Inflation Report

February 2019

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.

PowerPoint™ versions of the *Inflation Report* charts and Excel spreadsheets of the data underlying most of them are available at
www.bankofengland.co.uk/inflation-report/2019/february-2019

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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 6 February 2019, the MPC voted unanimously to maintain Bank Rate at 0.75%. The Committee voted unanimously to maintain the stock of sterling non-financial investment-grade corporate bond purchases, financed by the issuance of central bank reserves, at £10 billion. The Committee also voted unanimously to maintain the stock of UK government bond purchases, financed by the issuance of central bank reserves, at £435 billion.

The MPC's latest projections for inflation and activity are set out in the accompanying February *Inflation Report*. They are conditioned on a smooth adjustment to the average of a range of possible outcomes for the UK's eventual trading relationship with the European Union and the gently rising path of Bank Rate implied by market yields.

The world economy has continued to slow over recent months, with a broad-based softening across all regions. That deceleration reflects the past tightening in global financial conditions, as well as the initial impact of trade tensions on business sentiment. Global growth is expected to dip below trend in coming quarters, weighing on UK net trade, before rising to around potential rates. Activity is projected to be supported by the more accommodative monetary policies in all major economic areas that markets now expect.

UK economic growth slowed in late 2018 and appears to have weakened further in early 2019. This slowdown mainly reflects softer activity abroad and the greater effects from Brexit uncertainties at home. These uncertainties could lead to greater-than-usual short-term volatility in UK data, which may therefore provide less of a signal about the medium-term outlook. Heightened uncertainty and elevated bank funding costs are assumed to subside over time, as greater clarity on future trading arrangements is assumed to emerge. These developments, together with looser fiscal policy, provide support to domestic spending. In the Committee's central projection, quarterly GDP growth recovers later this year, with four-quarter growth rising to 2% by the end of the forecast period.

CPI inflation fell to 2.1% in December and is expected to decline to slightly below the MPC's 2% target in the near term, largely due to the sharp fall in petrol prices which has occurred since November. As that effect unwinds, CPI inflation rises above 2%. The MPC judges that demand and potential supply are currently broadly in balance. The weaker near-term outlook is likely to lead to a small margin of slack opening up this year. Thereafter, demand growth exceeds the subdued pace of supply growth and excess demand builds over the second half of the forecast period. As a result, domestic inflationary pressures firm, as the upward pressure on inflation of sterling's past depreciation wanes. Under the assumptions that condition the February *Report*, inflation settles at a rate a little above the target.

The Committee judges that, were the economy to develop broadly in line with its *Inflation Report* projections, an ongoing tightening of monetary policy over the forecast period, at a gradual pace and to a limited extent, would be appropriate to return inflation sustainably to the 2% target at a conventional horizon.

The economic outlook will continue to depend significantly on the nature of EU withdrawal, in particular: the new trading arrangements between the European Union and the United Kingdom; whether the transition to them is abrupt or smooth; and how households, businesses and financial markets respond. The appropriate path of monetary policy will depend on the balance of these effects on demand, supply and the exchange rate. The monetary policy response to Brexit, whatever form it takes, will not be automatic and could be in either direction. The MPC judges at this month's meeting that the current stance of monetary policy is appropriate. The Committee will always act to achieve the 2% inflation target.

1 Financial markets and global economic developments

Global growth was lower than expected in 2018 Q4, the near-term outlook has softened and sentiment in financial markets around growth prospects has deteriorated. Corporate bond spreads widened markedly and equity prices fell at the end of 2018, before recovering somewhat in January. Market-based expectations for policy rates have fallen, such that overall global financial conditions are broadly unchanged. UK asset prices have responded to those global developments, and have remained sensitive to news related to Brexit. In particular, wholesale bank funding costs have risen. If persistent, this may put some upward pressure on interest rates facing households and companies.

Table 1.A Global GDP growth slowed in 2018 H2
GDP in selected countries and regions[a]

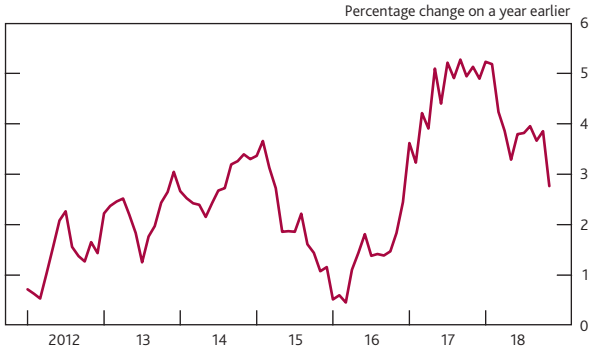
Percentage changes on a quarter earlier

	Quarterly averages							
	1998–2007	2012–13	2014–15	2016	2017	2018 H1	2018 Q3	2018 Q4
United Kingdom	0.7	0.5	0.7	0.4	0.4	0.2	0.6	n.a.
Euro area (38%)	0.6	0.0	0.4	0.5	0.7	0.4	0.2	0.2
United States (18%)	0.7	0.5	0.6	0.5	0.6	0.8	0.8	n.a.
China (3%)[b]	2.5	1.9	1.7	1.7	1.7	1.6	1.6	1.5
Japan (2%)	0.3	0.4	0.1	0.3	0.6	0.2	-0.6	n.a.
India (1%)	1.8	1.5	1.8	1.7	1.7	1.9	1.5	n.a.
Russia (1%)[c]	1.9	0.5	-0.4	0.2	0.3	0.5	0.3	n.a.
Brazil (1%)	0.8	0.6	-0.7	-0.5	0.5	0.2	0.8	n.a.
UK-weighted world GDP[d]	0.7	0.4	0.6	0.6	0.7	0.6	0.4	0.4

Sources: Eikon from Refinitiv, IMF *World Economic Outlook (WEO)*, National Bureau of Statistics of China, OECD, ONS and Bank calculations.

(a) Real GDP measures. Figures in parentheses are shares in UK exports in 2017.
(b) The 1998–2007 average for China is based on OECD estimates. Estimates for 2008 onwards are from the National Bureau of Statistics of China.
(c) The earliest observation for Russia is 2003 Q2.
(d) Constructed using data for real GDP growth rates for 180 countries weighted according to their shares in UK exports. Figure for 2018 Q4 is a Bank staff projection.

