a boost to real incomes.

Consumption growth continues to be supported by the easing in credit conditions since the financial crisis. Lending and deposit rates have stabilised at low levels (**Chart 2.5**) and the availability of credit has continued to increase: the latest *Credit Conditions Survey* indicated a slight rise in the availability of unsecured loans in 2016 Q1, with expectations of a further increase in Q2. Increased credit supply has been met by strong demand for credit, such that consumer credit growth has been robust. Indicative estimates suggest that a significant part of consumer credit flows during 2014 and 2015 were for car finance. Strong growth in motor trade in early 2016 suggests that this has probably remained the case.

Survey measures indicate that, while consumer confidence has eased somewhat, it is close to average levels (**Chart 2.6**), which should also support consumption growth. While households' confidence in the outlook for the wider economy appears to have declined the most, confidence in their own financial positions and their appetite for major purchases — which have typically been a better guide to spending patterns over the past — remain relatively buoyant.

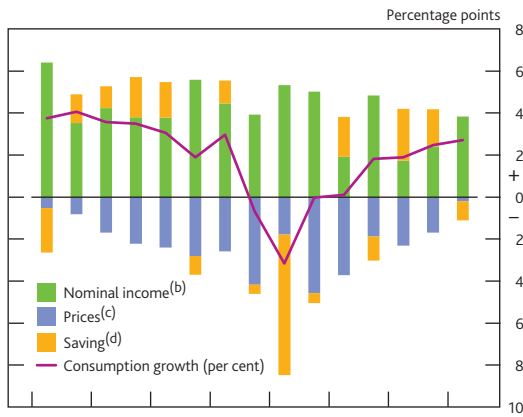
Consumption growth is, however, projected to slow in the near term as the boost to real income growth from falling energy and food prices continues to fade (Section 4). As highlighted in the box on pages 14–15, there is a risk that a period of heightened uncertainty around the referendum could dampen confidence, prompting households to defer consumption and increase their savings.

The housing market

Housing investment growth was robust over 2013–14, but then slowed during 2015 (**Table 2.B**). The slowdown was broad-based across new building, improvements to existing

Chart 2.4 Nominal income growth and low inflation have supported consumption growth in 2015

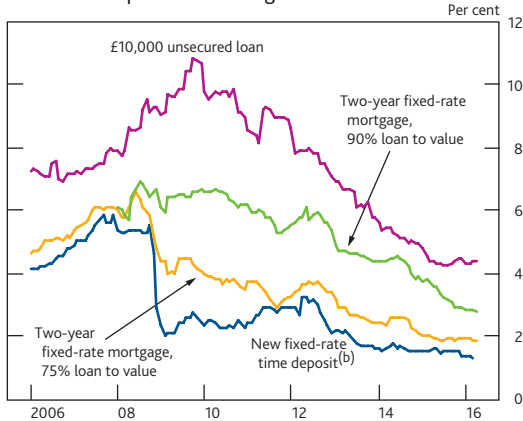
Contributions to annual consumption growth^(a)



- (a) Chained-volume measure, including non-profit institutions serving households.
 (b) Household post-tax income excluding flows into employment-related pension schemes.
 (c) Measured using the consumption deflator (including non-profit institutions serving households).
 (d) Household saving out of available income, as defined in footnote (b).

Chart 2.5 Household interest rates have stabilised at low levels

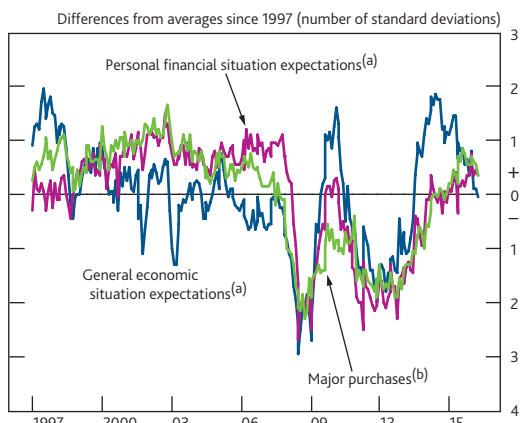
Household deposit and lending interest rates^(a)



- (a) Sterling-only end-month quoted rates, unless otherwise stated. The Bank's interest rate series are weighted average 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). Data are non seasonally adjusted.
 (b) Average monthly effective rate.

Chart 2.6 Consumer confidence has eased

Measures of consumer confidence



Source: GfK (research carried out on behalf of the European Commission).

- (a) Net balance of respondents reporting that they expect their personal financial situation or the general economic situation to improve over the next twelve months.
 (b) 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.

properties — which together comprised around three quarters of private sector housing investment in 2015 — and spending on services associated with property transactions.

The number of housing starts has risen in recent months, however (Chart 2.7). As a leading indicator for spending on new building, this may indicate a pickup in spending on that component of housing investment in coming quarters. That said, the Bank's Agents report that investment has been limited by difficulties in recruiting skilled labour. There is also a risk that a period of heightened uncertainty around the referendum curtails investment: house building has been sensitive in the past to changes in housing market activity and sentiment.

Housing market activity spiked up sharply in 2016 Q1, with residential transactions rising by 20% on the quarter, including a 42% increase in March alone (Chart 2.8). This will have been accompanied by a rise in spending associated with property transactions — such as estate agent and legal fees — and therefore a steep rise in overall housing investment in Q1. As described in the February Report, the pre-announced rise in the stamp duty rate on additional properties, which took effect in April, is likely to have led to some buy-to-let and other transactions being brought forward at the expense of transactions later in the year. That pickup was not reflected in the flow of mortgage approvals, which remained broadly stable in Q1. While some of that divergence will reflect cash transactions, it could suggest that a greater-than-usual proportion of mortgage approvals in Q1 were for transactions in the same quarter.

With a significant number brought forward ahead of the changes in stamp duty, transactions — and associated spending — are likely to have fallen sharply in Q2. Recent increases in uncertainty (see the box on pages 14–15) may also be weighing on housing activity.

Looking through any near-term volatility, housing demand is projected to continue to pick up gradually over the medium term. Credit conditions appear to have been broadly unchanged in 2016 Q1 and the pricing and availability of higher loan to value mortgages has continued to improve in recent years. The Financial Policy Committee (FPC) and Prudential Regulation Authority (PRA) have taken steps to insure against the risk of a marked loosening in underwriting standards that would threaten financial stability. The FPC made two Recommendations affecting owner-occupied lending in 2014 and has welcomed the PRA's plan to issue a Supervisory Statement that clarifies its expectations for underwriting standards in the buy-to-let market. While the reduction in the scope for mortgage interest tax relief from April 2017 is likely to dampen demand from buy-to-let investors, some of this is likely to be offset, over time, by

Uncertainty and GDP growth

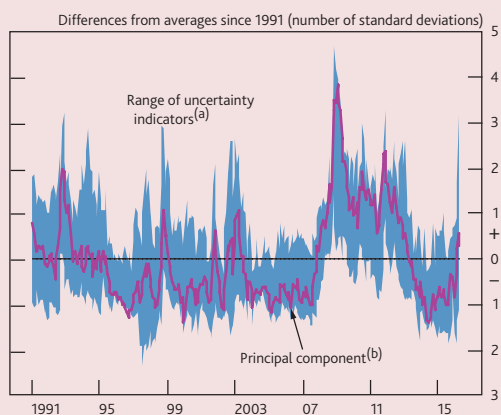
There will always be uncertainty about the future and households, companies and policymakers are constantly making choices and decisions in that context. But there may at times be more doubt than usual — the outlook may be particularly uncertain. This box examines the relationship between uncertainty and GDP. It first discusses the measurement of uncertainty before going on to assess the channels through which it may affect spending.

Indicators of uncertainty

Uncertainty cannot be directly observed but there are a range of indicators that may be useful proxies. While each may have its own drawbacks, statistical techniques can then be applied to capture the degree of commonality across the different measures. The principal component of one range of uncertainty measures suggests that uncertainty has increased over the past year to above-average levels (**Chart A**).

Chart A Uncertainty has risen in recent months

Range of uncertainty measures



Sources: Bloomberg, Consensus Economics, Dow Jones Factiva, GfK (research on behalf of the European Commission), Thomson Reuters Datastream and Bank calculations.

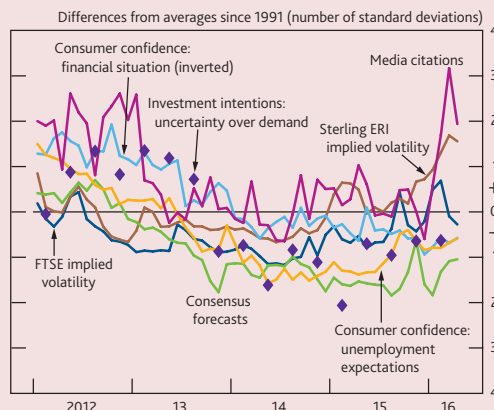
- (a) Range includes: the average standard deviation of monthly Consensus Economics forecasts for GDP one and two years ahead, seasonally adjusted by Bank staff; the number of media reports citing uncertainty in four national broadsheet newspapers; survey responses of households to questions relating to their personal financial situation and unemployment expectations; and the three-month implied volatility for the FTSE 100 and twelve-month implied volatility for sterling ERI — realised volatilities have been used prior to April 1992 and September 2001 respectively. A higher number indicates greater uncertainty.
- (b) The first principal component extracted from the set of indicators.

One indicator of the degree of economic uncertainty is the number of citations in the media of phrases that may be associated with uncertainty. One such measure indicates that uncertainty has risen particularly sharply in recent months (**Chart B**), with the majority of these media references having been associated with the UK referendum on EU membership.

Uncertainty can also be proxied by financial market measures, such as implied volatilities. As explained in the box on page 5, sterling implied volatility, a measure of uncertainty around the sterling exchange rate, has risen in recent months (**Chart B**). While some of that pickup may have reflected greater global uncertainty earlier in the year (Section 1), that would also have

Chart B Individual measures of uncertainty have followed different paths

Indicators of uncertainty^(a)



Sources: Bloomberg, CBI, Consensus Economics, Dow Jones Factiva, GfK (research on behalf of the European Commission), Thomson Reuters Datastream and Bank calculations.

- (a) Includes CBI measures of demand uncertainty as a factor likely to limit capital expenditure for manufacturing and services — excluding distribution and financial services — weighted together using shares in value added. Other indicators are as described in footnote (a) to **Chart A**.

been reflected in equity market implied volatility, which has since fallen back. As with media citations, much of the rise in sterling implied volatility appears to have been associated with the referendum.

Consumer confidence indicators can be used as a guide to households' perceptions of uncertainty. The GfK consumer confidence survey does not directly ask households how uncertain they are, although it does measure their expectations for future income and unemployment prospects across the broader economy, both of which are likely to be affected by their degree of uncertainty. Households' expectations of their personal future financial situation are presently above average, and their expectations for UK unemployment are below average (**Chart B**). Households do appear, however, to have recently taken a more pessimistic view on the outlook for the overall state of the economy (Section 2.2).

Business survey measures indicate that firms' uncertainty has increased. The proportion of firms reporting that uncertainty about demand is likely to limit future investment, as captured by the CBI surveys, has risen (**Chart B**), although within that uncertainty appeared to recede a little for manufacturing firms in Q1. Respondents to the 2016 Q1 *Deloitte CFO Survey* reported their level of uncertainty to be at its highest in three years.

Heightened uncertainty may also be reflected in a greater diversity of views about the economic outlook. A wider spread of external forecasts may therefore give an indication that uncertainty has increased. The standard deviation of GDP growth forecasts submitted to Consensus Economics is currently lower than its past average (**Chart B**), but this measure only considers the spread of forecasters' central

expectations and not the range that each individual forecaster places around their own central forecast.

How could uncertainty affect GDP growth?

An increase in uncertainty is likely to weigh on growth through a number of channels; and changes in GDP growth may themselves affect the degree of uncertainty.⁽¹⁾ For example, a sharp fall in GDP could be associated with uncertainty around the extent to which it will recover.

Households are likely to react to increased uncertainty by increasing savings — and so reducing consumption — for a period, to provide themselves a buffer in the event of a negative outcome, such as becoming unemployed. The degree to which households increase their savings will depend on a number of factors, including how long any period of uncertainty is expected to last.

There are a number of ways that firms may respond to increased uncertainty. Most obviously, firms could choose to delay some investment spending until uncertainty recedes. The same will be true for other decisions that have a long-term pay-off, such as decisions to enter new markets or not. Similarly, uncertainty could also affect recruitment decisions: firms could reduce new hires and choose to operate with a smaller workforce until uncertainty recedes; or, alternatively, additional temporary workers could be perceived as preferable to more costly and irreversible capital investment.

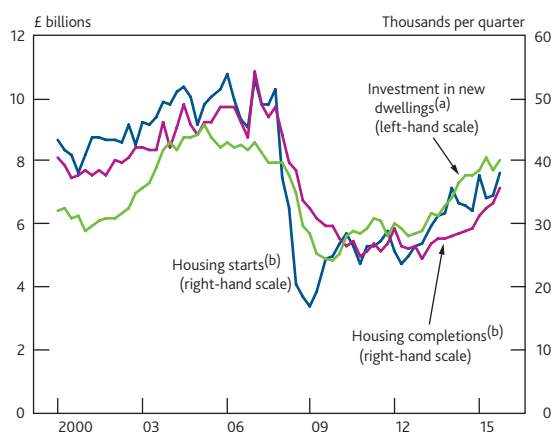
Uncertainty can also affect asset prices. Investors would probably require additional compensation in the face of a persistent increase in uncertainty to cover the greater range of possible outcomes. Such an increase in risk premia would increase the cost of raising finance from capital markets, affecting some firms directly, and could also put downward pressure on the exchange rate. It could also increase the cost of bank funding, which if passed through to interest rates on borrowing would affect households and companies more broadly and would be likely to amplify the effects described above.

Different views of uncertainty across households, firms and financial market participants could mean that some channels are more important than others at any one time. The extent and duration of any uncertainty effects on GDP are also likely to vary depending on the nature of the event driving the change in uncertainty. Moreover, the effects of uncertainty on spending may persist for some time even after uncertainty recedes, as it can take time for companies and households to reassess their spending decisions and restart spending projects after a period of increased uncertainty.

(1) For details of one model that attempts to estimate the relationship between uncertainty and GDP see Haddow, A, Hare, C, Hooley, J and Shakir, T (2013), 'Macroeconomic uncertainty: what is it, how can we measure it and why does it matter?', *Bank of England Quarterly Bulletin*, Vol. 53, No. 2, pages 100–09; www.bankofengland.co.uk/publications/Documents/quarterlybulletin/2013/qb1302.pdf.

Chart 2.7 Housing starts and completions continue to rise

House building 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) Number of permanent dwellings financed and built by private developers. Private permanent dwelling starts in Wales are assumed to grow in line with Welsh total permanent dwelling starts since 2011 Q2. UK data for 2015 Q3 and 2015 Q4 have been grown in line with data for England. Data have been seasonally adjusted by Bank staff.

increased demand from existing and potential owner-occupiers.

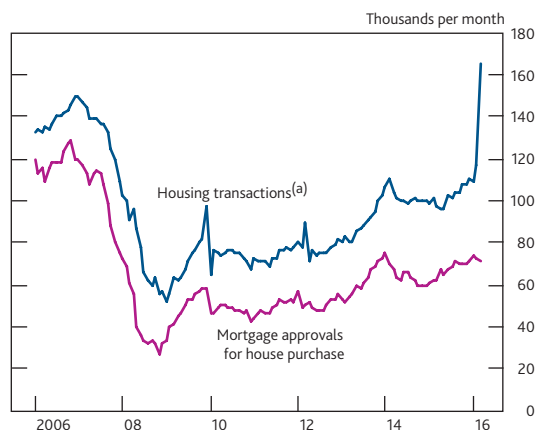
Overall, however, the outlook for housing market activity is judged to be somewhat weaker than projected three months ago. Contacts of the Bank's Agents suggest that there has been a structural shift in the housing market in recent years, in part reflecting the increasing average age of the population, as older people tend to move less frequently. That means that housing activity relating to existing owner-occupiers is likely to remain some way below its pre-crisis average level.

A consequence of the past pickup in housing demand, along with a limited supply of homes available for sale, has been robust house price inflation since 2013. The average of the Halifax and Nationwide measures of house prices increased by 7.5% in the four quarters to 2016 Q1. That pace is projected to moderate slightly to around 6½% over the rest of 2016.

Corporate spending

Following the sharp falls during the recession, business investment growth has rebounded strongly over the past few years (Table 2.B). Business investment fell in 2015 Q4, but that was accounted for by a steep drop in extraction sector investment and large disposals of transport equipment.

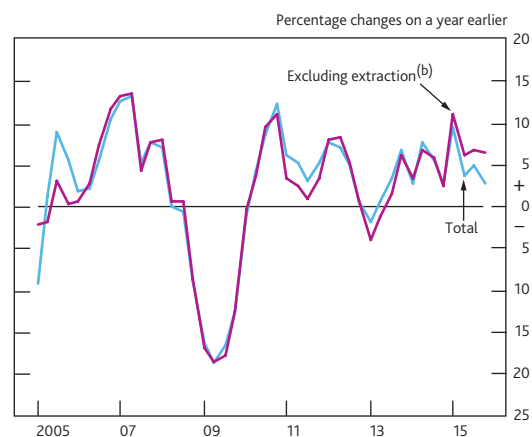
Chart 2.8 Housing transactions rose sharply in March
Mortgage approvals for house purchase and housing transactions



Sources: Bank of England and HM Revenue and Customs.

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

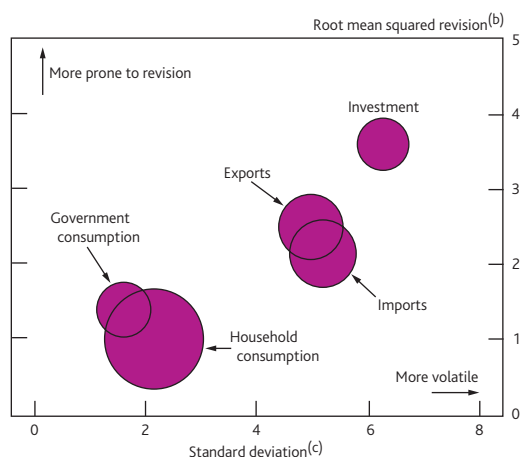
Chart 2.9 Extraction investment has recently depressed overall business investment growth
Business investment(a)



(a) Chained-volume measures.