Chart 1.1 Growth in world trade slowed in November
World trade in goods[a]



Sources: CPB Netherlands Bureau for Economic Policy Analysis and Bank calculations.

(a) Three-month moving average. Volume measure. Data not available for US import/export values in November.

1.1 Global economic developments

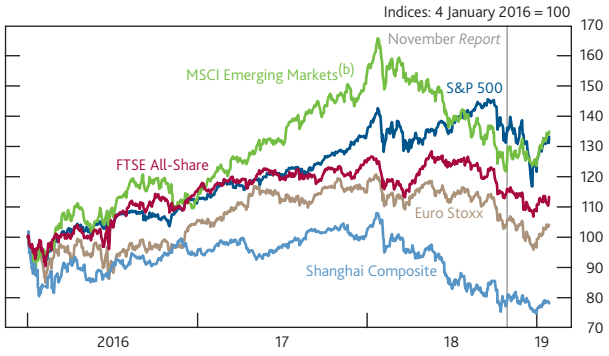
UK-weighted global GDP growth in 2018 Q4 is expected to have been lower than projected in the November *Report* at 0.4%, and lower than in the first half of 2018 (**Table 1.A**). That reflects softer data in a number of economies. Growth in the euro area has been weak, averaging 0.2% a quarter in 2018 H2, although some of that may reflect temporary factors. Growth in China weakened, while indicators point to lower growth in the United States in Q4. The slowdown through 2018 has partly reflected the past tightening in global financial conditions, as policy was tightened in the US and China. It has also been associated with slowing world trade growth: annual growth in world goods trade fell to 2.8% in the three months to November from around 5% at the start of the year (**Chart 1.1**). The recent decline has partly reflected the impact of higher tariffs on trade between the US and China.

In part reflecting weaker data, sentiment in financial markets around global growth prospects has deteriorated and that has affected asset prices. Equity prices in advanced economies fell sharply at the end of 2018 before recovering in the run-up to this *Report* (**Chart 1.2**). In contrast, equity prices in some emerging market economies, where growth appears to have stabilised after slowing earlier in 2018, have risen somewhat since November.

Non-financial corporate bond spreads have widened (**Chart 1.3**), also partly reflecting the deterioration in sentiment around global growth prospects. Market intelligence suggests that other factors may have played a role as well, including concerns about particular sectors and issuers and the end of ECB corporate bond purchases. Spreads are now closer to their historical averages, having been compressed for some time.

Chart 1.2 Equity prices have fallen a little in advanced economies

International equity prices[a]

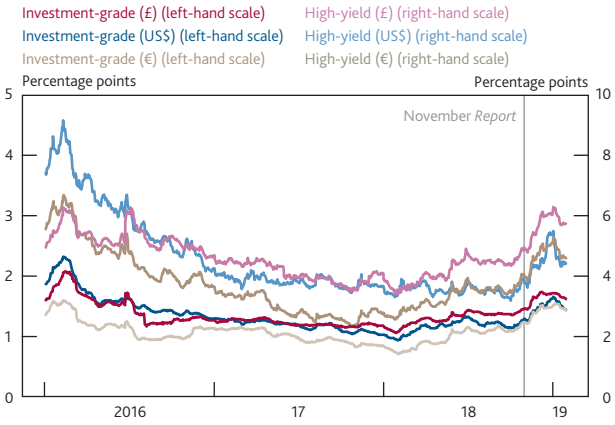


Sources: Eikon from Refinitiv, MSCI and Bank calculations.

(a) In local currency terms, except for MSCI Emerging Markets which is in US dollar terms.
(b) The MSCI Inc. disclaimer of liability, which applies to the data provided, is available here.

Chart 1.3 Corporate bond spreads have widened

International non-financial corporate bond spreads[a]

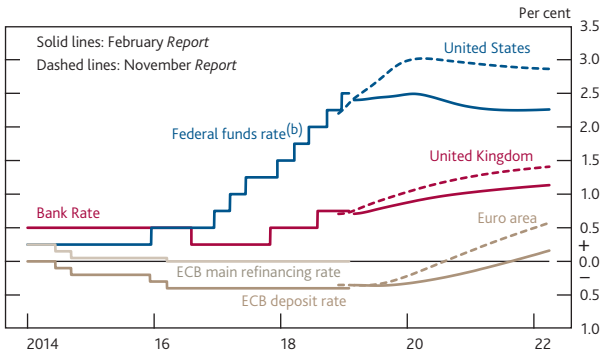


Sources: Eikon from Refinitiv, ICE/BoAML Global Research and Bank calculations.

(a) Option-adjusted spreads on government bond yields. Investment-grade corporate 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 1.4 Market-implied paths for interest rates have fallen since November

International forward interest rates[a]



Sources: Bank of England, Bloomberg Finance L.P., ECB and Federal Reserve.

(a) The February 2019 and November 2018 curves are estimated using instantaneous forward overnight index swap rates in the 15 working days to 30 January 2019 and 24 October 2018 respectively.
(b) Upper bound of the target range.

As sentiment about the global growth outlook has worsened, market expectations for the future path of policy rates have adjusted downwards (**Chart 1.4**), also reducing longer-term interest rates (**Chart 1.5**). Those falls in market interest rates broadly offset the moves in equity prices and corporate bond spreads such that global financial conditions are little changed since the November *Report* (**Chart 1.6**).

Oil prices have fallen sharply and are around 25% lower than they were in the run-up to the November *Report* (**Chart 1.7**). While the weaker global demand outlook is likely to have weighed on prices, supply factors, such as increased Russian and Libyan production, also appear to have been important. Consistent with that, the prices of some other commodities that tend to be sensitive to global demand, such as metals, have fallen by less.

While the fall in oil prices will give some support to global GDP growth, four-quarter growth is still expected to slow from 2.4% in 2018 Q3 to 1.9% in 2019 Q3, slightly below its estimated potential rate. That slowing is somewhat greater than was anticipated in November. Further out, growth is expected to stabilise, supported by the lower path for risk-free interest rates (Section 5).

Euro area

Quarterly euro-area GDP growth averaged 0.2% in 2018 H2, lower than 0.4% in 2018 H1 and substantially lower than the average of 0.7% over 2017 (**Table 1.A**).

GDP growth in 2018 H2 was affected by temporary factors. In Q3, growth was affected by a fall in production in the auto sector. That had a particularly marked impact on German output, which contracted. New EU vehicle emissions standards were introduced at the start of September and resulted in significant bottlenecks in car production. It is possible that temporary factors have continued to affect growth in Q4 as recent protests in France have disrupted some service sector activity.

Underlying growth in the euro area also appears to have slowed in 2018, however. Net trade dragged on quarterly growth through much of 2018, compared to a marked boost in the previous year. Export growth to China and other emerging market economies (EMEs) fell markedly in 2018 H1 as demand growth in those countries slowed. Increased trade tensions, which have weighed on world trade more generally (**Chart 1.1**), may have affected euro-area exports since.

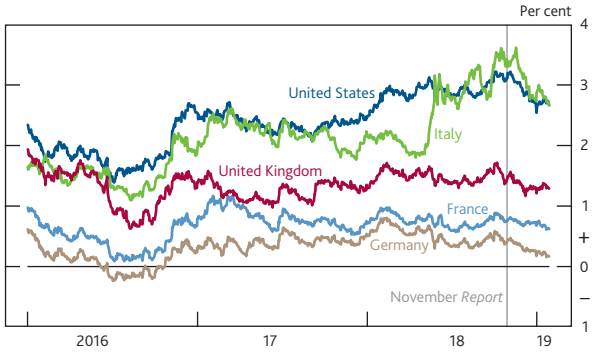
Despite the slowdown in growth, the euro-area unemployment rate was 7.9% in December (**Chart 1.8**), its lowest rate since 2008 Q4. At the same time, euro-area wage growth has continued to pick up. As rising wage growth leads to a gradual building of inflationary pressures, core inflation is expected to rise gradually in coming quarters.

Table 1.B Monitoring the MPC's key judgements

Developments anticipated in November during 2018 Q4–2019 Q2	Developments now anticipated during 2019 Q1–2019 Q3
• Quarterly euro-area GDP growth to average a little below ½%.	• Quarterly euro-area GDP growth to average ¼%.
• Quarterly US GDP growth to average a little above ½%.	• Quarterly US GDP growth to average ½%.
• Indicators of activity consistent with four-quarter PPP-weighted emerging market economy growth of around 4½%; within that, GDP growth in China to average around 6¼%.	• Indicators of activity consistent with four-quarter PPP-weighted emerging market economy growth of around 4¼%; within that, GDP growth in China to average around 6%.
• Commodity prices and sterling ERI to evolve in line with the conditioning assumptions.	• US dollar oil prices are 25% lower. The sterling ERI is a little lower. Commodity prices and sterling ERI to evolve in line with the conditioning assumptions set out in this *Report*.
• Mortgage spreads to widen a little.	• Mortgage spreads to widen a little.

Chart 1.5 Long-term interest rates have fallen in advanced economies since November

Ten-year nominal interest rates[a]



Sources: Bloomberg Finance L.P. and Bank calculations.

(a) Zero-coupon spot rates derived from government bond prices.

Since November, the European Central Bank (ECB) has made no changes to policy rates and has ended net purchases under the asset purchase programme.

Euro-area growth is projected to remain sluggish in the near term (**Table 1.B**), as some of the factors that have weighed on growth persist. The euro-area PMIs were weak in January, falling to their lowest levels in over five years. Some risks to the outlook have moderated somewhat. Political risks in Italy have lessened following the Italian government's 2019 budget plan being agreed with the European Commission at the end of December. Consistent with that, long-term interest rates on Italian government debt have fallen back (**Chart 1.5**).

The United States

GDP growth in the US had been strong through much of 2018, driven by solid domestic demand. That was supported by strong employment growth and fiscal policy. Tax cuts announced in December 2017 boosted business and consumer spending. Continued growth is judged to have absorbed spare capacity fully in the US economy. The headline unemployment rate was 4.0% in January while wage growth remained firm. The Federal Open Market Committee (FOMC) continued to tighten monetary policy during 2018 with the target range for the federal funds rate reaching 2¼%–2½% in December.

GDP growth is expected to have slowed in 2018 Q4, to 0.5%, 0.3 percentage points lower than expected in November and down from 0.8% in Q3. Part of that slowing is likely to reflect some fading of the boost to investment from corporate tax cuts. Growth in spending on new equipment has slowed since the start of the year, for example.

Reflecting weaker data and market participants' expectations of the FOMC's reaction to that, the path of policy implied by market prices has fallen markedly since November (**Chart 1.4**). The median projection of FOMC members for the federal funds rate at end-2019 has also fallen from 3.1% to 2.9%.

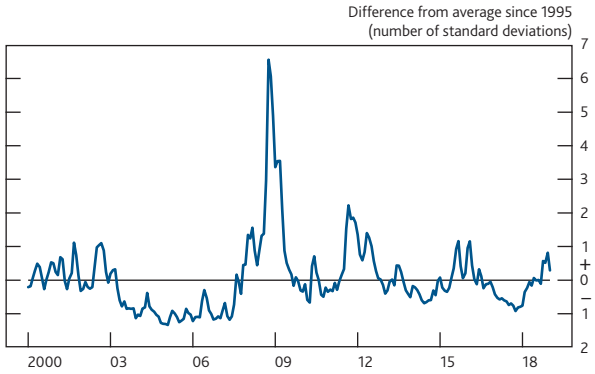
US activity is expected to slow further in the near term as the boost to growth from fiscal policy continues to wane. In addition, the recent partial US government shutdown is expected to have a small negative impact on growth in Q1, although that should boost growth by a similar amount in Q2. Four-quarter growth is expected to fall from 2.9% in 2018 Q4 to 2.0% in 2019 Q3.

China

GDP growth in China slowed throughout 2018 (**Table 1.A**). Four-quarter GDP growth fell to 6.4% in 2018 Q4 from 6.8% in Q1. Much of that slowdown reflects policies enacted to reduce risks in the financial system, which have weighed on credit growth and investment.