(b) Total business investment less investment within the mining and quarrying sector.

Chart 2.10 Investment data are more volatile and prone to revision than other expenditure components
Volatility of, and degree of past revisions to, growth in expenditure components(a)



(a) Four-quarter growth in chained-volume measures between 1993 and 2010. The size of each circle represents the component's share of 2015 nominal GDP.

(b) The root mean square of revisions between the first estimate and estimates published five years later.

(c) Standard deviation of the estimates published five years later.

Excluding extraction investment, business investment grew by 6½% in the four quarters to 2015 Q4, broadly in line with its average rate since 2014 (Chart 2.9). Investment data are, however, more volatile and prone to revision than other components of expenditure (Chart 2.10).

Extraction investment fell by around 40% in the four quarters to 2015 Q4, subtracting 3½ percentage points from total business investment growth (Chart 2.9). As explained in the February Report, significant cuts to extraction investment following the fall in oil prices had been anticipated. The fall in Q4 was, however, even greater than projected. In line with intelligence from the Bank's Agents and industry sources, the overall projected decline in extraction investment over the medium term is unchanged. So the remaining decline in investment over the MPC's forecast period is somewhat smaller. Extraction investment is projected to reduce the level of overall business investment by a further 2½% by 2018.

Improving financing conditions have helped to support business investment growth. The Bank's Agents report that access to finance has improved over the past few years, and the total amount of finance raised by companies continued to pick up in Q1 (Table 2.C). After rising around the turn of the year, corporate bond spreads have narrowed since the February Report (Section 1) and, as discussed in the latest Credit Conditions Review, there are few signs of any tightening in bank lending conditions.

Some major UK lenders have, however, reported a recent softening in demand for loans by some large companies. In part this appears to reflect a drop in refinancing, rather than net external finance in total. But loan demand may also have been affected by increased uncertainty. Having picked up around the turn of the year, growth in lending to UK non-financial businesses, particularly to large companies, has since fallen back (Chart 2.11).

The commercial real estate (CRE) market has also slowed, which may weigh on business investment growth. According to Property Archive data, the value of secondary market CRE transactions fell by around 40% in 2016 Q1, contributing to a 55% fall on a year ago. While the latest fall may have been associated with uncertainty ahead of the referendum, the Agents' contacts also report that global uncertainty — alongside some perceptions that CRE prices may be around their peak in some areas — has depressed activity over a more sustained period. While only a small proportion of investment spending is associated with CRE transactions, Bank staff estimate that around a quarter reflects spending on new and existing buildings. While this is not directly related to the number of transactions, there is a risk that broader sentiment dampens such spending over the near term.

Table 2.C Net finance raised by companies continued to rise in 2016 Q1

Net finance raised by PNFCs^(a)

£ billions	Quarterly averages				
	2003–08	2009–12	2013–14	2015	2016 Q1
Loans	11.6	-6.2	-1.5	1.3	6.1
Bonds ^{(b)(c)}	2.9	3.3	3.0	3.1	9.2
Equities ^(b)	-2.1	1.3	0.2	1.1	0.4
Commercial paper ^(b)	0.0	-0.4	-0.3	1.5	1.2
Total^(d)	12.9	-2.0	1.4	6.4	14.7

(a) Includes sterling and foreign currency funds from UK monetary financial institutions and capital markets.

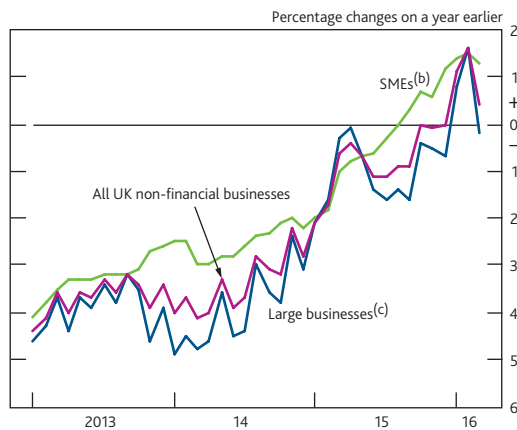
(b) Non seasonally adjusted.

(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.

Chart 2.11 Growth in bank lending to companies fell back in March

Lending to UK non-financial businesses^(a)



(a) Rate of growth in the stock of lending. Lending by UK monetary financial institutions. Data cover lending in sterling and foreign currency, expressed in sterling. Non seasonally adjusted.

(b) Small and medium-sized enterprises (SMEs) are those businesses with annual debit account turnover on the main business account less than £25 million.

(c) Large businesses are those with annual debit account turnover on the main business account over £25 million.

Business investment is projected to continue to grow over the near term, but heightened economic and financial uncertainty, in part related to the EU referendum, is expected to weigh on growth over the first half of 2016. Respondents to the *Deloitte CFO Survey* reported a sharp pickup in uncertainty in Q1, with related cuts to investment plans. As explained in the box on pages 14–15, there is a risk that a period of heightened uncertainty dampens capital spending more persistently.

Government spending

The MPC's forecasts are conditioned on the Government's tax and spending policies, which imply a continued fiscal consolidation. Announcements in the March *Budget* had broadly offsetting effects on projected public sector net borrowing over the next three years. One exception is a delay to the policy to bring forward large firms' corporation tax payments. This policy will affect the timing but not the size of their overall tax payments, and so its delay and eventual implementation are not expected to have a discernible effect on corporate spending.

Despite the past fiscal consolidation, real government consumption has been relatively stable (Table 2.B). That is likely, in part, to be because around two thirds of real government consumption is measured directly using indicators of output — such as the number of hospital operations — that do not fluctuate as much as changes in cash spending.

The outlook for inflation, however, depends on the public sector's use of resources rather than estimates of real government output. For example, lower spending on wages and salaries and procurement will dampen households' and companies' income growth, even if they have little direct effect on measured real government output. The overall implications for GDP growth and inflation will depend on how firms and households adjust their spending in response, which in turn will depend on a range of factors, including the distribution of changes to incomes and the extent to which changes to future fiscal policy were anticipated, and therefore have already been reflected in saving and spending decisions.

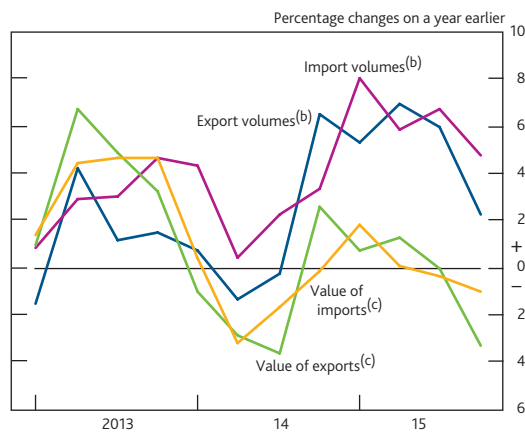
2.3 Net trade and the current account

Having been broadly flat in previous years, net trade dragged on GDP growth in the second half of 2015 (Table 2.B). That was mainly due to strong import growth, although exports fell slightly. Import and export data are, however, relatively volatile components of spending, and are also subject to significant revision (Chart 2.10).

The strength in import growth over the past year has partly reflected resilient domestic demand growth (Section 2.2), but the share of imports in demand has also increased. That increasing share may have been driven by the past falls in sterling import prices following the appreciation in sterling

Chart 2.12 Import and export values have fallen over the past year

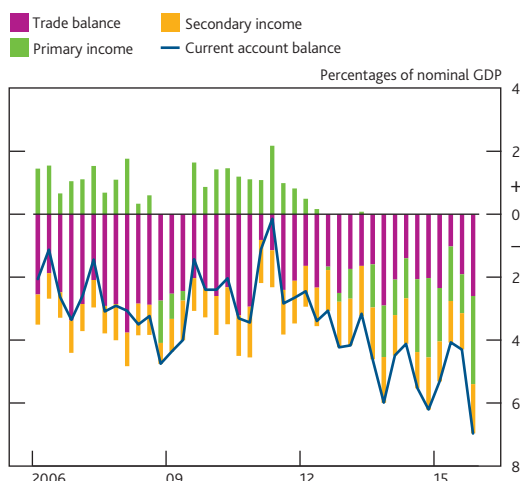
Imports and exports^(a)



(a) Excluding the impact of MTIC fraud.
 (b) Chained-volume measures.
 (c) At current market prices.

Chart 2.13 The current account deficit widened in 2015 Q4

UK current account



(Section 4). Import growth is projected to slow over the near term, as higher import prices following the recent depreciation in sterling stem further import substitution, and growth continues to slow in some of the more import-intensive components of demand, such as extraction investment (Section 2.2).

The fall in exports in the second half of 2015 (Table 2.B) coincided with the slowing in global growth (Section 1). UK export prices have fallen in sterling terms, which has been reflected in a sharper fall in the value of exports (Chart 2.12). While lower prices will have supported demand for exports, they will have also depressed profit margins, which may have reduced the scope for exporters to increase their output volumes in response. The recent depreciation in sterling and a modest pickup in global demand (Section 5) are projected to support export activity over the near term. Export growth is, however, projected to remain below import growth, and so net trade is expected to exert a small drag on GDP growth over the MPC's forecast period.

In part due to the deteriorating nominal trade balance, the current account deficit widened from 4.3% of GDP in Q3 to 7.0% in Q4 (Chart 2.13), the largest quarterly deficit since records began in 1955. The largest contribution to that widening was from a larger deficit on primary income — net payments on foreign direct and portfolio investment.

The primary income balance has fallen significantly since 2011, and has generally been in deficit since mid-2012. Much of the decline reflects lower net income on foreign direct investments (FDI), particularly within the European Union. ONS analysis suggests that lower incomes have been concentrated within a small number of large multinationals and that developments in the extraction sector have contributed to the overall deterioration. The ONS anticipates that estimates of the FDI income deficit will narrow by around ½% of GDP in 2013 and 2014 following revisions in the forthcoming *Pink Book* to be published in June, although it is not yet clear what that implies for 2015 and beyond.

Despite the widening in the current account deficit, official estimates of the net international investment position (NIIP) — the stock of the United Kingdom's holdings of foreign assets net of liabilities — improved during the final quarter of 2015, as the revaluation of existing assets and liabilities offset the effects of the weaker flows.⁽¹⁾

(1) For a discussion of the increasing role of financial flows for the current account and revaluation effects for the net international investment position, see Forbes, K (2016), 'The UK current account deficit: risky or risk-sharing?'; www.bankofengland.co.uk/publications/Documents/speeches/2016/speech890.pdf.

3 Supply and the labour market

Employment has grown at a strong pace in recent years and the unemployment rate has declined to around its pre-crisis average. Wage growth, however, has remained relatively weak. That is likely predominantly to reflect slow productivity growth but, more recently, a drag from the low level of headline inflation has probably also weighed on wage growth. It is possible, though, that a range of other factors, such as a fall in the equilibrium rate of unemployment and softer inflation expectations, have also dampened wage growth. As the factors weighing on wage growth dissipate, it is projected to pick up towards its pre-crisis average rate.

Table 3.A Monitoring the MPC’s key judgements

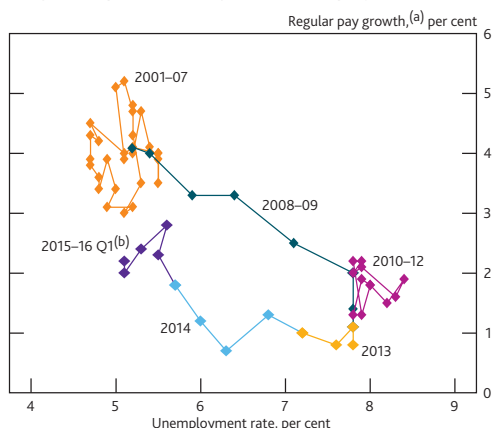
Developments anticipated in February	Developments since February
Unemployment	Higher than expected
<ul style="list-style-type: none"> Headline LFS unemployment rate to fall to slightly below 5% by mid-2016. 	<ul style="list-style-type: none"> The unemployment rate remained at 5.1% in the three months to February.
Participation	Broadly as expected
<ul style="list-style-type: none"> The labour market participation rate to remain broadly flat over 2016 H1. 	<ul style="list-style-type: none"> Participation was stable at 63½% in the three months to February.
Average hours	Higher than expected
<ul style="list-style-type: none"> Average hours worked to fall by around ½% by mid-2016. 	<ul style="list-style-type: none"> Average hours worked rose in 2015 Q4 but have fallen back slightly more recently.
Productivity	Lower than expected
<ul style="list-style-type: none"> Hourly labour productivity to increase by around 1% in 2016 H1. 	<ul style="list-style-type: none"> Hourly labour productivity growth fell in Q4, though it is expected to have risen by 0.7% in Q1.
Earnings growth	Broadly as expected
<ul style="list-style-type: none"> Four-quarter AWE growth to remain broadly flat at around 2% over 2016 H1. 	<ul style="list-style-type: none"> Four-quarter AWE growth was 1.8% in the three months to February, reflecting the effect of weak bonuses.

There are currently two key issues around the outlook for the labour market and supply. One is labour productivity. In recent years, supply growth has been largely accounted for by strong employment growth and an increase in average hours. As the labour market has tightened, employment growth has slowed and average hours are likely to fall (Section 3.1). In order for supply growth to be maintained, productivity growth will need to recover further. Having picked up in 2014, it fell back somewhat last year, however. The other key issue is wage growth. Despite the apparent absorption of slack in the labour market (Section 3.2), wage growth remains weak (Chart 3.1). While most of that is likely to reflect the weakness in productivity, other factors, such as the low level of headline inflation, may also have weighed on wage growth. The outlook for wages will depend on how persistent those factors prove to be (Section 3.3).

3.1 Labour market developments and productivity

Chart 3.1 Wage growth has been weak relative to the unemployment rate

Wage Phillips curve: wages and unemployment



(a) Whole-economy total pay excluding bonuses and arrears of pay. Percentage change on a year earlier.

(b) 2016 Q1 shows data for the three months to February.

Having been well above its pre-crisis average rate during most of 2014–15, employment growth slowed markedly in the three months to February (Table 3.B). Reflecting the past strength in employment growth, however, the 16+ employment rate — the proportion of the population over the age of 16 in employment — remains close to its previous peak (Chart 3.2). That is despite a drag from demographic trends: the increasing average age of the population, and hence the increasing share of people in retirement, would be normally associated with a declining employment rate. Acting against this demographic drag, the 16–64 employment rate is at its highest level on record.

Some of the slowing in employment growth is likely to have reflected the broader normalisation in the labour market in recent years as spare capacity has been absorbed (Section 3.2), and may also have reflected the softening in output growth since 2014 (Section 2). More recently, as explained in the box

Table 3.B Employment growth has slowed

Employment growth, vacancies and survey indicators of employment intentions

	Quarterly averages					
	2000–07 ^(a)	2010–12	2013	2014	2015	2016 Q1
Employment growth ^(b)	70	67	95	152	130	20
of which, employees ^(b)	55	33	62	139	95	-23
of which, self-employed and other ^{(b)(c)}	16	35	33	14	35	43
Vacancies to labour force ratio ^(d)	2.09	1.48	1.66	2.04	2.25	2.27
Surveys of employment intentions ^(e)						
BCC ^(f)	18.6	8.1	21.9	29.2	25.1	24.4
CBI ^(f)	5.4	-0.4	13.8	26.7	18.9	20.1
Agents ^(g)	0.8	0.3	0.4	1.3	1.0	0.4

Sources: Bank of England, BCC, CBI, CBI/PwC, ONS (including the Labour Force Survey) and Bank calculations.

(a) Unless otherwise stated.

(b) Changes relative to the previous quarter in thousands. Figures for 2016 Q1 are data for the three months to February 2016.

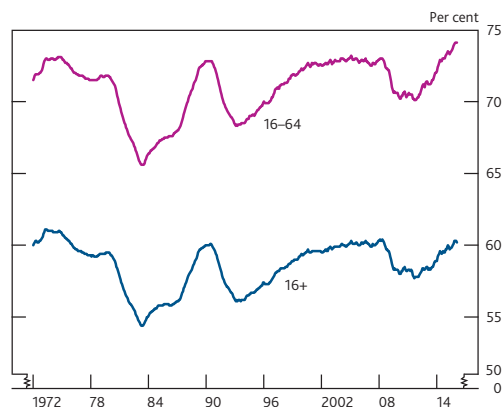
(c) Other comprises unpaid family workers and those on government-supported training and employment programmes classified as being in employment.

(d) Excludes vacancies in agriculture, forestry and fishing. Average is 2001 Q2 to 2007. Figure for 2016 Q1 shows vacancies in March relative to the economically active population in the three months to February.

(e) Measures for the Bank's Agents (manufacturing and services), the BCC (non-services and services) and the CBI (manufacturing, financial services and business/consumer/professional services) are weighted together using employee jobs shares from Workforce Jobs. The BCC data are non seasonally adjusted.

(f) Net percentage balance of companies expecting their workforce to increase over the next three months.

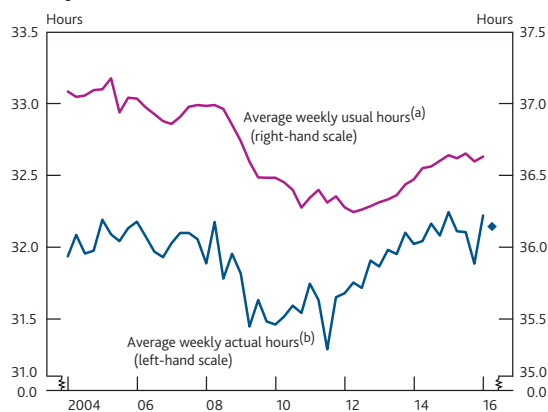
(g) End-quarter observation. The scores refer to companies' employment intentions over the next six months. The scores are on a scale of -5 to +5.

Chart 3.2 The employment rate is close to previous peaksEmployment rates for selected age groups^(a)

(a) Percentages of population.

Chart 3.3 Average hours worked have been volatile

Weekly hours worked: actual and usual



Sources: Labour Force Survey and Bank calculations.

(a) Usual hours exclude leave taken and other temporary variations in hours. Data are to 2015 Q4.

(b) The diamond shows data for the three months to February.

on pages 14–15, increased uncertainty is likely to be affecting companies' recruitment decisions and may have already started to weigh on employment growth in the three months to February. Survey indicators of employment intentions, however, are mixed and on average point to only a slight slowing in employment growth compared to recent years (Table 3.B).