Chart 1.6 Global financial conditions are broadly unchanged since the November *Report*

Global financial conditions index[a]

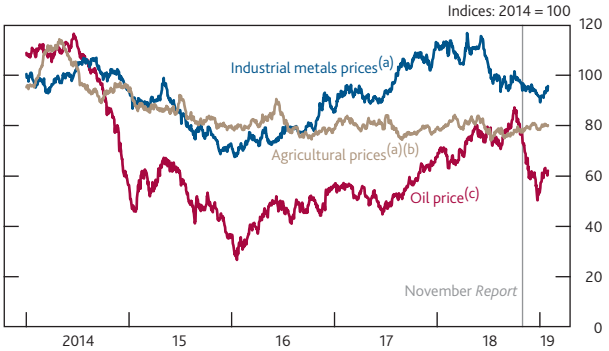


Sources: Bloomberg Finance L.P., Eikon by Refinitiv and Bank calculations.

(a) Financial conditions indices (FCIs) estimated for 43 economies using principal component analysis. The FCIs summarise information from the following financial series: term spreads, interbank spreads, corporate spreads, sovereign spreads, long-term interest rates, equity price returns, equity return volatility and relative financial market capitalisation. An increase in the index indicates a tightening in conditions. Data are to end-January 2019. Series shows the average of all country FCIs, weighted according to their shares in world GDP using the IMF's purchasing power parity (PPP) weights. Calculated as the weighted average of the following country FCIs: Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Colombia, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Peru, Philippines, Poland, Portugal, Russia, South Africa, South Korea, Spain, Sweden, Switzerland, Thailand, Turkey, UK, US and Vietnam.

Chart 1.7 Oil prices have fallen sharply since November

US dollar oil and other commodity prices

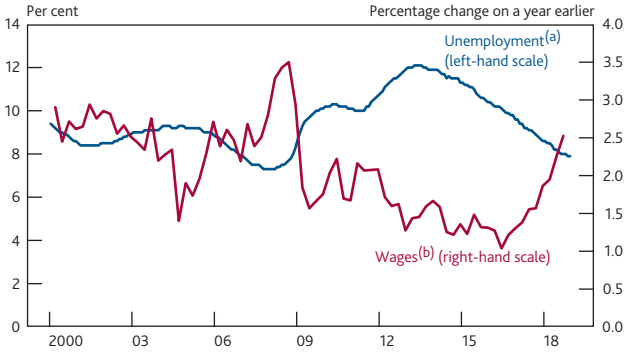


Sources: Bloomberg Finance L.P., Eikon from Refinitiv, S&P indices and Bank calculations.

(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 The euro-area unemployment rate has fallen while wage growth has picked up

Euro-area unemployment rate and wages



Sources: Eikon from Refinitiv and Eurostat.

(a) Percentage of economically active population. Data are monthly and to December 2018.
(b) Compensation per employee. Data are quarterly and to 2018 Q3.

Trade tensions with the US may have also weighed on growth. The impact of these has been apparent in financial markets: the Shanghai Composite equity index has fallen by 25% since January 2018 (**Chart 1.2**). There is also some evidence of the effect of higher US and Chinese tariffs in recent trade data. The value of Chinese exports to the US fell by 3.5% in the year to December 2018.

GDP growth is expected to slow a little further in 2019. While tariffs are expected to weigh on growth, stimulus provided by the Chinese authorities — for example the announced cuts to the banks' reserve requirement ratio in January 2019 and tax cuts — should help support growth.

Other emerging market economies

Excluding China, EME growth was 0.8% in 2018 Q3 on a PPP-weighted basis, broadly as expected in the November *Report* but slower than growth rates over 2017. Higher-frequency indicators such as manufacturing PMIs are consistent with a further slowdown in activity in Q4.

Tighter financial conditions, in part associated with the tightening of US monetary policy, contributed to weaker activity in EMEs over 2018. Since November, emerging market currencies have appreciated somewhat (**Chart 1.9**) and equity indices have outperformed those in advanced economies (**Chart 1.2**). Financial conditions in Argentina and Turkey — the two countries which had been particularly adversely affected — have also stabilised.

Quarterly GDP growth in non-China EMEs is expected to pick up a little in 2019, broadly in line with expectations at the time of the November *Report*.

1.2 Developments in UK financial conditions

Concerns around the global outlook have affected UK asset prices alongside those in other advanced economies. In addition, UK asset prices have been sensitive to developments related to Brexit.

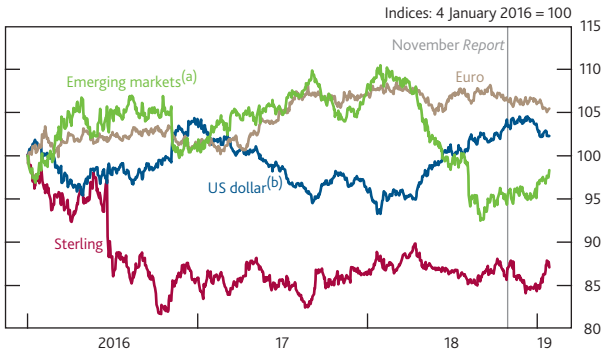
Sterling

In the run-up to this *Report* the sterling ERI was 1% lower than in November and was around 17% below its November 2015 peak. Sterling has been volatile over the past three months. It fell at the end of 2018 before recovering in recent weeks (**Chart 1.9**).

Implied volatilities from sterling options — which are measures of the uncertainty around the outlook for the exchange rate — also rose at the end of 2018 before falling back in early 2019 (**Chart 1.10**). They remain higher than in recent years and much higher than for other currencies.

Chart 1.9 Sterling has been volatile

Effective exchange rates



Sources: Bank of England, ECB, Federal Reserve, JPMorgan and Bank calculations.

(a) JPMorgan Emerging Markets Currency Index.
(b) Federal Reserve US dollar nominal broad index.

Chart 1.10 Market participants still place more weight on sterling depreciating than appreciating

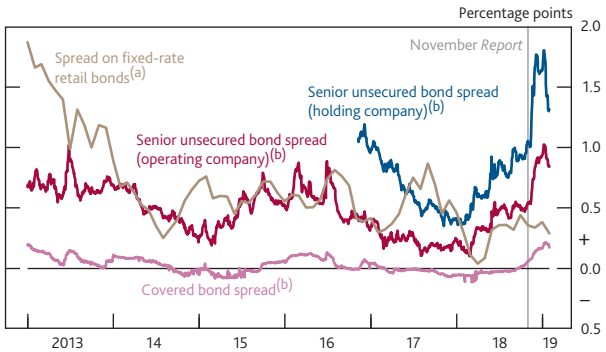
Six-month sterling-US dollar risk reversal and implied volatility

Sources: Bloomberg Finance L.P. and Bank calculations.