Average hours worked in the three months to February were stronger than expected at the time of the February Report (Table 3.A). These data have, however, been volatile over the past year; average usual hours worked have been more stable (Chart 3.3). That difference mainly reflects fluctuations in the amount of leave taken and average hours worked are therefore expected to fall back in the coming quarters. Average hours worked are projected to decline gradually over the coming years as the average age of the workforce continues to rise.⁽¹⁾

Overall, since 2013, growth in total hours worked has eased back and productivity has accounted for a greater share of output growth (Chart 3.4). Productivity growth remains relatively subdued, however. Four-quarter growth has averaged 0.6% since 2013, compared with 2.1% prior to the crisis (Chart 3.5). Productivity fell sharply in 2015 Q4, and by more than anticipated, with only some of that weakness expected to unwind.

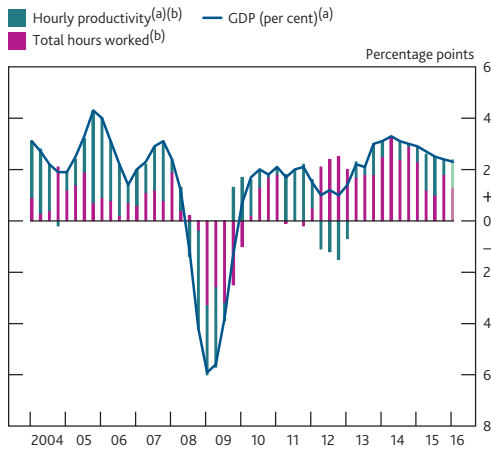
Productivity growth will be a key determinant of the sustainable rate of output growth. As discussed in the February Report, there are a number of factors that are likely to have weighed on productivity growth, such as impaired resource allocation, that are expected to dissipate gradually, supporting a pickup in productivity growth. Moreover, the United Kingdom's productivity performance since the crisis has been weaker than that of some other countries, such as the United States and France. Historically, UK productivity had gradually converged towards that in more productive countries, in part as UK firms adopted new practices and technologies.⁽²⁾ To the extent to which scope for such catch-up remains, that should support UK productivity growth. Reflecting all of these factors, productivity is projected to grow at a faster rate over the MPC's forecast horizon than over the past three years (Section 5).

Supply will also be determined by the extent to which people want to participate in the workforce. The participation rate has been fairly stable over the past two years at around 63½% and is projected to remain so, contributing little to overall supply growth. That stable outlook for the participation rate reflects two large offsetting factors. As older people typically have a lower participation rate, the rising average age of the

(1) For more details see the box on pages 22–23 of the February 2016 Report; www.bankofengland.co.uk/publications/Documents/inflationreport/2016/feb.pdf.

(2) For a cross-country comparison of productivity and a discussion of productivity catch-up see Weale, M (2014), 'The UK productivity puzzle: an international perspective'; www.bankofengland.co.uk/publications/Documents/speeches/2014/speech785.pdf.

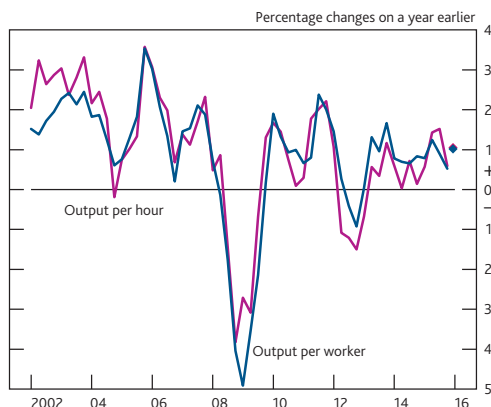
Chart 3.4 Over the past year productivity growth has accounted for a greater share of GDP growth
Decomposition of four-quarter GDP growth



(a) Chained-volume measure, based on the backcast for the final estimate of GDP. Percentage change on a year earlier.

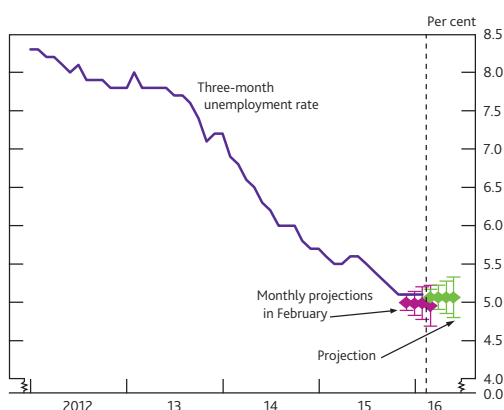
(b) Adjusted for expected revisions to the Labour Force Survey to incorporate the latest ONS population estimates and projections. Lighter-coloured bars show Bank staff forecasts for 2016 Q1.

Chart 3.5 Productivity has grown at a modest pace
Measures of labour productivity^(a)



(a) GDP is based on the backcast for the final estimate of GDP. Labour market data have been adjusted for expected revisions to the Labour Force Survey to incorporate the latest ONS population estimates and projections. The diamonds show Bank staff forecasts for 2016 Q1.

Chart 3.6 The unemployment rate has been stable
Unemployment rate and Bank staff's near-term projection^(a)



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 2015, January, February and March 2016, 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 2016. 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.

population is expected to weigh on the overall participation rate. Offsetting that, however, the participation rate among older people has been increasing steadily and is expected to continue to rise.⁽¹⁾ As discussed in the February Report, there are risks in both directions around the outlook for participation among older people and hence around the participation rate in aggregate.

3.2 Labour market slack and capacity utilisation

The balance between supply and demand — the degree of slack in the economy — is an important determinant of inflationary pressure.

There is limited evidence of labour market slack in the degree of labour force participation, or the amount of hours worked. The proportion of people aged 16–64 who report having been discouraged from participating in the labour force is below its pre-crisis average. And the share of part-time workers who would prefer a full-time role has continued to decline, both as some people have moved into full-time roles and as some now prefer part-time work.

Another component of labour market slack is unemployment. Consistent with the strength in labour demand, the unemployment rate has declined over the past three years, but has been stable more recently and was 5.1% in the three months to February (Chart 3.6). Bank staff estimate that the unemployment rate is close to its equilibrium; in other words, that there is little remaining slack in unemployment and further significant falls would be associated with excess inflationary pressure in the medium term. There is, however, uncertainty around this judgement.

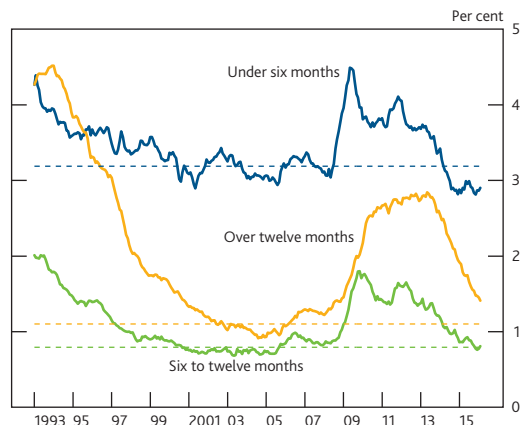
On the one hand, the continued weakness in wage growth in the face of the decline in the unemployment rate (Section 3.3) could suggest that there are factors that have pushed the equilibrium rate below that currently estimated. Indeed, the rising average age of the workforce and increased degree of educational attainment over the past two decades are characteristics that have tended to be associated with lower unemployment rates and so could have lowered the equilibrium rate. In addition, some changes in government policy, such as to welfare payments, over recent decades may have lowered the equilibrium rate by increasing the incentive and ability to move from unemployment into employment.

On the other hand, the long-term unemployment rate remains above its pre-crisis average (Chart 3.7) despite the high level of vacancies (Table 3.B). This could indicate that the pool of unemployed people may currently be less well-suited to the available jobs than prior to the crisis,

(1) For more information on the participation rate see the box on pages 30–31 of the November 2014 Report; www.bankofengland.co.uk/publications/Documents/inflationreport/2014/ir14nov.pdf.

Chart 3.7 Long-term unemployment remains somewhat elevated

Unemployment rates by duration^(a)

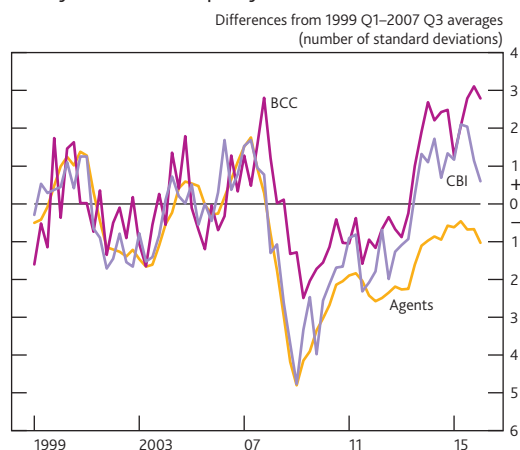


Sources: Labour Force Survey and Bank calculations.

(a) The number of people unemployed in each duration category, divided by the economically active population. Dashed lines are averages from 2002 to 2007.

Chart 3.8 Companies' capacity pressures have eased

Survey indicators of capacity utilisation^(a)

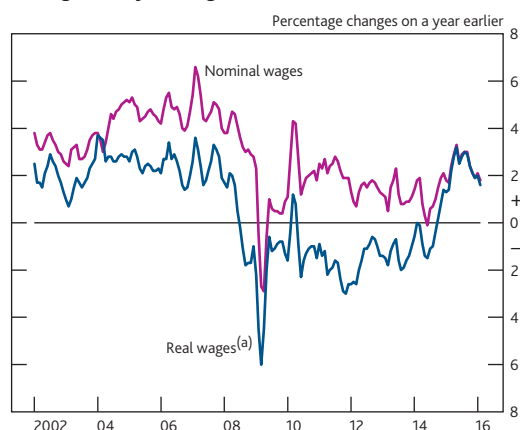


Sources: Bank of England, BCC, CBI, CBI/PwC, ONS and Bank calculations.

(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 shares in nominal 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.

Chart 3.9 Real wage growth is close to its past average rate

Average weekly earnings: real and nominal



(a) Deflated by CPI.

suggesting there is a greater degree of mismatch in the labour market. If the long-term unemployment rate were to stabilise at its current rate, that could imply a higher equilibrium unemployment rate than currently estimated.

Overall spare capacity in the economy depends on both the amount of slack in the labour market and the degree of spare capacity in firms. Survey indicators suggest that companies' capacity pressures eased in 2016 Q1 (**Chart 3.8**). Those pressures are likely to have moderated further in Q2, in line with the easing in output growth (Section 2).

Reflecting that easing in capacity pressures, alongside evidence from the indicators discussed above and top-down statistical estimates, the MPC's best collective judgement is that weak activity growth in 2016 Q2 will be associated with a slight widening in slack.⁽¹⁾

3.3 Wages

Four-quarter average pay growth eased to 1.8% in the three months to February (**Chart 3.9**). This slowing reflected volatility in bonus payments, in particular in the financial sector, which may not be a good indicator of underlying wage pressures. Stripping out bonuses, regular pay grew by 2.2% in the three months to February (**Table 3.C**), compared with 1.9% in the three months to November, broadly as expected in the *February Report*.

While the fall in the unemployment rate over the past three years appears to have been associated with some pickup in wage growth, wage growth remains weak relative to its past relationship with unemployment (**Chart 3.1**). The outlook for wages will depend on the nature and persistence of the factors weighing on wage growth.

As discussed above, one possibility is that there has been a change in the underlying relationship between wage growth and unemployment. For example, the equilibrium unemployment rate may have declined, leading to greater slack in the labour market (Section 3.2). If so, the unemployment rate would need to fall further for labour market slack to be absorbed and wage pressures to normalise. It is also possible that, for some occupations, an increased ability to hire people from abroad could have reduced the sensitivity of wage growth to domestic labour market conditions.

Subdued productivity growth (**Chart 3.5**) is likely to have been the main contributor to the weakness in wage growth in recent years. In part, that is because changes in the composition of the workforce are likely to have weighed on

(1) For more details on top-down statistical estimates of the output gap see Melolinna, M and Tóth, M (2016), 'Output gaps, inflation and financial cycles in the United Kingdom', *Bank of England Staff Working Paper No. 585*; www.bankofengland.co.uk/research/Documents/workingpapers/2016/swp585.pdf.

Table 3.C Most survey measures point to little acceleration in wage growth

Indicators of wage growth

Percentage changes on a year earlier

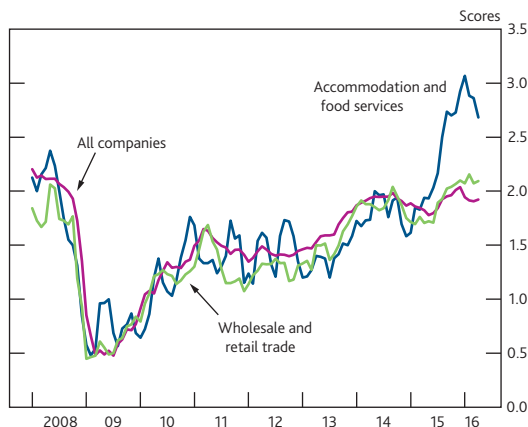
	Averages					
	2002–07	2010–12	2014	2015 H1	2015 H2	2016 Q1
(1) Total AWE ^(a)	4.2	2.0	1.2	2.5	2.5	1.8
(2) AWE regular pay ^{(a)(b)}	3.9	1.8	1.3	2.6	2.2	2.2
(1)–(2) Bonus contribution ^{(a)(c)}	0.3	0.2	0.0	0.0	0.3	-0.4
Pay settlements ^(d)	3.2	1.7	2.0	2.1	2.2	2.2
Survey indicators of pay growth						
CBI ^(e)	n.a.	1.6	2.0	2.1	2.5	2.3
REC ^(f)	56.7	52.4	63.1	63.1	60.7	58.9
Agents ^(g)	2.4	1.3	1.9	2.1	2.0	1.9
CIPD ^(h)	n.a.	1.2	2.0	1.9	1.6	n.a.

Sources: Bank of England, BCC, CBI, Chartered Institute of Personnel and Development (CIPD), Incomes Data Services, KPMG/REC/Markit, the Labour Research Department, ONS, XperTHR and Bank calculations.

- (a) Figures for 2016 Q1 are data for the three months to February.
 (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.
 (e) Measures of expected wages for the year ahead. Produced by weighting together balances for manufacturing, distributive trades, business/consumer/professional services and financial services using employee job shares.
 (f) Produced by weighting together survey indices for the pay of permanent and temporary placements using employee job shares; quarterly averages. A reading above 50.0 indicates growth on the previous month and those below 50.0 indicate a decrease. The greater the divergence from 50.0, the greater the rate of change signalled by the index.
 (g) End-quarter observation for manufacturing and services weighted together using employee job shares. The scores refer to companies' labour costs over the past three months compared with the same period a year earlier. Scores of -5 to 5 represent rapidly falling and rapidly rising respectively, with zero representing no change.
 (h) Pay increase intentions excluding bonuses over the coming year. Data only available since 2012.

Chart 3.10 The National Living Wage is likely to affect some sectors more than others

Agents' company visit scores: average expected change in labour costs for selected industries^(a)



- (a) The scores refer to companies' expectations of labour costs for the year ahead compared with the previous twelve months; three-month average. Scores of -5 to 5 represent rapidly falling and rapidly rising respectively, with zero representing no change.

both productivity and average pay growth. Roles that tend to be associated with lower pay, such as lower-skilled positions, have formed a larger-than-usual share of net employment growth in recent years. Bank staff, however, estimate that the drag from these compositional factors on wage growth diminished during 2015 Q4. More generally as productivity growth picks up (Section 3.1), this should help to support wage growth.

The low level of headline inflation (Section 4) also appears to have weighed on wage growth more recently. Following falls in the prices of energy, food and other imported goods, real wage growth has picked up strongly and is close to its pre-crisis average rate (Chart 3.9). The Bank's Agents and the CIPD survey report that this growth in households' purchasing power has dampened pressure on employers to raise wages more quickly, which may have offset some of the effect of the past tightening in labour market conditions. As the effect of the external influences weighing on inflation wanes and the headline rate of inflation picks up (Section 4), employers are likely to face increased pressure to raise wages, which would be expected to push up nominal wage growth.

One way low inflation could have a more persistent effect is if it leads expectations of future inflation to fall and that in turn weighs on wage growth. Although survey measures of household inflation expectations rose slightly on average in 2016 Q1, they remain lower than in 2014 (Section 4). There is a risk that households may continue to be willing to accept smaller pay rises, even as headline inflation picks up, if they expect future growth in the cost of living to remain subdued.

In contrast, the National Living Wage (NLW), which came into effect on 1 April, is likely to push up wages in coming years, although the effect on average wage growth is projected to be relatively small. As explained in the box on page 24 of the August 2015 Report, the NLW will apply on top of the National Minimum Wage for all employees aged 25 and over. This will directly affect around three million employees by 2020 but is also expected to have indirect effects on the pay of people further up the wage distribution or under the age of 25. Bank staff estimate that the introduction of the NLW is likely to raise aggregate wages by around ½% gradually over the next four years. It will, however, have a greater effect on wages in sectors with a high share of workers receiving the minimum wage. The Bank's Agents report that labour cost expectations in some industries, such as hospitality, have picked up by more than average in anticipation of this policy (Chart 3.10).

The MPC's best collective judgement is that productivity and, to some extent, low headline inflation have weighed on wage growth. Overall, survey measures suggest that wage growth is likely to remain subdued in the near term (Table 3.C). As productivity growth continues to recover and inflation rises further, wage growth is projected to rise gradually towards its pre-crisis average rate (Section 5).