(a) 25-delta risk reversals. Risk reversals show the difference between the implied volatilities of equally 'out-of-the-money' put and call options. Negative risk reversals mean that it is more expensive to insure against currency depreciations than appreciations.

Chart 1.11 UK wholesale bank funding spreads have widened in recent months

UK banks' indicative funding spreads



Sources: Bank of England, Bloomberg Finance L.P., IHS Markit and Bank calculations.

(a) Unweighted average of spreads for two-year and three-year sterling quoted fixed-rate retail bonds over equivalent-maturity swaps. Bond rates are end-month rates and swap rates are monthly averages of daily rates.
(b) Constant-maturity unweighted average of secondary market spreads to mid-swaps for the major UK lenders' five-year euro-denominated bonds or a suitable proxy when unavailable. For more detail on unsecured bonds issued by operating and holding companies, see the 2017 Q3 *Credit Conditions Review*.

Market participants still place more weight on sterling depreciating than appreciating in coming months. Although the cost of insuring against a large depreciation relative to a large appreciation — known as the risk reversal — has fallen since November, it still suggests that it is more expensive to insure against a large depreciation (**Chart 1.10**).

Market interest rates

Short-term risk-free interest rates have fallen in the past three months. In the run-up to this *Report* the market-implied path of Bank Rate over the next three years was around 20 basis points lower, on average, than in November (**Chart 1.4**). It is now expected to reach around 1.1% in three years' time. Market intelligence suggests that the fall in rates reflects a weaker global outlook alongside concerns about Brexit, with participants anticipating a lower trajectory for rates under a disorderly scenario. As explained in Box 4 of the November 2018 *Inflation Report*, the MPC judges that the monetary policy response to Brexit, whatever form it takes, could be in either direction.

Longer-term UK interest rates have also fallen since the November *Report*, as in other advanced economies. While some of the fall at the end of 2018 was reversed in January, the yield on 10-year UK government bonds was still around 30 basis points lower than in November (**Chart 1.5**). Market contacts have attributed that fall to an increased preference among investors for less risky assets and a lower expected path for policy rates in the US.

Corporate capital markets

Spreads on non-financial corporate bonds across the main markets in which UK companies borrow widened markedly at the end of 2018 (**Chart 1.3**) and corporate bond issuance was weak. Spreads have fallen back somewhat in January and issuance has resumed at more normal levels. Falls in risk-free interest rates mean that overall financing costs for companies have only risen a little since November.

In the run-up to the February *Report*, UK equity prices were around 3% lower than in November (**Chart 1.2**). As in other advanced economies, UK equity prices fell at the end of 2018, before recovering in January.

Bank funding costs and retail interest rates

The cost of bank funding in capital markets is important for broader credit conditions as it influences the interest rates banks charge on loans to households and companies. Similar to spreads on non-financial corporate bonds, UK banks' unsecured funding spreads have increased since November (**Chart 1.11**).

The impact of these higher funding costs on credit conditions will depend in part on whether the rise persists. To the extent that Brexit uncertainty has pushed up spreads, they could fall

back as clarity over the outcome increases. UK banks have not issued much debt in recent months at these higher funding spreads, in part due to strong issuance earlier in 2018. But as they will need to resume issuance in coming months, a persistent rise in spreads would increase their funding costs and put some upward pressure on the interest rates facing households and companies.

Any persistent rise in unsecured wholesale funding costs is expected to have less impact on the interest rates facing households and companies than in the past, however. As discussed in Box 1, while banks have historically used wholesale unsecured debt as a benchmark measure for their marginal source of funding, the structure of banks' balance sheets has changed significantly since the crisis and the use of alternative sources of funding has increased. Spreads on other sources of funding, such as covered bonds, have risen by less than spreads on unsecured debt (**Chart 1.11**).

Other factors will also affect the interest rates facing households and companies. Retail interest rates have been stable in recent months and remain at low levels (Section 2). Recent discussions with lenders have highlighted the impact of continued competition in the mortgage market on retail rates. If competition intensifies, that would put downward pressure on mortgage rates. Further, as noted in the November 2018 *Inflation Report*, banks are expected to increase deposit rates by somewhat less than any pickup in risk-free rates over coming quarters. That would provide scope to limit increases in retail lending rates without affecting banks' profitability.

Box 1
Bank funding costs and loan pricing

When pricing a new loan, banks aim to reflect the costs and risks of making that loan. While banks will take other costs and risks into account, the marginal cost of funding is a key driver of lending rates.(1)

Banks use several sources of funding. They take deposits from households and companies, as well as borrowing in wholesale funding markets. Historically, banks have tended to use wholesale unsecured funding as their main measure of the marginal cost of funding. This is a useful indicator because it is a market in which it is possible to raise a large amount of funding relatively quickly and its cost is readily observable in terms of market pricing.

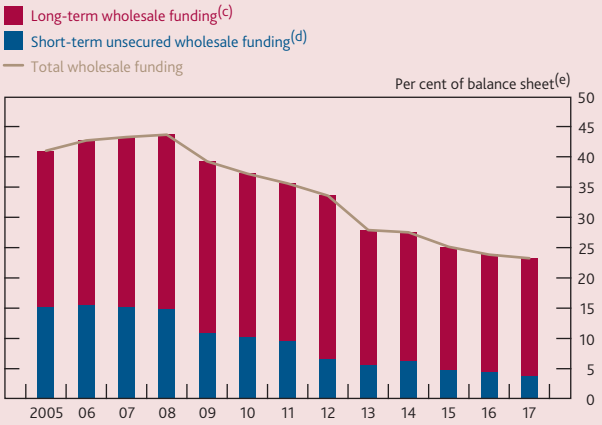
Supervisory intelligence, however, indicates that UK banks are placing less emphasis on wholesale unsecured funding as their main measure of marginal funding costs for most UK lending. Across the lenders that account for the majority of lending to UK households and small businesses, most are using a measure of marginal funding costs that takes into account other sources of funding, such as covered bonds and retail deposits. Some banks are also taking into account targets for their net interest margins and lending volumes when pricing loans. Consistent with this move away from unsecured funding, spreads on unsecured wholesale bank funding and spreads on mortgage lending have tracked each other less closely in recent months.