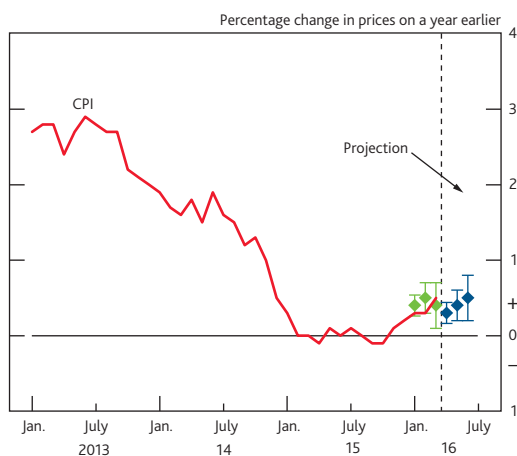
4 Costs and prices

CPI inflation rose to 0.5% in March, although it probably fell back to 0.3% in April. The low rate of inflation mainly reflects the effects of past falls in energy and food prices, but it also reflects the effects of the past appreciation of sterling on other imported goods and services prices, and subdued domestic cost growth. Inflation is projected to rise gently over the summer months as the effects of those external factors continue to fade, with the recent pickup in oil prices supporting that rise. Further ahead, domestic cost pressures are expected to pick up gradually. Inflation expectations are judged to 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
Household energy prices	Broadly as expected
<ul style="list-style-type: none"> Domestic gas prices to fall by 5% over the spring. Domestic electricity prices to remain unchanged. 	<ul style="list-style-type: none"> Domestic gas price cuts of 5% have been announced. Domestic electricity prices have been flat.
Import prices	Broadly as expected
<ul style="list-style-type: none"> Non-fuel import prices to rise by 1½% in the four quarters to 2016 Q3. 	<ul style="list-style-type: none"> Non-fuel import prices expected to have risen by 2% in the four quarters to 2016 Q1.
Unit labour costs	Broadly as expected
<ul style="list-style-type: none"> Four-quarter growth in whole-economy unit labour costs to pick up to 2¼% by 2016 Q3. 	<ul style="list-style-type: none"> Whole-economy unit labour costs expected to have grown by 0.7% in the four quarters to Q1, but growth projected to recover to 2½% by Q3.
Inflation expectations	Broadly as expected
<ul style="list-style-type: none"> Indicators of inflation expectations continue to be broadly consistent with the 2% target. 	<ul style="list-style-type: none"> Most measures of inflation expectations have been broadly flat so far this year. On balance, measures judged to be broadly consistent with the 2% target.

Chart 4.1 CPI inflation rose to 0.5% in March
CPI inflation and Bank staff's near-term projection^(a)



(a) The green diamonds show Bank staff's central projection for CPI inflation in January, February and March 2016 at the time of the February *Inflation Report*. The blue diamonds show the current staff projection for April, May and June 2016. The bands on each side of the diamonds show the root mean squared error of the projections for CPI inflation one, two and three months ahead made since 2004.

4.1 CPI inflation

CPI inflation was 0.5% in March, compared to 0.2% in December (**Chart 4.1**), and was 0.1 percentage points higher than projected at the time of the February *Report*. That slight upside news was more than accounted for by a pickup in the contribution of airfares, which boosted services inflation (**Chart 4.2**). This appears to have been partly related to the timing of the Easter holidays, and so probably unwound in April.

Excluding the effect of airfares, CPI inflation in March was 0.1 percentage points lower than expected three months ago. That mainly reflected weaker-than-anticipated inflation in food and other goods prices. Partly offsetting this, the recent rise in oil prices meant that the contribution of fuel prices to inflation in March was less negative than projected three months ago (**Section 4.2**).

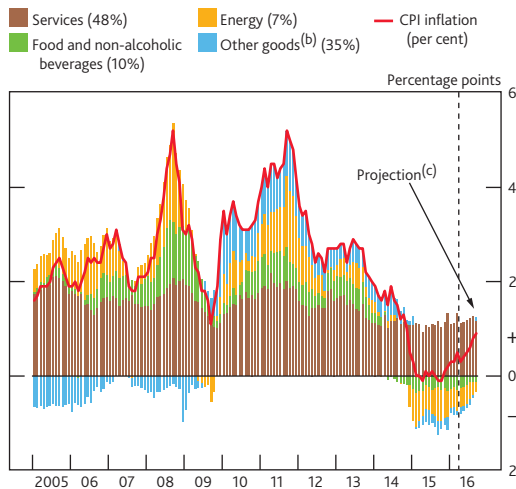
As inflation remains more than 1 percentage point away from the MPC's 2% target, the Governor has written a sixth consecutive open letter to the Chancellor as required by the MPC's remit.⁽¹⁾ As explained in that letter, the vast majority of the current weakness in inflation relative to the target is accounted for by past falls in energy and food prices (**Chart 4.2**). As the effects of the past falls in petrol and food prices drop out of the annual rate, inflation should pick up further. Falls in wholesale gas prices over the past two years are likely, however, to continue to be passed through to lower retail gas prices over the next year and a half (**Section 4.2**).

As set out in the letter, core inflation — which excludes energy and food prices — and within that services inflation, has also remained slightly subdued (**Chart 4.3**). An important driver of

(1) The letter can be found at www.bankofengland.co.uk/monetarypolicy/Documents/pdf/cpiletter120516.pdf.

Chart 4.2 The drag on inflation from food and energy prices should continue to fade

Contributions to CPI inflation^(a)

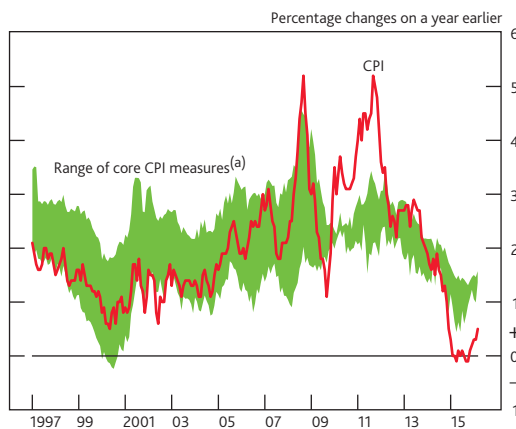


Sources: Bloomberg, Department of Energy and Climate Change, ONS and Bank calculations.

- (a) Contributions to annual CPI inflation. Figures in parentheses are weights in the CPI basket in 2016, and may not sum to 100 due to rounding.
- (b) Calculated as the difference between CPI inflation and the other contributions identified in the chart.
- (c) Bank staff projection. Electricity, gas and other fuels prices projections include the estimated effects of announcements by three major utilities companies of, on average, a 5% reduction in gas prices from April 2016, as well as an assumption that utilities companies reduce gas prices by just over 10% in Autumn 2016. Fuels and lubricants estimates use Department of Energy and Climate Change petrol price data for April 2016 and are then based on the May 2016 sterling oil futures curve shown in Chart 4.4.

Chart 4.3 Core inflation measures remain relatively subdued

CPI inflation and measures of core CPI inflation



- (a) Swathe includes measures of core CPI, all adjusted by Bank staff for changes in the rate of VAT, although there is uncertainty around the precise impact of those changes. It includes measures of CPI excluding: food and energy; food, non-alcoholic beverages and energy; food, alcohol, energy and tobacco; food, alcohol, energy, tobacco and education; food, non-alcoholic beverages, alcohol, energy and tobacco; food, non-alcoholic beverages, alcohol, energy, tobacco and education. It also includes the weighted median inflation rate of the 85 CPI sub-components and a measure where component weights in CPI are multiplied by the inverse of the past volatility of that component.

that weakness is likely to have been muted growth in domestic costs, particularly labour costs (Section 4.3). Lower prices for imported goods and services resulting from the past appreciation of sterling and subdued world export price inflation (Section 4.2) will have also weighed on core inflation.

CPI inflation probably fell back to 0.3% in April (Chart 4.1), as the contribution of airfares unwound. Inflation is projected to then increase steadily over the following months, reaching 0.9% in September, as the past falls in energy and food prices drop out of the annual comparison (Chart 4.2). That near-term path is slightly higher than projected at the time of the February Report: the pass-through from higher oil prices to petrol prices is projected to more than offset the effects of the downside news in food and other goods prices.

Further ahead, the outlook for CPI inflation will depend on the speed at which the drag from imported cost pressures continues to diminish (Section 4.2), and on the strengthening of unit labour cost growth, as well as on companies' pricing decisions and inflation expectations (Section 4.3). In addition, the effects of the soft drinks industry levy announced by the Government in the March Budget is projected to boost CPI inflation by around 0.1 percentage points for a year from 2018 Q2.

4.2 Imported cost pressures

CPI inflation is sensitive to global pricing pressures. Over the past year, falls in global energy prices, in particular, have pulled down inflation in household energy and fuel prices (Chart 4.2). Lower energy prices will also have had indirect effects on inflation through their impact on the costs of producing other goods and services. Inflation has also been affected by developments in global export prices and the sterling exchange rate.

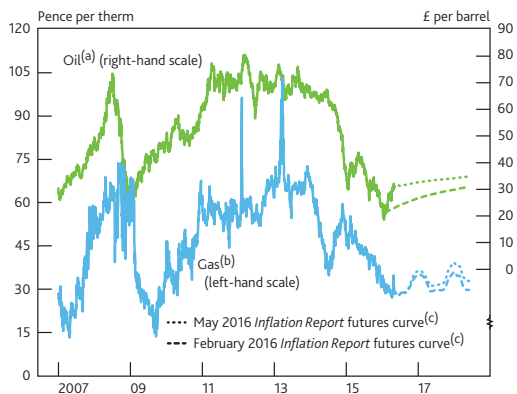
Food and energy prices

Agricultural commodity prices have risen by around 5% in US dollar terms (Section 1), and by a similar amount in sterling terms, since the February Report. Based on these prices and reports from the Bank's Agents of continued intense competition among food retailers, CPI domestic food prices are projected to change little in the coming months. So, as the past falls in food prices continue to drop out of the annual comparison, the negative contribution of food to CPI inflation is projected to diminish (Chart 4.2). But food prices have been persistently weaker than expected over the past six months, and there is uncertainty around this projection.

Since the February Report, spot oil prices have risen by US\$15 per barrel to US\$44 per barrel (Section 1). In sterling terms, spot oil prices — although still lower than a year ago — have risen by 50% over the past three months (Chart 4.4). That

Chart 4.4 Sterling oil prices have risen, while wholesale gas prices have been broadly stable

Sterling oil and wholesale gas prices

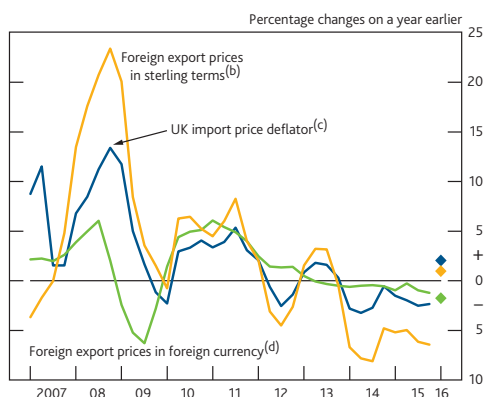


Sources: Bank of England, Bloomberg, Thomson Reuters Datastream and Bank calculations.

- (a) US dollar Brent forward prices for delivery in 10–25 days' time converted into sterling.
 (b) One-day forward price of UK natural gas.
 (c) Averages during the fifteen working days to 4 May 2016 and 27 January 2016 respectively.

Chart 4.5 UK import prices probably rose in 2016 Q1

UK import and foreign export prices excluding fuel^(a)

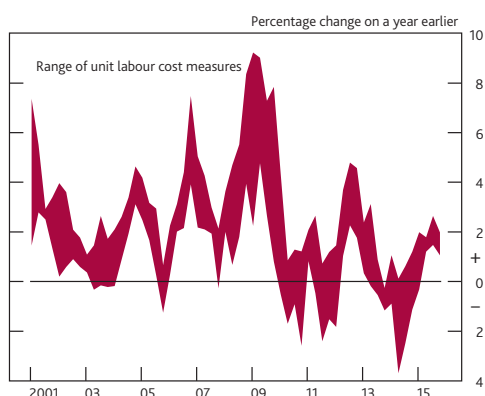


Sources: Bank of England, CEIC, Eurostat, ONS, Thomson Reuters Datastream and Bank calculations.

- (a) The diamonds show Bank staff's projections for 2016 Q1.
 (b) Domestic currency non-oil export prices of goods and services of 51 countries weighted according to their share in UK imports, divided by the sterling effective exchange rate. The sample does not include any major oil exporters.
 (c) UK goods and services import deflator excluding fuels and the impact of MTIC fraud.
 (d) Domestic currency non-oil export prices as defined in footnote (b).

Chart 4.6 Measures of unit labour cost growth eased slightly in 2015 Q4

Measures of unit labour costs^(a)



- (a) Includes: whole-economy unit labour costs; whole-economy unit wage costs; whole-economy AWE total pay divided by productivity; whole-economy AWE regular pay divided by productivity; private sector AWE total pay divided by productivity; private sector AWE regular pay divided by productivity, all as defined in Table 4.B of the February Report. Also includes private sector unit labour costs, which is based on the same definition of whole-economy unit labour costs, except that it excludes the public sector.

has begun to feed through to higher petrol prices. Oil futures prices — on which the MPC's projections are conditioned — are also higher than at the time of the February Report, but are now less upward sloping, such that the futures price in two years' time is only around 10% higher in sterling terms than three months ago. Overall, petrol prices are projected to pull down CPI inflation for the remainder of this year by slightly less than anticipated three months ago.

Wholesale gas spot prices have fallen broadly in line with the futures curve at the time of the February Report, on which the MPC's forecasts were conditioned (Chart 4.4). Futures prices have been broadly stable, and remain 40% lower than in mid-2014. Broadly as assumed in February, so far this year all the major household gas suppliers have announced cuts to their retail gas prices of around 5% (Table 4.A). The size of further retail gas price cuts over the MPC's forecast period is assumed to be similar to three months ago: just over 10% in Autumn 2016 and a further small cut in Autumn 2017.

The speed at which the past falls in wholesale gas prices are passed through to domestic gas bills is, however, uncertain and will depend on a range of factors. For instance, energy suppliers agree contracts for future wholesale gas supplies some time in advance. That means that pass-through occurs with a lag and the exact timing will depend on the structure of those contracts, which may vary between suppliers and over time.

There is also considerable uncertainty around the size of the eventual fall in domestic gas prices and the extent to which it will be reflected in CPI inflation. On the one hand, price reductions in the domestic gas market so far appear to have been particularly concentrated in fixed-price tariffs, rather than variable-price tariffs. The CPI basket captures only variable-price tariffs, so if variable-price tariffs continue to fall by less than fixed-price tariffs, measured CPI inflation may not reflect the overall fall in retail gas prices. On the other hand, the impact of gas price cuts on CPI inflation could be larger than assumed if competitive pressures mean that retail prices fall by more, or if more of the fall in gas prices is ultimately reflected in variable-price tariffs.

Non-energy import prices

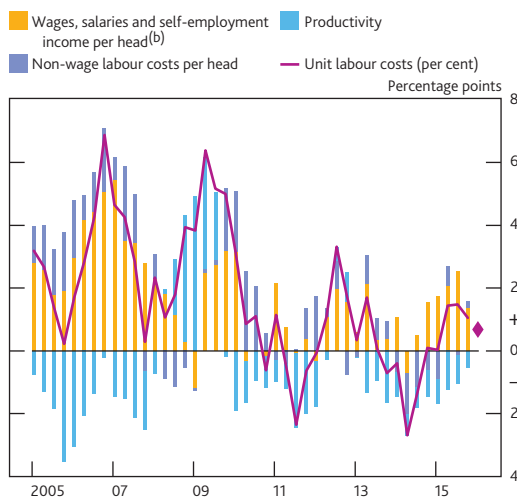
Non-energy import prices fell by more than 2% in the four quarters to 2015 Q4 (Chart 4.5), reflecting the past appreciation of sterling and subdued world export price inflation (Section 1). As explained in the box on pages 28–29 of the November 2015 Report, the subsequent pass-through of changes in import prices to consumer prices tends to be full but gradual, with most of the pass-through occurring over a three-year period. Bank staff judge that the drag on CPI inflation from the past fall in import prices is currently easing and is likely to continue to fade over the next year or so. But the precise speed and extent of pass-through

of changes in import prices to consumer prices can vary over time and will depend on the factors driving the change and economic conditions at the time.

Sterling has depreciated by 9% since its peak in November 2015 (Section 1) and, as a result, import prices probably rose in Q1 (Chart 4.5). Although estimates are highly uncertain, the evidence in the box on page 5 suggests that roughly half of that depreciation in sterling might be accounted for by risks associated with a vote to leave in the forthcoming referendum on UK membership of the European Union. Following the outcome, it is likely that the exchange rate will adjust again, consistent with market participants' view of the outlook at that time. Import prices and CPI inflation will remain sensitive to developments in the exchange rate.

Chart 4.7 Unit labour cost growth is expected to have slowed further in Q1

Decomposition of four-quarter whole-economy unit labour cost growth^(a)

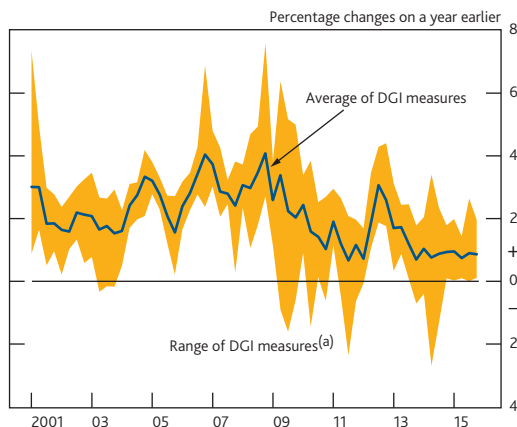


(a) Whole-economy labour costs divided by GDP, based on the backcast of the final estimate of GDP. The diamond shows Bank staff's projection for 2016 Q1. Employment data have been adjusted for expected revisions to the Labour Force Survey to incorporate the latest ONS population estimates and projections.

(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 4.8 Domestically generated inflation remained broadly flat in 2015 Q4

Measures of domestically generated inflation (DGI)



(a) Includes: whole-economy unit labour costs (as defined in footnote (a) of Chart 4.7); private sector AWE total pay divided by private sector productivity; the GDP deflator; the GDP deflator excluding government; and the services producer prices index.

4.3 Domestic cost pressures

In addition to imported cost pressures, the outlook for inflation will depend on the pace at which domestic cost growth — in particular, labour cost growth — picks up from its currently subdued rates. It will also depend on the extent to which firms pass through changes in costs to consumer prices, and it will be influenced by inflation expectations.

Labour costs and domestically generated inflation

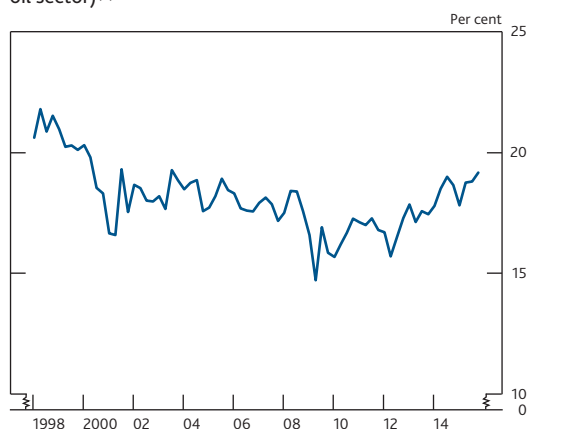
Labour costs form a major part of the domestic cost of producing output. As discussed in the February *Report*, there are several ways of measuring the average cost of labour per unit of output. Four-quarter growth in all of these measures fell back slightly in 2015 Q4, and sit within a relatively narrow range of 1%–2% (Chart 4.6). Growth in the broadest measure, whole-economy unit labour costs — based on National Accounts compensation data and the MPC's backcast for GDP growth — fell to 1.1% in Q4 (Chart 4.7). That was slightly weaker than expected at the time of the February *Report*, due to both weaker growth in wages and salaries than projected and small upward revisions to the backcast for GDP growth over the recent past. Unit labour cost growth is expected to have edged down further to 0.7% in 2016 Q1, reflecting a pickup in productivity growth (Section 3).

Some other indicators of domestically generated inflation (DGI) are even more subdued than growth in unit labour costs (Chart 4.8). Overall, however, the average of a range of DGI measures was broadly stable, albeit subdued, at close to 1% in 2015 Q4.

Beyond the near term, as nominal wage growth recovers (Section 3), the MPC's central expectation is for growth in overall labour costs to pick up somewhat more rapidly than productivity growth, reducing the extent to which domestic cost growth pulls down inflation (Section 5).

Chart 4.9 Companies' margins appear to have recovered in recent years

Private non-financial corporate profit share (excluding the oil sector)^(a)



(a) Gross trading profits of PNFCs (excluding continental shelf companies) less the alignment adjustment divided by nominal gross value added at factor cost.

Table 4.B Indicators of inflation expectations^(a)

Per cent	2000 (or start of series) to 2007 averages ^(b)	Averages since 2008	2013	2014	2015			2016	
					H1	Q3	Q4	Q1	Q2 ^(c)
One year ahead inflation expectations									
Households^(d)									
Bank ^(e)	2.4	3.1	3.5	2.7	2.1	2.0	2.0	1.8	n.a.
Barclays Basix ^(f)	2.8	2.8	2.8	2.3	1.5	1.6	1.3	n.a.	1.7
YouGov/Citigroup (Nov. 2005)	2.5	2.4	2.7	2.0	1.2	1.5	1.3	1.4	1.6
Companies (2008 Q2)^(g)	n.a.	0.5	0.4	0.6	0.3	0.4	0.5	0.3	n.a.
Financial markets (Oct. 2004)^(h)	2.6	2.7	3.0	2.8	2.6	2.5	2.5	2.4	2.5
Two to three year ahead expectations									
Households^(d)									
Bank (2009 Q1) ^(e)	n.a.	2.8	3.3	2.7	2.2	2.3	2.3	2.1	n.a.
Barclays Basix ^(f)	3.2	3.1	3.2	2.6	2.0	2.0	1.7	n.a.	2.3
Professional forecasters (2006 Q2)⁽ⁱ⁾	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.0	2.1
Financial markets (Oct. 2004)^(j)	2.8	3.0	3.1	3.1	3.0	3.1	2.9	2.8	2.9
Five to ten year ahead expectations									
Households^(d)									
Bank (2009 Q1) ^(e)	n.a.	3.2	3.6	3.1	2.8	2.8	2.9	2.9	n.a.
Barclays Basix (2008 Q3) ^(f)	n.a.	3.7	3.8	3.6	3.1	3.0	3.0	n.a.	3.7
YouGov/Citigroup (Nov. 2005)	3.5	3.2	3.5	3.0	2.7	2.7	2.7	2.8	2.8
Financial markets (Oct. 2004)^(k)	3.0	3.4	3.5	3.4	3.2	3.4	3.3	3.2	3.1
Memo: CPI inflation	1.6	2.5	2.6	1.5	0.1	0.0	0.1	0.4	n.a.

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

(a) Data are non seasonally adjusted.

(b) Dates in parentheses indicate start dates of the data series.

(c) Financial markets data are averages from 1 April to 4 May 2016. YouGov/Citigroup data are for April. Barclays Basix data are for the survey conducted in 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) In 2016 Q1, the survey provider changed from GfK to TNS.

(f) No data available for 2016 Q1.

(g) 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.

(h) Instantaneous RPI inflation one year ahead implied from swaps.

(i) Bank's survey of external forecasters, inflation rate three years ahead.

(j) Instantaneous RPI inflation three years ahead implied from swaps.

(k) Five-year, five-year forward RPI inflation implied from swaps.

Firms' pricing decisions and margins

Developments in prices near the start of the supply chain can provide an early indication of changes in consumer goods and services prices. Official data show that input prices have started to rise, and some business survey indicators of input prices — such as the CIPS services and manufacturing sector indices — have also risen, reflecting higher commodity and labour costs and the recent depreciation of sterling. There are also signs that output prices early in the supply chain are rising.

More generally, the outlook for output prices, including consumer prices, depends on the extent to which higher costs are passed through or absorbed in margins. The profit share, an indicator of aggregate margins, appears to have risen following its sharp fall during the crisis (**Chart 4.9**). But margins will vary across firms and sectors, with contacts of the Bank's Agents reporting that margins remain squeezed in some sectors such as retail and manufacturing, due to competitive pressures and the slowing in global demand (Section 2).

Inflation expectations

Inflation expectations are an important determinant of the outlook for inflation. Together with actual inflation, they can influence both wage and price-setting behaviour. The MPC monitors a range of indicators to assess whether inflation expectations are well anchored.

Movements in measures of households' inflation expectations have been mixed in recent months but, on average, measures have risen slightly (**Table 4.B**). Overall, households' short-term inflation expectations remain some way below their historical averages. Households' longer-term expectations — which may be more informative when considering whether expectations are well anchored — are much closer to their past averages.

In contrast, companies' short-term inflation expectations have fallen slightly since the February *Report* (**Table 4.B**). In addition, according to the *Deloitte CFO Survey*, the proportion of respondents that expected inflation to be below 1.5% in two years' time rose further in Q1 to 60%. Measures of inflation expectations of professional forecasters and those derived from financial market prices have, however, been broadly stable and remain close to their past averages (**Table 4.B**).

Overall, most measures of inflation expectations have been broadly unchanged so far in 2016. The MPC judges that inflation expectations remain well anchored, and it will continue to monitor developments in inflation expectations carefully.

5 Prospects for inflation

CPI inflation has risen a little further, to 0.5%, but remains well below the 2% target. That shortfall primarily reflects a continuing, albeit temporary, effect from past falls in energy prices, along with a drag from the prices of food and other imported goods and services; domestic cost pressures also remain subdued. Four-quarter GDP growth has slowed from above-average rates in 2014, and is likely to have fallen back further in 2016 Q2 as uncertainty around the forthcoming referendum on UK membership of the European Union weighs on companies' and households' spending. Consistent with the MPC's usual convention that government policy is followed, the projections in this *Report* are conditioned on an assumed continuation of EU membership, so that weakness in activity starts to unwind in the second half of the year. The MPC's best collective judgement, conditioned on the path for Bank Rate currently implied by market interest rates, is that growth is likely to recover next year, such that spare capacity is eroded and, as the drag from external factors fades, rising domestic cost growth returns inflation to the 2% target by the middle of 2018.

Over the past few months some asset prices and indicators of uncertainty and activity appear to have been affected by the forthcoming referendum on UK membership of the European Union. Following its usual convention, which is to assume government policy is followed, the MPC's projections in this *Report* are conditioned on a continuation of EU membership. That has implications for the treatment of the exchange rate, as risks associated with a possible vote to leave have probably been an important contributor to the 9% fall in the sterling ERI from its November 2015 peak.

As set out in more detail in the box on page 40, in order to maintain consistency between its conditioning paths and its convention that government policy is followed, the MPC has taken a judgement not to let that part of the fall in the exchange rate that appears to have been associated with the referendum affect its growth or inflation projections. Evidence set out in the box on page 5 suggests that roughly half of the decline in the sterling effective exchange rate since November 2015 might reflect such effects. In other words, the forecast is conditioned on a path for the exchange rate that is around half way between its November 2015 peak and its value in the fifteen days to 4 May. That path is a little higher than the one underlying the February *Report*.

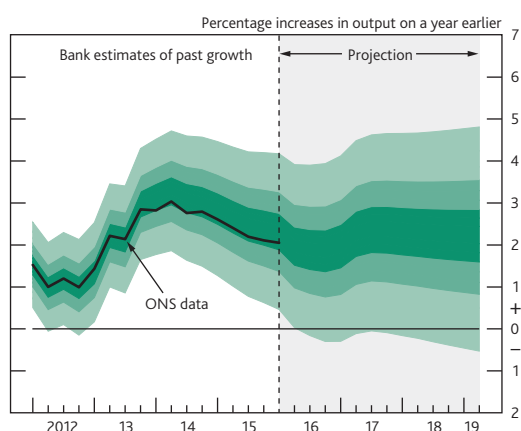
No such adjustments have been made to the conditioning paths for other asset prices, where the evidence for referendum effects is less clear. The MPC's projections are therefore conditioned on the path for Bank Rate implied by market yields in the fifteen days to 4 May. This path rises to only 0.8% by 2019 Q2. That is around 20 basis points lower

Table 5.A Conditioning path for Bank Rate implied by forward market interest rates^(a)

Per cent	2016			2017				2018				2019	
	Q2 ^(b)	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
May	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8
February	0.5	0.5	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.0	1.1	

(a) The data are fifteen working day averages of one-day forward rates to 4 May 2016 and 27 January 2016 respectively. The curve is based on overnight index swap rates.

(b) May figure for 2016 Q2 is an average of realised overnight rates to 4 May 2016, and forward rates thereafter.

Chart 5.1 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.

Table 5.B Forecast summary^(a)

	Projections			
	2016	2017	2018	2019
GDP ^(b)	2.0 (2.2)	2.3 (2.4)	2.3 (2.5)	
<i>Excluding backcast</i>	1.9 (2.2)	2.3 (2.4)	2.3 (2.5)	
	2016 Q2	2017 Q2	2018 Q2	2019 Q2
CPI inflation ^(c)	0.4 (0.4)	1.5 (1.6)	2.1 (2.1)	2.2
LFS unemployment rate	5.1 (4.8)	5.0 (4.8)	4.9 (4.7)	4.8
Bank Rate ^(d)	0.5 (0.5)	0.5 (0.6)	0.6 (0.9)	0.8

(a) Modal projections for GDP, CPI inflation and LFS unemployment. Figures in parentheses show the corresponding projections in the February 2016 *Inflation Report*. Projections were only available to 2019 Q1 in February.

(b) Calendar-year growth in real GDP consistent with the modal projection for four-quarter growth in real GDP. The MPC's projections are based on its backcast for GDP.

(c) Four-quarter inflation rate.

(d) Per cent. The path for Bank Rate implied by forward market interest rates. The curves are based on overnight index swap rates.

on average than the path underlying the February projections (Table 5.A) although, acting against that, credit spreads are projected to be a little higher (Table 5.C).⁽¹⁾

Despite the convention that government policy is followed, there are some effects from the referendum in the MPC's projections. As described in Key Judgement 2, it is likely that a period of uncertainty ahead of the referendum will be associated with a period of weaker growth — already apparent in some indicators — this year. Given the conditioning assumption that the United Kingdom remains in the European Union, this weakness is projected to unwind over subsequent quarters. There are risks around this path: if uncertainty effects are weighing more on the data than assumed then underlying momentum may be greater; conversely if uncertainty effects are weighing less then underlying momentum may have slowed more than assumed.

In the central projection conditioned on market rates, four-quarter GDP growth, which has fallen below 2½% over the past year, dips further in the near term. Thereafter growth picks up, as the drag from uncertainty unwinds, and settles at around 2¼%, moderately below average rates (Chart 5.1). As in February, risks to that profile are judged to be skewed to the downside, stemming in particular from the global outlook (Key Judgement 1). That UK growth outlook is a little lower than projected three months ago, reflecting Committee judgements on saving rates (Key Judgement 2) and on the outlook for productivity growth (Key Judgement 3). Weak activity growth in Q2 is associated with a slight widening in the margin of spare capacity, which is subsequently eroded over the next year or so. With productivity, and hence potential supply, growth a little weaker than in February, output rises a little above potential over the second half of the forecast period despite the slightly lower profile for demand. That is associated with a pickup in domestic cost growth that returns inflation to the 2% target, as the drag from external factors fades (Key Judgement 4), and then pushes it slightly above the target in the medium term (Chart 5.2). The profile also now reflects the soft drinks industry levy, announced in *Budget 2016*, that is due to come into effect in 2018: that raises annual inflation by 0.1 percentage points between 2018 Q2 and 2019 Q1.

These central projections are summarised in Table 5.B and are explained further in Section 5.1, which sets out the four key judgements that underlie them and the uncertainties around those.

(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 2016 *Budget*; commodity prices following market paths; and a path for the sterling effective exchange rate at around 89. The main assumptions are set out in a table at www.bankofengland.co.uk/publications/Documents/inflationreport/2016/mayca.pdf.

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

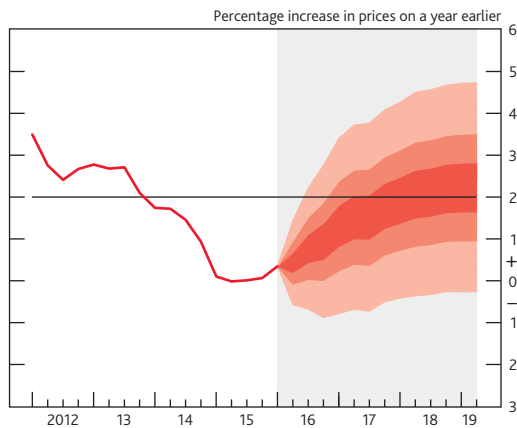
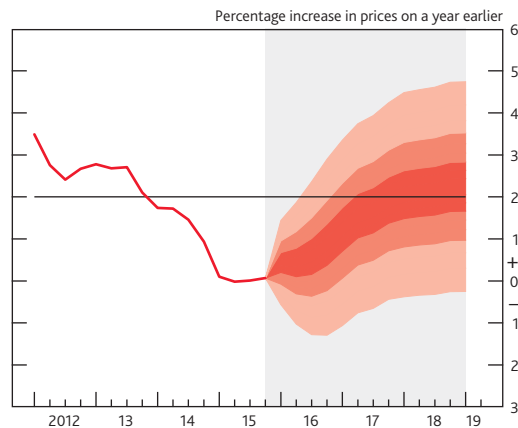


Chart 5.3 CPI inflation projection in February based on market interest rate expectations and £375 billion purchased assets



Charts 5.2 and 5.3 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 2016 *Inflation Report* for a fuller description of the fan chart and what it represents.

In light of the economic outlook, at its meeting ending on 11 May the MPC voted to maintain Bank Rate at 0.5% and the stock of purchased assets at £375 billion. The factors behind that decision are set out in the Monetary Policy Summary on pages i–ii of this *Report*, and in more detail in the Minutes of the meeting.⁽¹⁾

5.1 Key judgements and risks

The Committee's four key judgements are described in more detail below. **Table 5.C** provides projections for variables that illustrate those judgements; **Table 5.D** provides a range of indicators to monitor them; and **Table 5.E** shows indicative projections for a range of other variables.

Key Judgement 1: global growth picks up a little but remains below past average rates

In PPP-weighted terms, global growth has slowed in recent years, and in 2015 Q4 reached its lowest four-quarter rate since the crisis. That weakness largely reflected developments in emerging market economies, where growth has slowed across a range of countries, with Brazil and Russia experiencing particularly sharp downturns. Growth in advanced economies, which comprise the largest share of UK export markets, has been more stable, such that the dip in UK-weighted world growth has been smaller. Over recent months, there has been mixed news across different economies but, taking these together, the global outlook has changed little.

At the beginning of 2016, prices of risky assets fell sharply as market participants became more concerned about the outlook for the global economy. Since then, the European Central Bank (ECB) and Bank of Japan have announced further

(1) The Minutes are available at www.bankofengland.co.uk/publications/minutes/Documents/mpc/pdf/2016/may.pdf.

Table 5.C MPC key judgements^{(a)(b)}**Key Judgement 1: global growth picks up a little but remains below past average rates**

	Average 1998– 2007	Projections		
		2016	2017	2018
World GDP (UK-weighted) ^(c)	3	2¼ (2¼)	2½ (2½)	2½ (2¼)
World GDP (PPP-weighted) ^(d)	4	3 (3)	3½ (3¼)	3½ (3¼)
Euro-area GDP ^(e)	2¼	1¾ (1½)	1¾ (1¾)	1¾ (1½)
US GDP ^(f)	3	1¾ (2¼)	2¼ (2¼)	2 (2)
Dollar oil prices ^(g)	39	46 (37)	49 (42)	51 (46)

Key Judgement 2: UK private domestic demand grows at a solid pace following a period of uncertainty-related weakness

	Average 1998– 2007	Projections		
		2016	2017	2018
Credit spreads ^(h)	¾ ⁽ⁱ⁾	2¼ (2¼)	2¼ (2)	2 (2)
Household saving ratio ^(j)	8¾	3½ (3)	2¾ (2¾)	2½ (2¼)
Business investment to GDP ratio ^(k)	9¾	9¾ (10¼)	10¼ (10½)	10¾ (11)

Key Judgement 3: annual supply growth picks up a little further

	Average 1998– 2007	Projections		
		2016	2017	2018
Productivity ^(l)	2¼	1¼ (1¼)	1¾ (1¾)	1¾ (1¾)
Participation rate ^(m)	63	63½ (63½)	63½ (63½)	63½ (63¾)
Average hours ⁽ⁿ⁾	32¼	32 (31¾)	31¾ (31¾)	31¾ (31¾)

Key Judgement 4: a pickup in domestic cost growth returns inflation to the 2% target as the drag from external factors fades

	Average 1998– 2007	Projections		
		2016	2017	2018
UK import prices ^(o)	¼	1 (¾)	¾ (1¼)	¾ (1¼)
Unit labour costs ^(p)	3	2¾ (2¼)	2¼ (2¼)	2½ (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 2016 *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 LFS to incorporate the latest ONS population estimates and projections.
- (m) Level in Q4. Percentage of the 16+ population. The participation rate has been adjusted for expected revisions to the LFS to incorporate the latest ONS population estimate and projections.
- (n) Level in Q4. Average weekly hours worked, in main job and second job.
- (o) Four-quarter inflation rate in Q4.
- (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.

easing measures, the Chinese authorities have announced a growth target for 2016 that was higher than expected and the Federal Open Market Committee has revised down its projections for the path of monetary policy, suggesting fewer rate rises over 2016. Perhaps associated with these policy moves, there have been declines in interest rate expectations in a range of other countries, including the United Kingdom, and a recovery in the prices of risky assets. Reflecting similar factors, along with declining growth in oil supply, oil prices have risen by US\$15 since the February *Report* to around US\$44 a barrel. The additional policy stimulus is assumed to support the outlook for activity, as do the rises in prices of risky assets. Higher prices for oil and other commodities offset that to some degree overall, although they also reduce downside risks to growth in commodity-exporting countries.