One reason for this is likely to be the substantial change in the structure of banks' balance sheets since the financial crisis. Reliance on wholesale funding has fallen: the proportion of banks' balance sheets accounted for by wholesale funding declined from over 40% in 2008 to less than 25% in 2017 (**Chart A**). The counterpart of that has been an increase in the share of deposit funding, such that the value of banks' deposits now slightly exceeds that of their loans (**Chart B**).

Given these developments, loan pricing is likely to be less sensitive to changes in wholesale unsecured funding costs. Since November, unsecured spreads have risen substantially while spreads on covered bonds and retail deposits have increased by much less (Section 1). While higher wholesale unsecured funding spreads are expected to persist for a time, reflecting continuing Brexit uncertainties (Section 5), the MPC judges that the impact of that on the interest rates facing households and businesses is likely to be less pronounced than it would have been in the past.

Chart A UK banks' reliance on wholesale funding has fallen

UK banks' wholesale funding(a)(b)

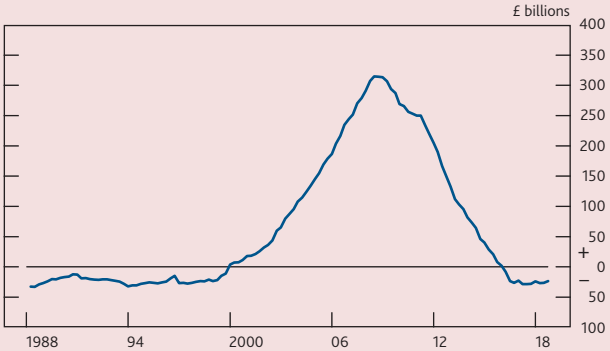


Sources: Published accounts and Bank calculations.

(a) Wholesale funding comprises deposits by banks, debt securities and subordinated liabilities but excludes repo. Where underlying data are not published the previous figures have been used.
(b) Major UK banks peer group. Sample includes National Australia Bank between 2005 and 2015 H1.
(c) Residual contractual maturity of greater than three months.
(d) Residual contractual maturity of less than three months.
(e) Excludes derivatives and liabilities to customers under investment and insurance contracts.

Chart B The value of banks' deposits slightly exceeds the value of their loans

Customer funding gap(a)



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

(1) For more information see Cadamagnani, F, Harimohan, R and Tangri, K (2015), 'A bank within a bank: how a commercial bank's treasury function affects the interest rates set for loans and deposits', *Bank of England Quarterly Bulletin*, 2015 Q2.

Box 2
Monetary policy since the November *Report*

At its meeting ending on 19 December 2018, the MPC noted that the near-term outlook for global growth had softened and downside risks to growth had increased since the November *Inflation Report*. Global financial conditions had tightened noticeably, particularly in corporate credit markets. Oil prices had fallen significantly, however, which was expected to provide some support to demand in advanced economies. The decline in oil prices also meant that UK CPI inflation was expected to fall below 2% in coming months. The Committee judged that the loosening of fiscal policy in *Budget 2018*, announced after the November *Report* projections were finalised, would boost UK GDP by the end of the MPC's forecast period by around 0.3%, all else equal.

Brexit uncertainties had intensified considerably since the Committee's November meeting. Those uncertainties were weighing on UK financial markets. UK bank funding costs and non-financial high-yield corporate bond spreads had risen sharply and by more than in other advanced economies. UK-focused equity prices had fallen materially. Sterling had depreciated further, and its volatility had risen substantially. Market-based indicators of inflation expectations in the United Kingdom had risen, including at longer horizons.

The further intensification of Brexit uncertainties, coupled with the slowing global economy, had also weighed on the near-term outlook for UK growth. Business investment had fallen for each of the past three quarters and was likely to remain weak in the near term. The housing market had remained subdued. Indicators of household consumption had generally been more resilient, although retail spending could be slowing.

The MPC had previously noted that shifting expectations about Brexit among financial markets, businesses and households could lead to greater-than-usual short-term volatility in UK data. Judging the appropriate stance of monetary policy requires separating these shorter-term developments from other more persistent factors affecting inflation and from the dynamics of the economy once greater clarity emerges about the nature of EU withdrawal.

Domestic inflationary pressures had continued to build. The labour market remained tight, with employment growth having picked up in the latest data and the unemployment rate projected to stay around 4% in the near term. Annual growth in regular pay had risen to 3¼%, stronger than anticipated in the November *Report*. In contrast, services CPI inflation had been subdued. The inflation expectations of households and professional forecasters were broadly unchanged.

The Committee judged in November that, were the economy to develop broadly in line with its *Inflation Report* projections, which were conditioned on a smooth adjustment to the average of a range of possible outcomes for the UK's eventual trading relationship with the European Union, a margin of excess demand was expected to emerge. In that context, an ongoing tightening of monetary policy over the forecast period, at a gradual pace and to a limited extent, would be appropriate to return inflation sustainably to the 2% target at a conventional horizon.

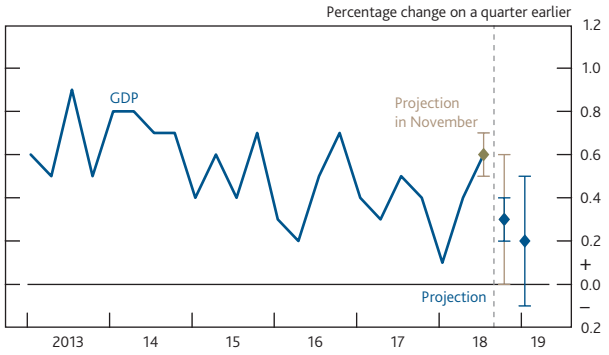
The MPC noted that the broader economic outlook would continue to depend significantly on the nature of EU withdrawal, in particular: the form of new trading arrangements between the European Union and the United Kingdom; whether the transition to them is abrupt or smooth; and how households, businesses and financial markets respond. The appropriate path of monetary policy would depend on the balance of the effects on demand, supply and the exchange rate. The monetary policy response to Brexit, whatever form it takes, will not be automatic and could be in either direction. At the time of its December meeting, the MPC judged that the current stance of monetary policy remained appropriate.

2 Demand and output

GDP growth appears to have slowed at the end of 2018 and is expected to remain subdued in the near term. Investment and trade pulled down GDP growth in the year to 2018 Q3, in part reflecting an intensification of Brexit uncertainties and weakening global growth. Consumption growth has been more resilient, supported by faster real income growth, although some indicators have weakened recently. The outlook for growth remains highly sensitive to the effects of Brexit.