In the euro area, growth picked up in 2016 Q1 but, even after accounting for the drag from lower energy prices, inflation has remained low, as have inflation expectations. The stimulus package announced by the ECB (Section 1) is projected to support growth and inflation over the forecast period. Overall, the projection for euro-area activity is a little stronger than three months ago (Table 5.C), as the stimulus package is partly offset by the effects of higher oil prices.

In the United States, GDP growth disappointed in the first quarter, at only 0.1%. The labour market has remained strong, however, with employment growth continuing at a steady pace, such that productivity has fallen over recent quarters. There are also signs of a strengthening in unit labour costs and core inflation. Relative to three months ago, and despite a projected bounceback in Q2, growth in 2016 is lower than previously projected; thereafter, support from the lower path for the yield curve broadly offsets news in the data and the projection remains one where productivity and hence output growth pick up (Table 5.D). Risks to the US outlook stem particularly from the assumed path for productivity growth, which could be lower if recent trends reflect a more persistent slowing, or higher if some of the recent weakness in the level is unwound.

The projection for Chinese activity growth has been revised up since the February *Report*, reflecting announcements by the authorities, consistent with their emphasis on doubling GDP, relative to 2010, by 2020. Those announcements, however, reduce the emphasis on rebalancing the economy away from investment and towards domestic consumption and are also likely to be associated with an expansion in domestic credit that would be more rapid than previously projected; total social financing increased markedly in Q1. Given that, the downside risks to the outlook in China have increased in the medium term.

A number of developments should support activity in other emerging market economies including the stabilisation in commodity prices, expected stronger demand from China in the

Table 5.D 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 2016 Q2 to 2016 Q4 if judgements evolve as expected
1: global growth picks up a little but remains below past average rates	<ul style="list-style-type: none"> • Quarterly euro-area growth to average a little below ½%. • Annual euro-area HICP inflation to remain close to zero in the coming months and to pick up gradually in the second half of the year, as past falls in oil prices drop out of the annual calculation. • Quarterly US GDP growth to average a little above ½%. • Annual US PCE inflation to fall slightly in coming months, before increasing to around 1½%. • Indicators of activity consistent with four-quarter PPP-weighted emerging market economy growth of around 4%; within that, Chinese GDP growth to average around 6¾%. • Average quarterly growth in UK exports of ½%.
2: UK private domestic demand grows at a solid pace following a period of uncertainty-related weakness	<ul style="list-style-type: none"> • Quarterly consumption growth of between ½% and ¾%. • Business investment to fall in Q2, and grow only modestly in Q3, reflecting the impact of referendum-related uncertainty, before rebounding towards the end of the year. • Credit spreads to be broadly flat in 2016. • Mortgage approvals for house purchase to be around 75,000 a month, on average, in 2016 H2, following a period of volatility in housing transactions around the introduction of a higher rate of stamp duty on additional properties in April. • Quarterly housing investment growth to be volatile, reflecting the impact of the additional property stamp duty change. Quarterly growth to average ¾% over the whole of 2016. • Rates of increase in the main indices of national house prices to average around ½% per month in 2016 H2.
3: annual supply growth picks up a little further	<ul style="list-style-type: none"> • Quarterly hourly productivity to grow at an average pace of around ½%. • Participation rate to remain stable at around 63½%. • Average hours to fall by ¾% during 2016 Q2–Q4. • Unemployment to reach 5% by the end of 2016.
4: a pickup in domestic cost growth returns inflation to the 2% target as the drag from external factors fades	<ul style="list-style-type: none"> • Commodity prices and sterling ERI to evolve in line with the conditioning assumptions set out in www.bankofengland.co.uk/publications/Documents/inflationreport/2016/mayca.pdf. • Domestic gas prices to fall by just over 10% in 2016 H2. Domestic electricity prices to remain flat. • Non-fuel import prices to rise by almost 1% in the year to 2016 Q4. • Four-quarter AWE growth to pick up to 3% by the end of the year. • Four-quarter growth in whole-economy unit labour costs to average 2½% in 2016 H2. • Indicators of inflation expectations to continue to be broadly consistent with the 2% target.

short term and a slower path for monetary tightening in the United States. These factors have contributed to the resumption of net capital inflows to those economies in recent months, following a year or so of net outflows. That should help to ease financial conditions and support growth. The projection for activity in emerging market economies excluding China is similar to that in the *February Report*, with growth gradually recovering, albeit to a rate well below past averages reflecting long-term demographic and structural factors (Section 1). The outlook will remain sensitive to market sentiment towards these economies and to the path of Chinese demand.

Overall, PPP-weighted world growth is projected to rise a little faster than expected three months ago (Table 5.C), reflecting

Table 5.E Indicative projections consistent with the MPC's modal projections^(a)

	Average 1998– 2007	Projections		
		2016	2017	2018
Household consumption ^(b)	3¾	2½ (2¾)	2½ (2½)	2¼ (2¾)
Business investment ^(c)	2½	2½ (5½)	7¼ (6)	7¾ (6¼)
Housing investment ^(d)	3½	4 (4)	5¼ (5½)	4¾ (5¾)
Exports ^(e)	4½	1½ (2¼)	1¼ (1¼)	1¾ (2)
Imports ^(e)	6	3 (2½)	2¼ (2¼)	2½ (2½)
Real post-tax household income ^(f)	3	1½ (1)	1¾ (2¼)	2 (2¼)
Employment ^(g)	1	¾ (¾)	¾ (¾)	¾ (¾)
Average weekly earnings ^(h)	4¼	3 (3)	3¾ (3¾)	4 (4¼)

(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 2016 *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.

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

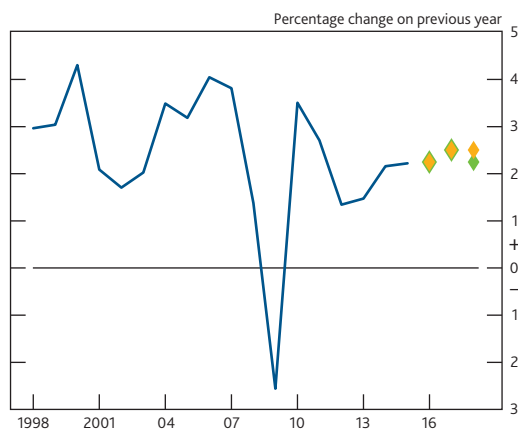
(g) Four-quarter growth rate in Q4. Employment has been adjusted for expected revisions to the LFS to incorporate the latest ONS population estimates and projections.

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

Chart 5.4 World GDP (UK-weighted)^(a)

◆ Projection at the time of the February *Report*

◆ Projection consistent with MPC key judgements in May



Sources: IMF *World Economic Outlook* and Bank calculations.

(a) Calendar-year growth rates. Chained-volume measure. Constructed using real GDP growth rates of 146 countries weighted according to their shares in UK exports.

the upward revisions to the outlook for China. Weighted using UK export shares, over the three years as a whole, growth is broadly similar to that in the February projections (**Chart 5.4**). On both measures, growth is projected to rise in 2017 but to settle at a rate somewhat below past averages, with risks to that outlook remaining to the downside.

The subdued global environment has weighed on both UK exports and the income that the United Kingdom receives on foreign investments (Section 2). Reflecting that, the current account deficit has widened markedly since 2011 and in 2015 Q4 was its highest on record at 7% of GDP. Some of the widening is judged to reflect volatility so the current account deficit is expected to have narrowed in Q1. Over the forecast period, with only a modest recovery in global growth projected, net trade and net income flows are not expected to improve significantly, so the current account deficit averages around 6% of GDP. There are uncertainties around that path. In particular, there are reasons to think that the global recovery, although modest, and an improvement in risk sentiment, will be associated with some improvement in the net income received on UK investments overseas. This was, on average, positive between 2000 and 2012. In that case, the current account deficit would be narrower and more income would flow to UK companies and households than assumed in the central case.

Key Judgement 2: UK private domestic demand grows at a solid pace following a period of uncertainty-related weakness

The near-term profile for demand is heavily influenced by the effects of recent uncertainty. In particular, a range of indicators suggest that uncertainty has risen, with much of that likely to reflect referendum-related effects (see the box on pages 14–15). In line with the MPC's convention, under the conditioning assumption that the United Kingdom remains in the European Union, uncertainty is assumed to recede quickly, although the effect of the spike in uncertainty on spending is likely to be somewhat more persistent. Uncertainty is expected to weigh markedly on demand in Q2. Some companies are likely to put investment plans on hold: respondents to the *Deloitte CFO Survey* reported a sharp pickup in uncertainty in Q1, with related cuts to investment plans. Some households may postpone major spending decisions. These uncertainty-related effects are projected to continue to weigh on spending somewhat in subsequent quarters, as it may take time for some investment projects to be reinstated. Overall, elevated uncertainty is projected to weigh on the level of output for around a year, reducing annual growth in 2016, but supporting it in 2017 as those effects dissipate.

Once the drag from uncertainty has passed, the outlook for domestic spending depends on two key assumptions: the outlook for supply (set out in Key Judgement 3) and, on the

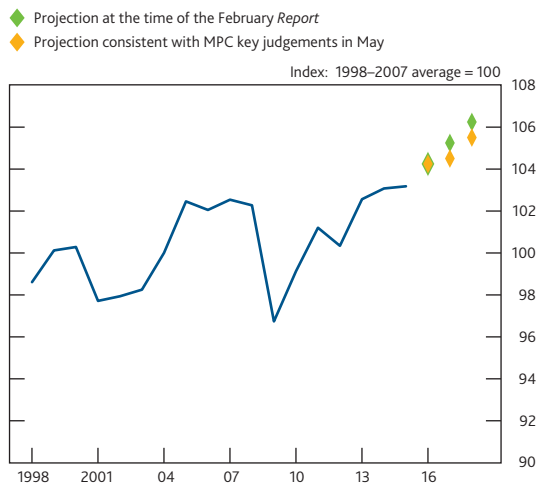
demand side, the path of saving. Over the forecast period, the national saving rate is projected to rise slightly against the backdrop of a wide current account deficit. The government deficit falls, as the fiscal consolidation continues, and that is matched by an increasing private sector financial deficit, resulting in part from a growing household deficit.

Household consumption growth has risen over recent years to a rate of around 2¾%, supported both by a falling saving ratio and, more recently, by a revival in real income growth, in part reflecting lower prices for energy and other imported items. Over the forecast period, household income grows more modestly, reflecting the waning support from lower prices, rates of productivity growth that remain below past averages (Key Judgement 3), and the continuing fiscal consolidation.

Recent *Inflation Report* projections have incorporated a further marked fall in the saving ratio over the forecast period as households maintain spending growth even as income growth slows. A falling saving ratio is consistent with many aspects of the outlook: the low path for interest rates; credit conditions remaining supportive; and the past rise in households' financial wealth relative to income. Other aspects, however, including the continuing fiscal consolidation and relatively high debt to income ratios, would be expected to be associated with upward pressure on saving. In its May projections, the MPC has taken a judgement that households may be less willing to reduce saving rates to support spending growth in coming years than previously assumed. Relative to three months ago, that judgement is apparent in a lower ratio of consumption to labour income, including benefits (Chart 5.5). A weaker path for non-labour income accruing through pension funds means the overall household saving ratio projection is only slightly higher in the medium term (Table 5.C). Over the forecast period, consumption is projected to grow at below its average rate (Table 5.E).

Housing market developments can influence households' consumption and saving decisions, and more directly affect housing investment. There has been some volatility in housing transactions in recent months: transactions rose by over 40% in March ahead of a rise in the stamp duty payable on additional properties in April 2016. The volume of transactions is likely to have fallen back in Q2 (Section 2). Referendum-related uncertainty may also weigh on transactions in Q2. That volatility is also likely to be seen in housing investment. The outlook further ahead will depend in part on factors underlying housing demand and supply including other policies aimed at the buy-to-let market. In the central projection, housing transactions rise modestly, and a little more slowly than assumed three months ago, reflecting a judgement that some of the factors that have weighed on housing activity in recent years — including a lack of suitable properties for sale and affordability constraints — will persist. Housing investment is projected to grow at a little under 5% a year in the medium term, slightly

Chart 5.5 Consumption to labour income^(a)



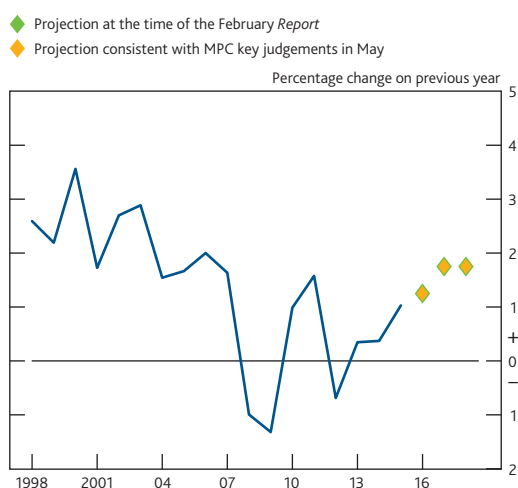
Sources: ONS and Bank calculations.

(a) Calendar-year average. Real consumption as a percentage of real labour income, where real labour income is defined as wages and salaries plus mixed income less taxes plus net transfers, deflated by the consumer expenditure deflator. Includes non-profit institutions serving households.

below the profile in the February *Report* (Table 5.E). Annual house price inflation is projected to slow to around 6% by early next year.

Companies have been reducing their financial surpluses in recent years, and over the forecast period run a small deficit in aggregate. That is one source of financing for the expansion in investment, which is also supported by steady growth in revenues as activity expands. Once the period of referendum-related weakness has passed, rising capacity pressures and accommodative credit conditions are assumed to encourage businesses to expand investment at a fairly rapid pace, similar to expectations three months ago (Table 5.E). As well as the effects of referendum-related uncertainty, the near-term profile for annual growth is also affected by a sharp fall in extraction sector investment in 2015 Q4: that brings forward some of the decline in investment built into previous projections following the marked fall in the oil price. There are risks on both sides of the outlook for business investment. Some stem from the commercial property market: transactions have fallen sharply from their peak a year ago to levels last seen in 2013 and prices have also declined a little recently. Referendum-related uncertainty appears to have exacerbated a slowdown already under way in that market and, to the extent it persists, could weigh on investment in new buildings or more broadly reduce investment through collateral effects. To the upside, the rate of return on investment remains high and could encourage more investment than in the central projection.

Chart 5.6 Productivity^(a)



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 LFS to incorporate the latest ONS population estimates and projections.

Key Judgement 3: annual supply growth picks up a little further

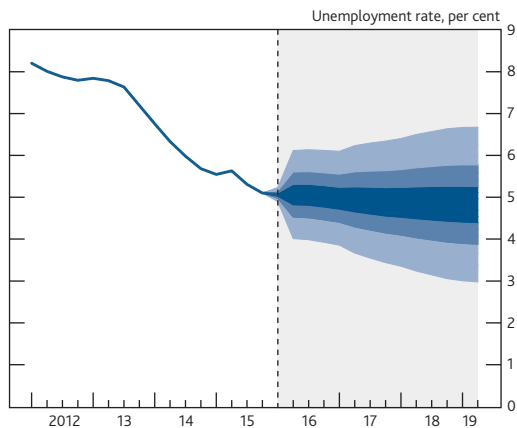
The economy's supply potential is estimated to have grown at an annual rate of around 2% over recent years, a little below average rates. Over the forecast period it is projected to grow just a little faster, rising to around 2¼%. Within that, labour supply grows more slowly than in recent years, while productivity grows more quickly.⁽¹⁾

Since the February *Report*, average hours worked have been stronger than expected. There are reasons to believe that much of this reflects volatility in the data. In particular, although average hours actually worked have risen sharply that was not associated with much change in workers' reported usual hours — a better indicator of underlying trends (Section 3). Given that, the level of average hours is assumed to move back towards the level expected in the February *Report* over the next few quarters (Table 5.C).

Productivity fell by more than expected in Q4, in part due to higher hours worked. In light of that weakness, productivity growth has been revised down modestly over the forecast

(1) For more details on the labour supply judgements see pages 19–24 of the February *Report*; www.bankofengland.co.uk/publications/Documents/inflationreport/2016/feb.pdf.

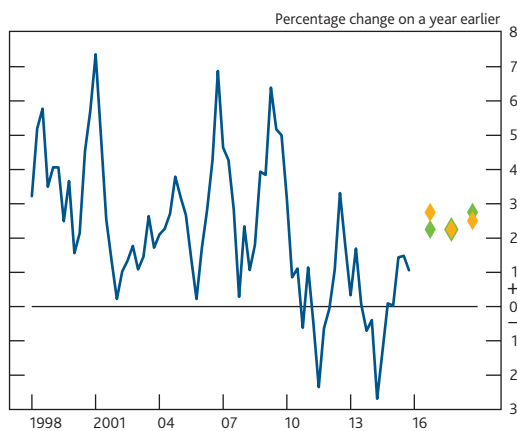
Chart 5.7 Unemployment projection based on market interest rate expectations and £375 billion purchased assets



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 5.2, 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 2016 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 5.1% in the three months to February, and is projected to be 5.1% 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.

Chart 5.8 Unit labour costs^(a)

- ◆ 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 2015 Q4 and projections for four-quarter growth in Q4 thereafter.