Chart 2.1 GDP is expected to have grown by 0.3% in 2018 Q4 and by 0.2% in 2019 Q1

GDP and Bank staff's near-term projection[a]

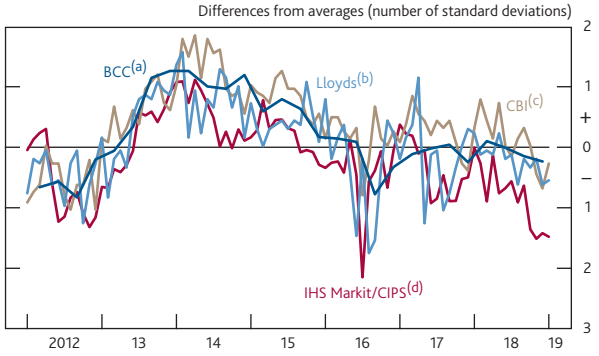


Sources: ONS and Bank calculations.

(a) Chained-volume measure. GDP is at market prices. The blue diamonds show Bank staff's projections for the first estimate of GDP growth in 2018 Q4 and 2019 Q1. The bands on either side of the diamonds show uncertainty around those projections based on the out-of-sample performance of Bank staff's best-performing model since 2004, representing ±1 root mean squared error (RMSE). The RMSE of 0.1 percentage points around the 2018 Q4 projection excludes three quarters affected by known erratic factors: the 2010 snow and the 2012 Olympics and Diamond Jubilee. Including those erratic factors, the RMSE for 2018 Q4 rises to 0.2 percentage points. For 2019 Q1, the RMSE of 0.3 percentage points is based on the full evaluation window.

Chart 2.2 Survey indicators of expected output growth are below their historical averages

Survey indicators of expected output growth



Sources: BCC, CBI, IHS Markit, Lloyds Banking Group and Bank calculations.

(a) Net percentage balance of respondents in the non-services and services sectors reporting they expect turnover to increase over the next year, weighted together using output shares. Data are quarterly and not seasonally adjusted. Differences from average since January 2000.
(b) Net percentage balance of respondents with turnover over £1 million that expect business activity to increase over the next year. Differences from average since January 2002.
(c) Net percentage balance of respondents from the manufacturing, distribution, consumer, business and professional services sectors reporting that they expect output to increase in the next three months. Differences from average since October 2003.
(d) Index based on the net percentage of respondents reporting that they expect business activity to rise over the next year (service and construction) or that new orders have increased over the month (manufacturing), weighted together using output shares. Differences from average since January 2000.

Quarterly GDP growth is expected to have slowed to 0.3% in 2018 Q4, and growth is projected to remain subdued in early 2019 (**Chart 2.1**). That assessment is partly based on survey indicators of companies' output that have weakened in recent months (Section 2.1), although the outlook over coming quarters is more uncertain than usual.

The composition of demand growth over 2018 shifted away from business investment and trade. Business investment is estimated to have fallen by 1.8% in the year to 2018 Q3, which primarily appears to reflect Brexit concerns (Section 2.2). Net trade also weighed on growth in 2018, likely reflecting weaker external demand and the fading boost from sterling's past depreciation (Section 2.3). In contrast, consumption continued to grow modestly, supported by a recovery in real income growth. However, some indicators of consumer spending weakened towards the end of the year.

Brexit may cause greater-than-usual volatility in the UK economic data over the coming months and growth outturns in early 2019 may not provide a clear signal about underlying activity. The latest evidence from the Bank's Agents and the Decision Maker Panel (DMP) Survey indicates that a growing number of companies are increasing stockbuilding but delaying investment in fixed capital in response to increasing uncertainty. Households may cut back on spending, particularly if developments cause them to become more uncertain about their personal financial situations.

The MPC's projections assume a smooth adjustment to new trading arrangements with the EU. Consistent with that, uncertainties about Brexit are assumed to wane over the forecast period (Section 5).

2.1 Output and the near-term outlook

Output grew by 0.6% in Q3. Growth appears to have been boosted by temporary factors, including catch-up in the construction and retail sectors following weather-related

Table 2.A Expenditure components of demand[a]

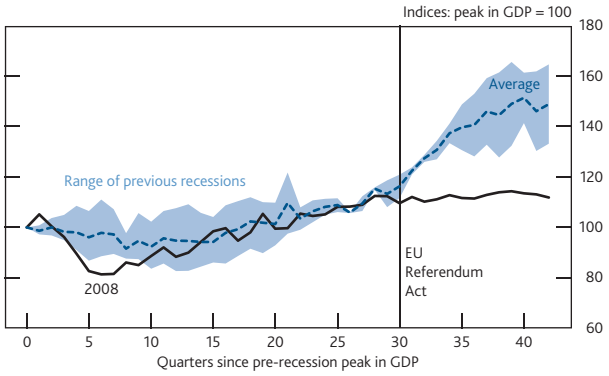
Percentage changes on a quarter earlier

	Quarterly averages							
	1998–2007	2008–09	2010–12	2013–15	2016	2017	2018 H1	2018 Q3
Household consumption[b]	0.8	-0.5	0.1	0.6	0.8	0.5	0.4	0.5
Private sector investment	1.0	-4.5	2.0	1.1	0.5	1.1	0.0	-0.4
of which, business investment[c]	*0.7*	*-3.4*	*2.2*	*0.6*	*-0.1*	*0.6*	*-0.5*	*-1.1*
of which, private sector housing investment	*0.6*	*-7.0*	*1.4*	*2.6*	*1.8*	*2.2*	*1.0*	*1.2*
Private sector final domestic demand	**0.8**	**-1.1**	**0.5**	**0.8**	**0.4**	**0.7**	**0.3**	**0.4**
Government consumption and investment[c]	1.0	0.8	-0.2	0.3	0.2	0.0	-0.6	0.4
Final domestic demand	**0.8**	**-0.6**	**0.3**	**0.7**	**0.3**	**0.6**	**0.1**	**0.4**
Change in inventories[d][e]	0.0	0.0	0.1	0.0	0.2	-0.4	0.3	0.1
Alignment adjustment[e]	0.0	-0.1	0.0	0.0	0.0	0.0	0.1	0.1
Domestic demand[f]	**0.8**	**-0.7**	**0.4**	**0.8**	**0.5**	**0.3**	**0.6**	**0.5**
'Economic' exports[g]	1.1	-1.3	1.0	0.9	0.9	0.9	-1.3	1.1
'Economic' imports[g]	1.4	-1.1	0.8	1.2	0.9	0.4	0.0	0.8
Net trade[e][g]	**-0.1**	**0.0**	**0.1**	**-0.1**	**0.0**	**0.1**	**-0.4**	**0.1**
Real GDP at market prices	**0.7**	**-0.7**	**0.4**	**0.6**	**0.4**	**0.4**	**0.2**	**0.6**
Memo: nominal GDP at market prices	1.2	-0.2	0.9	0.9	1.2	0.9	0.8	1.0