Table 5.F Calendar-year GDP growth rates of the modal, median and mean paths^(a)

	Mode	Median	Mean
2016 ^(b)	2.0 (2.2)	2.0 (2.2)	2.0 (2.2)
2017	2.3 (2.4)	2.2 (2.3)	2.2 (2.3)
2018	2.3 (2.5)	2.2 (2.4)	2.2 (2.4)

(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 figures in parentheses show the corresponding projections in the February 2016 *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 have implications for calendar-year growth in 2016. Without the anticipated revisions to past GDP growth, the modal path of the Committee's May projections would imply calendar-year growth of 1.9% in 2016 rather than 2.0%.

period. The MPC continues to judge that productivity will rise at a faster annual pace over the next three years than over the past three (Chart 5.6), as resources continue to be reallocated towards more productive uses. There remain risks around that judgement on both sides: productivity growth has repeatedly disappointed over recent years and may continue to do so. But with the level of productivity remaining lower than in some other advanced economies and little slack remaining, it is possible that catch-up over the forecast period could provide more of a boost to potential supply growth.

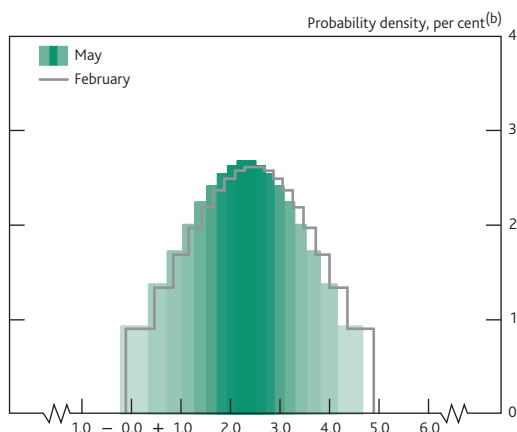
Taking these factors together, supply growth picks up a little over the forecast period, but is on average a little below demand growth. Spare capacity reduces over the next year or so and output then rises a little above potential. That is associated with a gradual fall in the unemployment rate, to slightly below Bank staff's estimate of its long-run equilibrium rate of around 5% (Chart 5.7). There is uncertainty, however, about where that long-run equilibrium lies and therefore the extent that the unemployment rate can fall without putting upward pressure on wage growth and hence inflation. On the one hand, changes in the benefits system over many years may have incentivised the unemployed to move into work, implying a lower sustainable level of unemployment; on the other hand, the proportion of those unemployed for over twelve months remains elevated, and it is possible that signals some degree of mismatch between the unemployed and the jobs available.

Key Judgement 4: a pickup in domestic cost growth returns inflation to the 2% target as the drag from external factors fades

CPI inflation has risen a little further over the past few months but remains well below the 2% target. That continues mainly to reflect downward pressure from past falls in energy and food prices. Despite the rise in oil prices in recent months, they remain lower than a year ago, and the contribution of petrol prices to CPI inflation is not expected to turn positive until the end of the year. Wholesale gas prices have also fallen over the past year, with the futures curve — a determinant of the prices set by domestic suppliers — down over 40% since the summer of 2014. Reflecting that, domestic gas prices have already been cut by an average of 5% since the autumn of last year. In the central projection, further cuts of just over 10% are expected this autumn with further small cuts in Autumn 2017. Taking domestic energy prices and petrol together, the contribution of energy prices to CPI inflation remains negative until late 2018. There are risks around that path in both directions: wholesale energy prices could move sharply in either direction and there is additional uncertainty about the extent and speed of pass-through of lower wholesale gas prices to domestic bills (Section 4).

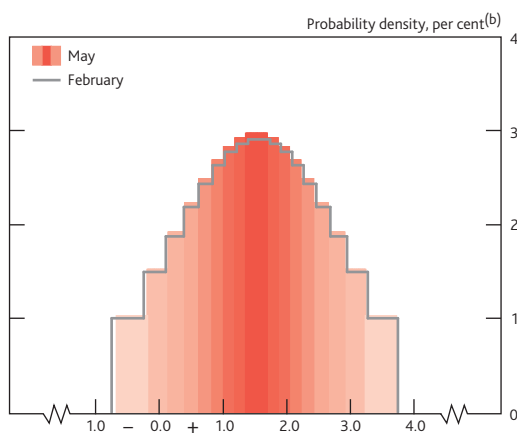
Another factor that has been weighing on inflation is the appreciation of sterling up to November last year. That was

Chart 5.9 Projected probabilities of GDP growth in 2018 Q2 (central 90% of the distribution)^(a)



- (a) Chart 5.9 represents the cross-section of the GDP growth fan chart in 2018 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 2016 *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 ± 0.05 percentage points of any given growth rate, specified to one decimal place.

Chart 5.10 Projected probabilities of CPI inflation in 2017 Q2 (central 90% of the distribution)^(a)



- (a) Chart 5.10 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 5.10 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 2016 *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 ± 0.05 percentage points of any given inflation rate, specified to one decimal place.

Table 5.G Q4 CPI inflation

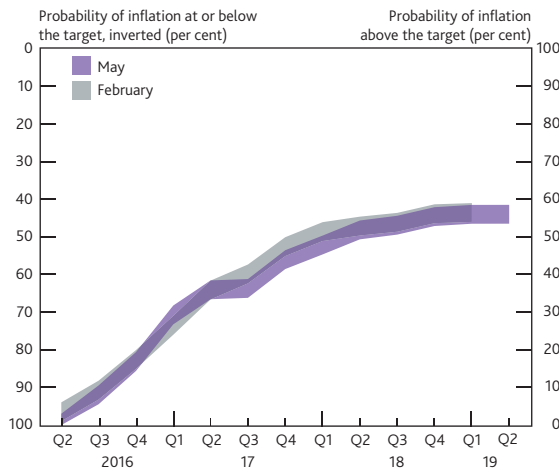
	Mode	Median	Mean
2016 Q4	0.9 (0.9)	0.9 (0.8)	0.9 (0.8)
2017 Q4	1.8 (1.9)	1.8 (1.9)	1.8 (1.9)
2018 Q4	2.2 (2.2)	2.2 (2.2)	2.2 (2.2)

The table shows projections for Q4 four-quarter CPI inflation. The figures in parentheses show the corresponding projections in the February 2016 *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.

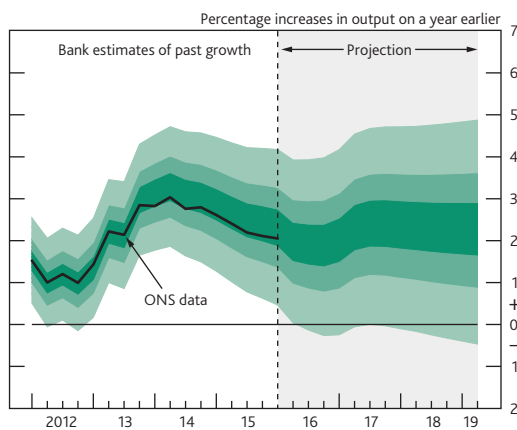
associated with falling import prices, which are slowly passed through to lower retail prices. More recently, the exchange rate has fallen back. As set out in a box on page 40, since a material proportion of that fall appears to have been associated with the referendum, and in particular the possibility of a Leave vote, the MPC has not allowed the full extent of the recent depreciation to feed through to its projections for inflation or growth. Nevertheless, import prices probably rose in Q1, and are projected to rise further over the forecast period (Table 5.D). The drag from import prices may have passed its peak already and is projected to have entirely faded by the second half of 2017. There remains considerable uncertainty about how quickly a change in import prices is passed through to CPI inflation, with a risk that the drag on inflation fades faster than projected.

Although most of the current weakness of inflation is due to external factors, domestic price pressures have also been relatively subdued. In particular, unit labour cost growth — wage growth adjusted for workers' productivity — remains below rates consistent with meeting the inflation target sustainably. Even after accounting for weakness in productivity, wage growth has not picked up as much as would have been expected given the tighter labour market implied by sharp falls in unemployment over recent years and companies' reports of recruitment difficulties. It is possible that slack is greater than assumed (Key Judgement 3), suggesting that unemployment could fall further before upward pressure on wage growth builds significantly. As discussed in the February *Report*, however, the Committee judges that some of the recent weakness in wage growth is likely to reflect the current low level of inflation, as reported by contacts of the Bank's Agents (Section 3). For example, pressure for higher pay may have been attenuated by lower energy prices and the associated boost to real wage growth: real wages have been growing close to 2% in recent months, broadly in line with past averages. Over the forecast period, as the factors weighing on inflation wane, nominal wage growth is projected to pick up, consistent with the tightness in the labour market and strengthening productivity growth. Under the path for Bank Rate implied by market interest rates, labour market pressures build sufficiently to raise nominal wage growth to around 4% (Table 5.E). That is associated with a pickup in unit labour cost growth, albeit a little smaller than that projected three months ago in the medium term (Chart 5.8), reflecting slightly less pressure on capacity.

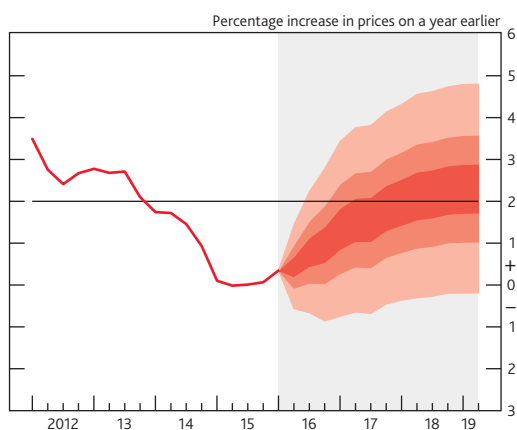
There are risks around the outlook for wages and, hence, unit labour cost growth in both directions. Wage growth could pick up more slowly if slack were greater than assumed or if people take time to revise their wage demands as inflation rises, although this risk has probably receded a little in recent months as regular pay has risen broadly in line with prior expectations. It is also possible, however, that slack is smaller or that a lack of labour market churn — quit rates remain low

Chart 5.11 Inflation probabilities relative to the target

The May and February swathes in this chart are derived from the same distributions as Charts 5.2 and 5.3 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.

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

See footnote to Chart 5.1.

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

See footnote to Chart 5.2.

— has meant that underlying pay pressures have been slow to come through. Wage growth could rebound more quickly if churn increases.

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 reaches 0.8% by 2019 Q2, four-quarter GDP growth dips further in the near term, reflecting the period of uncertainty surrounding the referendum. Thereafter it picks up as that drag unwinds, before settling at 2¼% (Chart 5.1). That growth is driven by private domestic demand, in the face of subdued global activity and a continuing fiscal consolidation at home. Growth is slightly weaker than projected three months ago, due to Committee judgements on saving rates and productivity growth (Table 5.F). The risks to the outlook remain weighted to the downside (Chart 5.9), reflecting the possibility that global activity and, in particular, growth in emerging market economies will disappoint.

Unemployment has remained at 5.1% in recent months, close to its estimated long-run equilibrium rate: overall, although the precise extent of slack remains uncertain, it appears that only a little remains. Over the forecast period, unemployment falls slightly below 5% (Chart 5.7) and capacity pressures build a little. There remains considerable uncertainty about the current supply capacity of the economy and its future growth rate, with risks on both sides of the central projection.

CPI inflation is projected to pick up over the next year or so as the drags from energy and other imported goods and services prices unwind. In the central projection, under the path implied by market interest rates, domestic cost pressures are projected to return inflation to the 2% target by mid-2018 and to take it slightly above the target thereafter. The central projection for CPI inflation is broadly similar to that three months ago in the medium term. The risks to the central projection are judged to be balanced (Chart 5.10): with no further downside news in wages or prices, the MPC judges that the chance of inflation remaining persistently weak in the near term has lessened somewhat since February (Table 5.G). Taking the central path and the risks together, inflation is judged as likely to be above as below the 2% target in two years' time, but a little more likely to be above it at the three-year horizon (Chart 5.11).

Charts 5.12 and 5.13 show the MPC's projections under the alternative constant rate assumption. That assumption is that Bank Rate remains at 0.5% throughout the three years of the forecast period, before rising towards the market path over the subsequent three years. Given the flatness of the curve underlying the market rate projection, the profiles for GDP growth and inflation are only slightly higher than the market rate projections.

The treatment of asset prices in the May Inflation Report projections

The MPC's projections are conditioned on asset prices prevailing in the run-up to each *Report*. That means that large movements in asset prices can have significant effects on the projections, although those movements often reflect news about the outlook that has an offsetting effect. For example, if interest rate expectations fall because there has been a deterioration in global growth prospects, that weakening would tend to offset any boost to activity and inflation from the lower interest rate path. As this box sets out, however, allowing movements in asset prices that are believed to be associated with the forthcoming referendum on UK membership of the European Union to affect the MPC's projections would be inconsistent with its convention that government policy is followed, such that the *status quo* continues.

As set out in a box on page 5, some asset prices are currently likely to have been affected by market participants' perceptions about the risks associated with the forthcoming referendum on UK membership of the European Union. In particular, there is evidence that the referendum is having a marked influence on the sterling exchange rate. The evidence in that box suggests that roughly half of the 9% fall in the exchange rate since its November 2015 peak might be accounted for by risks associated with a vote to leave the European Union. Once the uncertainty over the outcome is resolved, it is likely that the exchange rate will adjust again, consistent with market participants' view of the outlook at that time.

Following its usual convention, which is to assume that government policy is followed, the MPC's May projections are conditioned on a continuation of EU membership. A conventional treatment of the depreciation in the exchange rate would therefore be associated with significant support to activity but no offset in the projections from the factors that have led to the weakening in sterling. The box on pages 41–43 describes these possible offsets in the event of a Leave vote, including the possibility of a weaker UK outlook.

The MPC has therefore taken a judgement not to let that part of the fall in the exchange rate that appears to have been associated with the referendum feed through to its growth or inflation projections. There is considerable uncertainty around the effects that the referendum is having on the exchange rate and therefore around this judgement. **Table 1** shows how the projections for growth and inflation would differ if the exchange rate path were different, all else equal. If the forecast had been conditioned on an exchange rate path using the conventional assumptions based on data in the fifteen days to 4 May, and no other changes were made to the forecast inputs, growth and inflation would be significantly higher. Conversely, if it were assumed that all of the exchange rate fall since November 2015 reflected referendum effects, growth and inflation would be significantly lower than in the May central projections. These are mechanical projections where the only change in the forecast inputs is the exchange rate path; there is no allowance for the factors that could be consistent with these different exchange rate paths.

As set out in the box on page 5, the evidence on whether other asset prices, including market interest rates and equities, have been affected by the referendum is less clear. Although such an impact is possible, the MPC has not adjusted its standard treatment of these asset prices.

Table 1 GDP growth and inflation projections with different exchange rate paths^(a)

	18 Nov. 2015	Sterling exchange rate (index: Jan. 2005 = 100)			Annual GDP growth (per cent)			CPI inflation (per cent)		
		2016 Q4	2017 Q4	2018 Q4	2016	2017	2018	2016 Q4	2017 Q4	2018 Q4
Referendum accounts for none of the fall in the sterling ERI	94	85	85	85	2.1	2.5	2.4	1.1	2.1	2.5
May 2016 modal projections	94	89	89	89	2.0	2.3	2.3	0.9	1.8	2.2
Referendum accounts for all of the fall in the sterling ERI	94	93	93	92	1.9	2.0	2.2	0.7	1.5	1.8

(a) Modal projections for calendar-year GDP growth and four-quarter CPI inflation rate.

Risks associated with the referendum on UK membership of the European Union

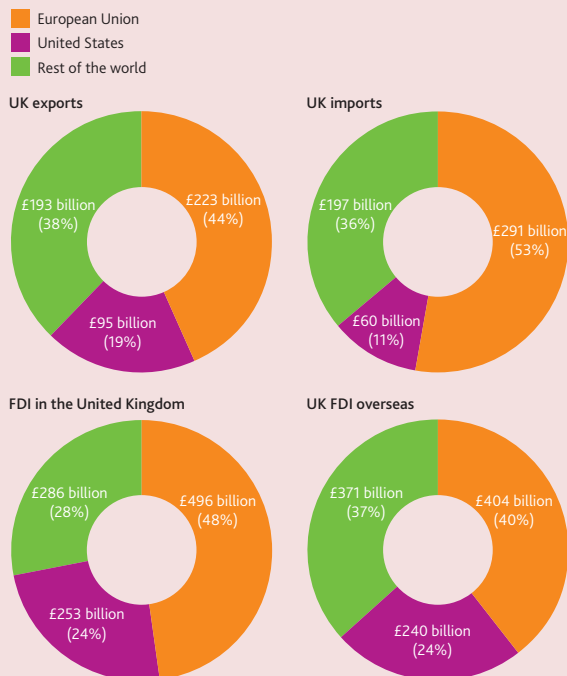
On 6 April, members of the Financial Policy Committee (FPC) and the Monetary Policy Committee (MPC) met to discuss, and were presented with material on, risks to monetary and financial stability associated with the referendum on the United Kingdom's membership of the European Union. This box provides a summary of that material, describing some of the key channels through which those risks could propagate and potential amplifiers of their impact.

Key channels

The rest of the European Union is the United Kingdom's biggest trading partner, comprising around 50% of all UK trade, and its biggest investment partner, representing 48% of all foreign direct investment (FDI) into the United Kingdom and 40% of all outward UK FDI (Chart A). The United Kingdom's relationship with the European Union is, therefore, material for the outlook for UK activity, inflation and financial stability.⁽¹⁾

Chart A The rest of the European Union is the United Kingdom's biggest trading and investment partner

Sources and destinations of UK imports and exports and UK foreign direct investment (FDI)^(a)



(a) Total value of imports and exports in 2015. Stock of FDI as at end-2014. Shares in parentheses; may not sum to 100 due to rounding.

One way in which the referendum may affect activity is through the uncertainty it creates. Ahead of the referendum there is uncertainty both about the outcome of the vote and about the outlook for UK activity and inflation following the

referendum. In the event of a vote to leave the European Union, the period of uncertainty could be prolonged, as the United Kingdom's future trading arrangements with other countries would take some time to renegotiate. During that period, the ultimate nature and extent of those relationships and their impact on UK potential growth and incomes would not be entirely clear.

Activity may also be affected by concerns that the outcome might reduce the openness of the UK economy and its long-run potential supply. Alterations to product or labour market regulation, adjustments in labour flows, changes in the rate of technology adoption as a result of new arrangements governing foreign trade and capital flows, as well as the need to reallocate resources between sectors might all affect the outlook for UK supply growth and national income, for some time.

As described in the box on pages 14–15, a period of heightened uncertainty and perceptions of increased downside risks to the outlook for UK activity could have a number of implications for companies' and households' spending decisions. Companies could postpone some investment projects or recruitment plans until the outlook becomes clearer. Households too might defer some spending, particularly on major purchases. The effect would be to depress aggregate demand and, at least for given supply, to lower domestically generated inflation.

Indeed, there are signs that the referendum has already begun to weigh on certain areas of activity. Some survey measures of investment intentions and consumer confidence have eased, some IPOs and private equity deals have been postponed, and corporate credit demand appears to have softened (Section 2). There was a notable fall in commercial property transactions in 2016 Q1 of around 40%.

Shifts in risk are in part transmitted, and potentially amplified, by changes in the prices of financial assets. Greater uncertainty would tend to push up risk premia — the compensation required in international markets for the risk of holding sterling assets. Alongside any perceptions that the expected return on UK investment may be lower, that would weigh on the sterling exchange rate and on the prices of other financial assets, such as corporate bonds and equities.

Any such falls in UK financial asset prices would tend to raise funding costs for banks and, therefore, interest rates on UK household and corporate borrowing. That, in turn, would tend to depress the prices of non-financial assets such as real estate. The combination of tighter financial conditions and reductions in the value of collateral against which companies

(1) For more details on the interlinkages between the United Kingdom and the European Union see 'EU membership and the Bank of England'; www.bankofengland.co.uk/publications/Documents/speeches/2015/euoe211015.pdf.

and households can borrow would tend to reduce aggregate demand, including investment in productive capacity.

As explained in the box on page 5 there is evidence that a material proportion of the 9% fall in the sterling exchange rate since its peak in November could reflect referendum effects. The weight implied by market prices on a significant further depreciation following the referendum has also increased markedly in recent months.

Were the United Kingdom to vote to leave the European Union, it is likely that sterling would depreciate further, perhaps sharply. In isolation, this would push up import prices leading directly to higher consumer price inflation. It would also affect inflation indirectly through a combination of demand and supply effects.⁽¹⁾ On the demand side, a lower exchange rate would benefit exports, all else equal, and discourage spending on imports, boosting net trade. A lower exchange rate would, however, also reduce real incomes, lowering domestic demand and so partially offsetting some of the benefit to aggregate demand. On the supply side, higher import prices would depress investment somewhat, as a significant proportion of UK capital spending uses imported capital goods. Over time, this would reduce potential output.

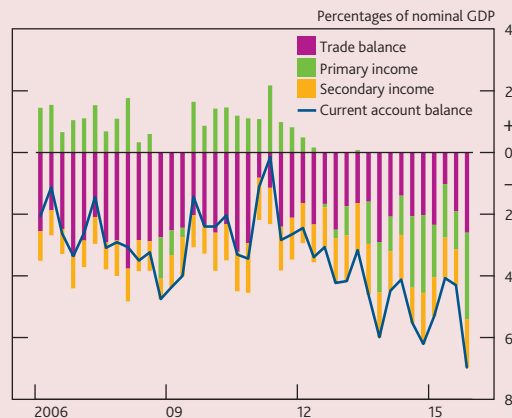
The overall implications for activity and inflation will depend on the combined effects of the exchange rate move alongside the effects of greater uncertainty, particularly concerning the future degree of openness of the UK economy. This combination of influences on demand, supply and the exchange rate could lead to a materially lower path for growth and a notably higher path for inflation than in the central projections set out in this *Report*. The boost to net trade from a fall in the exchange rate is unlikely to offset the drag on activity from increased uncertainty and tighter financial conditions. In contrast, the reduction in inflationary pressure due to weaker activity is likely to be more than offset, at least initially, by the boost to inflation from higher import prices following a fall in the exchange rate.

Potential amplifiers

Those pressures have the potential to reinforce existing risks to financial stability. One existing vulnerability that could amplify the size of the impact on UK asset prices, and the exchange rate in particular, is the elevated UK current account deficit (Section 2). The UK current account deficit has increased in recent years and is very high by historical and international standards (**Chart B**). The financing of the deficit has been reliant on continuing material inflows of portfolio and foreign direct investment (FDI), including the financing of the public sector financial deficit and corporate investment such as commercial real estate. Those portfolio and FDI inflows accounted for around 16% of GDP in 2015, of which the European Union was a significant contributor. Excluding

Chart B The UK current account deficit is very high by historical standards

UK current account



derivatives, the outstanding stock of foreign claims on the United Kingdom is around four times the size of annual GDP. On the other side of the external balance sheet, however, the United Kingdom has a broadly similar stock of claims on foreign assets that could be drawn down in order to fund the deficit.

Increased perceptions that the outcome of the referendum could lead to a weaker outlook for UK national income may call into question the ability to maintain the current large scale of capital inflows. An abrupt decline in capital inflows could pose a major financing difficulty for the United Kingdom, particularly if it were also associated with investors attempting to reduce their existing holdings of UK assets. That would put significant additional downward pressure on the exchange rate and asset prices, which in turn would amplify the impacts on inflation and activity described above.

Another amplifier of those risks could be through the UK banking system. The results of the 2014 stress test of major UK banks suggested that the banking system was resilient to a severe scenario in which there was an abrupt change in capital flows, a sharp depreciation of sterling, a marked increase in unemployment, sharp falls in the values of commercial and residential real estate, and a prolonged recession.⁽²⁾ Since then, UK banks' resilience has increased further.⁽³⁾ Short-term wholesale funding represents only around 15% of major UK banks' liabilities and is well covered by their holdings of liquid assets (**Chart C**). The Bank's Sterling Monetary Framework

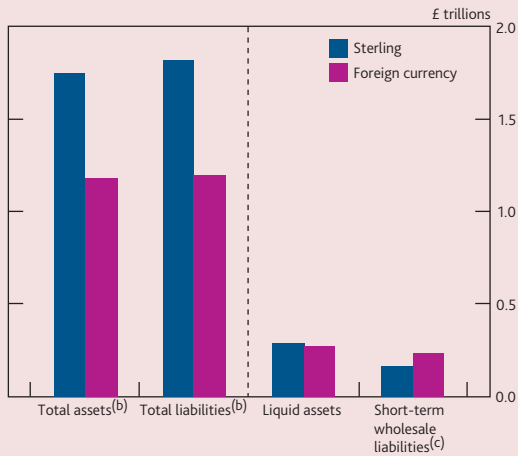
(1) For a discussion of the factors affecting the pass-through of changes in the exchange rate to inflation see Forbes, K, Hjortsoe, I and Nenova, T (2015), 'The shocks matter: improving our estimates of exchange rate pass-through', *External MPC Unit Discussion Paper No. 43*; www.bankofengland.co.uk/monetarypolicy/Documents/externalmpc/extmpcpaper0043.pdf.

(2) For more details on the 2014 stress test, see 'Stress testing the UK banking system: 2014 results' and the December 2014 *Financial Stability Report*; www.bankofengland.co.uk/financialstability/Documents/fpc/results161214.pdf and www.bankofengland.co.uk/publications/Documents/fsr/2014/fsrfull1412.pdf.

(3) For an assessment of the resilience of the UK banking system see the March 2016 FPC Record; www.bankofengland.co.uk/publications/Documents/records/fpc/pdf/2016/record1604.pdf.

Chart C Foreign currency funding is a significant proportion of UK banks' liabilities

UK banks' balance sheets by currency^(a)



(a) Data for the seven largest UK banks, UK-resident entities only.

(b) Total assets (liabilities) includes gross reverse repo (repo) and group lending (funding). Total foreign currency assets (liabilities) calculated as total assets (liabilities) less sterling assets (liabilities). Sterling assets and liabilities include foreign currency swaps.

(c) Wholesale funding with a maturity of three months or less. Shown on a net repo basis and excluding group funding.

would be able to provide sterling liquidity in the event of a shock.

There is a possibility that heightened uncertainty could test the capacity of core funding markets at a time when the liquidity of these markets had shown signs of fragility across advanced economies. Around half of banks' short-term wholesale funding is denominated in foreign currency (**Chart C**), much of which is used to finance their foreign currency exposures.

Against that, banks' holdings of foreign currency denominated liquid assets have increased in recent years and would be enough to cover their short-term wholesale liabilities. The Bank would continue to offer foreign currency liquidity insurance via its regular weekly US dollar repo operations. The Bank also has swap lines in place with the Bank of Canada, the Bank of Japan, the European Central Bank, the Federal Reserve, the Swiss National Bank and the People's Bank of China. Many banks with foreign operations will also have direct access to the liquidity facilities of the central banks in those countries. These arrangements serve as a prudent liquidity backstop. The Bank will continue to monitor market conditions carefully and keep its operations under review.

Alongside any adverse effect on bank lending, financial conditions for companies could also deteriorate if capital market liquidity were to diminish. The stock of corporate bonds represents a significant proportion of total corporate borrowing. Increases in risk premia and sudden changes in capital flows may be associated with increases in corporate bond liquidity premia — the compensation that investors require for the risk that they may not be able to trade the bond easily in the future. Indeed, market liquidity has been fragile in recent years and sensitive to changes in sentiment.⁽¹⁾ An

increase in liquidity premia associated with uncertainty around the referendum could push up the spreads on corporate bonds, reducing their value and increasing the cost of raising finance for companies.

A further amplifier would be if referendum-related effects spilled over to the euro area, increasing uncertainty and risk premia there. That would weigh on euro-denominated asset prices and on the prospects for euro-area growth, in turn reducing the demand for UK exports and diminishing the benefits for UK activity from any depreciation in sterling. It would also increase the cost of obtaining euro-denominated funding for banks and companies and could lead to losses on banks' euro-denominated assets. These dynamics in one of the world's largest economies could contribute to more generalised risk aversion in financial markets with further knock-on effects.

Conclusion

The referendum on UK membership of the European Union poses a number of risks to the outlook for UK activity, inflation and financial stability. The impact on growth and inflation will be sensitive to the wide variety of interacting factors. The possible effects of these dynamics on asset prices (Section 1) and spending (Section 2) are likely to make macroeconomic and financial market indicators less informative over the next few months.

A period of heightened uncertainty accompanied by a significant fall in the exchange rate would have a range of effects on inflation, demand and supply, possibly creating a more challenging trade-off for the MPC. The MPC would have to make careful judgements about the net effects of these influences on demand, supply and inflation. Ultimately, monetary policy would be set in order to meet the inflation target, while also ensuring that inflation expectations remained anchored.

At its March meeting, the FPC assessed that, of the near-term domestic risks to financial stability, those around the referendum were the most significant. It will continue to monitor the channels of risk closely and support mitigating actions where possible. In particular, the FPC welcomed the Bank's announcement on 7 March that it would offer three additional indexed long-term repo operations to provide banks, building societies and broker-dealers with an opportunity to obtain liquidity against the full range of collateral eligible in the Bank's Sterling Monetary Framework.

Whatever the outcome of the referendum, the FPC and MPC will use their tools to meet their financial and monetary stability remits over time.

(1) For more details on the risks associated with financial market liquidity see pages 16–18 of the July 2015 *Financial Stability Report*; www.bankofengland.co.uk/publications/Documents/fsr/2015/fsrfull1507.pdf.

Other forecasters' expectations

This box reports the results of the Bank's most recent survey of external forecasters, carried out in April.⁽¹⁾ On average, respondents expected four-quarter GDP growth to remain a little above 2% over the next three years (Table 1), slightly weaker than expected three months ago.

Table 1 Averages of other forecasters' central projections^(a)

	2017 Q2	2018 Q2	2019 Q2
CPI inflation ^(b)	1.6	2.0	2.1
GDP growth ^(c)	2.2	2.2	2.1
LFS unemployment rate	4.9	4.9	4.9
Bank Rate (per cent)	0.8	1.3	1.9
Stock of purchased assets (£ billions) ^(d)	375	373	369
Sterling ERI	87.5	87.9	87.6

Source: Projections of outside forecasters as of 28 April 2016.

(a) For 2017 Q2, there were 27 forecasts for GDP growth and CPI inflation, 26 for the unemployment rate and Bank 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 and the unemployment rate, 24 for Bank Rate, 16 for the stock of asset purchases and 11 for the sterling ERI. For 2019 Q2, there were 22 forecasts for CPI inflation and GDP growth, 23 forecasts for Bank Rate, 21 for the unemployment rate, 16 for the stock of asset purchases and 11 for the sterling ERI.

(b) Twelve-month rate.

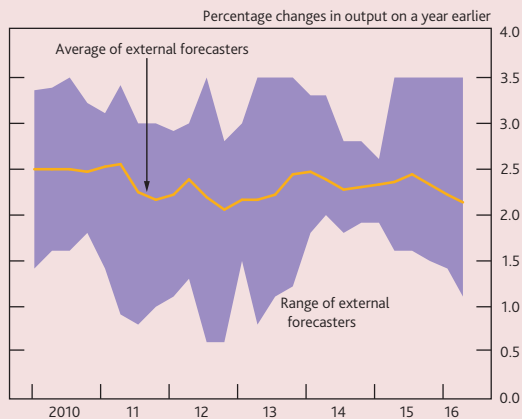
(c) Four-quarter percentage change.

(d) Original purchase value. Purchased via the creation of central bank reserves.

There is uncertainty around comparing projections in this survey as individual forecasters may have incorporated the possible economic impact of the UK referendum on EU membership in different ways. Perhaps reflecting that, the range of external forecasters' expectations of GDP growth in three years' time widened further (Chart A). On average, respondents projected that the sterling ERI would be 2% higher than its current level by 2017 Q2, although the range of projections was wide, with some forecasters assuming it would be nearly 8% higher.

Chart A The range of external forecasters' GDP growth expectations has widened

Forecasters' central projections of three year ahead GDP growth



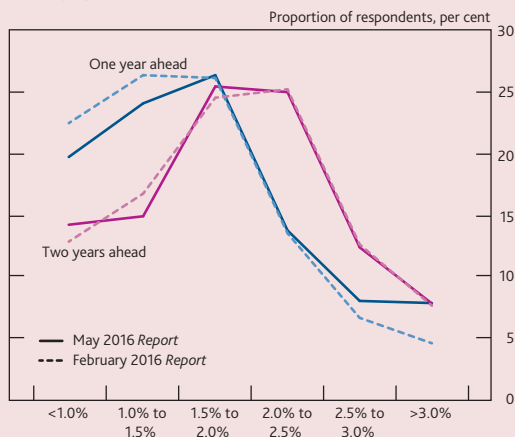
Source: Projections of outside forecasters provided for *Inflation Reports* from February 2010 to May 2016.

Respondents' average central expectation for CPI inflation in a year's time was 1.6%, broadly similar to the MPC's projection.

On average, external forecasters placed a weight of around three quarters on CPI inflation being below the target in a year's time, although the weight placed on very low inflation has fallen a little (Chart B). External forecasters placed broadly equal weight on inflation being either above or below the target in two and three years' time.

Chart B Expectations of very low inflation in a year's time have fallen a little

Average probability of CPI inflation outturns^(a)



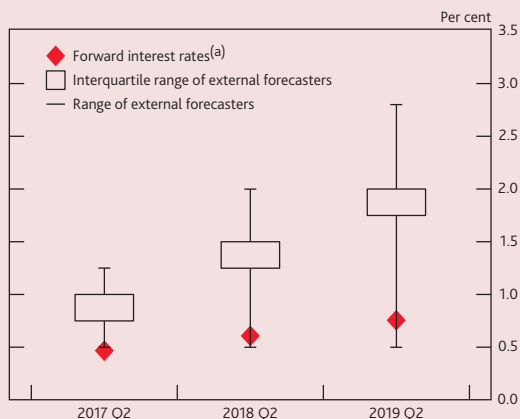
Source: Projections of outside forecasters provided for *Inflation Reports* in February and May 2016.

(a) Projections on the boundary of these ranges are included in the upper range, eg a projection of inflation being 2.0% is in the 2.0% to 2.5% range.

External forecasters, on average, projected that Bank Rate would rise more gradually than projected at the time of the February Report, with an average expectation of 1.9% in three years' time. This remains materially higher than the path implied by market interest rates (Chart C).

Chart C Forecasters project a broadly higher path for Bank Rate than that implied by market prices

Forecasters' central projections of Bank Rate, and forward interest rates



Sources: Projections of outside forecasters as of 28 April 2016, Bloomberg and Bank calculations.

(a) Estimated using instantaneous forward overnight index swap rates in the fifteen working days to 4 May 2016.

(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/2016/mayofe.pdf.

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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.

DGI – domestically generated inflation.

ERI – exchange rate index.

GDP – gross domestic product.

HICP – harmonised index of consumer prices.

LFS – Labour Force Survey.

PCE – personal consumption expenditure.

RPI – retail prices index.

RPI inflation – inflation measured by the retail prices index.

Abbreviations

BCC – British Chambers of Commerce.

BoJ – Bank of Japan.

CBI – Confederation of British Industry.

CEIC – CEIC Data Company Ltd.

CFO – chief financial officer.

CIPD – Chartered Institute of Personnel and Development.

CIPS – Chartered Institute of Purchasing and Supply.

CRE – commercial real estate.

ECB – European Central Bank.

EME – emerging market economy.

EU – European Union.

FDI – foreign direct investment.

FOMC – Federal Open Market Committee.

FPC – Financial Policy Committee.

FTSE – Financial Times Stock Exchange.

GfK – Gesellschaft für Konsumforschung, Great Britain Ltd.

GVA – gross value added.

IIF – Institute of International Finance.

IMF – International Monetary Fund.

IPOs – initial public offerings.

MPC – Monetary Policy Committee.

MSCI – Morgan Stanley Capital International Inc.

MTIC – missing trader intra-community.

NLW – National Living Wage.

OECD – Organisation for Economic Co-operation and Development.

ONS – Office for National Statistics.

OPEC – Organization of the Petroleum Exporting Countries.

PNFCs – private non-financial corporations.

PPP – purchasing power parity.

PRA – Prudential Regulation Authority.

PwC – PricewaterhouseCoopers.

REC – Recruitment and Employment Confederation.

S&P – Standard & Poor's.

SMEs – small and medium-sized enterprises.

TLTRO – targeted long-term refinancing operation.

VAT – Value Added Tax.

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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