(a) Chained-volume measures unless otherwise stated.
(b) Includes non-profit institutions serving households (NPISH).
(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 recovery in business investment has stalled since the EU referendum

Business investment after previous recessions[a]



Sources: ONS and Bank calculations.

(a) Chained-volume measure. Recessions are defined as at least two consecutive quarters of negative GDP growth. Previous recessions include those beginning in 1973, 1975, 1980 and 1990. A recovery ends if a second recession occurs in the period shown.

disruption earlier in the year, as set out in the November *Report*.

GDP growth is expected to have slowed to 0.3% in 2018 Q4, as anticipated in November (**Chart 2.1**). Official data from the ONS suggest that output growth slowed to 0.3% in the three months to November, with growth in the manufacturing and energy sectors slowing particularly sharply.

Survey data suggest a slightly lower rate of growth in 2019 Q1. A range of surveys of companies' expected output weakened at the end of 2018 and are now below their historical averages (**Chart 2.2**). The IHS Markit/CIPS expected output index has been particularly weak recently, with the three-month average at its lowest level since 2009. However, surveys can sometimes provide a misleading steer in times of high uncertainty (see Box 3). Surveys which ask about actual growth, rather than expected growth, have tended to be less weak recently. Bank staff's latest estimate for growth in 2019 Q1 — taking into account a wide range of indicators and statistical models — is 0.2% (**Chart 2.1**), although the uncertainty around that forecast is larger than usual. Further ahead, quarterly growth is expected to pick up gradually, ending the forecast at around 0.5% (Section 5).

2.2 Domestic demand

Business investment

Business investment declined by 1.1% in Q3 (**Table 2.A**), the third consecutive quarterly fall. The level of business investment was almost 2% lower than a year earlier, despite the economy and employment continuing to grow over the same period.

Weak investment appears to primarily reflect Brexit and associated uncertainty. The recovery of business investment from the 2008 recession was broadly in line with previous episodes until the EU Referendum Act was passed in 2015. Since then the recovery in business investment has stalled (**Chart 2.3**). Cumulative growth since the referendum has been 18 percentage points lower than the MPC's final pre-referendum forecast.

Surveys of companies generally confirm the negative impact of Brexit uncertainties on investment. The Agents' recent survey of investment intentions cited Brexit as the largest headwind to capital spending,[1] and the Bank's DMP Survey suggests that Brexit's importance as a source of uncertainty has risen further in recent months. There are also signs that Brexit uncertainty is affecting the commercial real estate market. Preliminary data suggest that the value of transactions fell in Q4 and Agency contacts noted that new projects are increasingly being delayed or put on hold.

(1) See Box 3 in the November 2018 *Inflation Report*.

Box 3
The relationship between business surveys and GDP growth

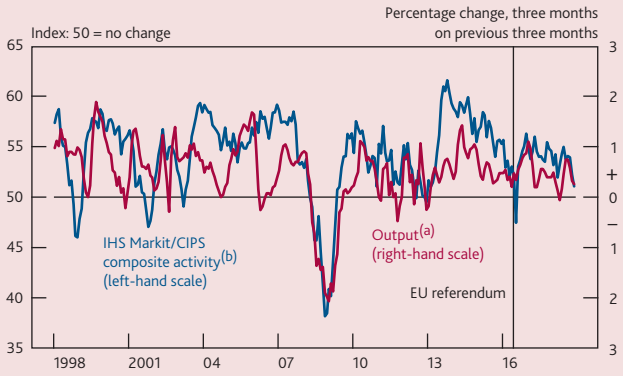
Official estimates of GDP growth are only available with a lag and are often revised, so the MPC estimates the current rate of growth using other sources of economic data, statistical models and judgement. This process is known as 'nowcasting'.(1)

Private sector surveys of businesses, such as those provided by the BCC, the CBI, IHS Markit/CIPS and Lloyds Bank are some of the most important data sources for nowcasting. This is because they are highly correlated with official estimates of growth and are available well in advance of the official data.

There have been occasions where survey responses have provided a misleading steer for growth, however. For example, the IHS Markit/CIPS composite activity index usually has a high correlation with growth, but has at times suggested contractions in output that do not appear in the official GDP data. One such episode occurred just after the 2016 EU referendum, when the activity index fell sharply (**Chart A**). This weakness appeared in a range of other surveys as well, but ultimately the official output data suggested that growth was relatively stable.

Chart A Surveys sometimes fall even when output growth is stable

Output and IHS Markit/CIPS indicator of output growth(a)



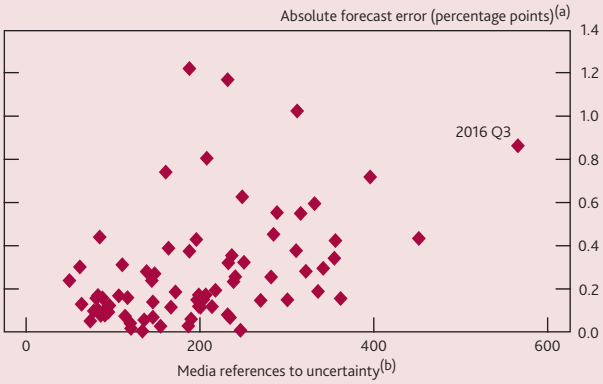
Sources: IHS Markit, ONS and Bank calculations.

(a) Chained-volume measure of gross value added at basic prices. Monthly measure.
(b) Index based on the net percentage of companies saying that output (manufacturing) or business activity (services and construction) increased over the month. Weighted together using output shares.

It could be that during periods of high uncertainty the relationship between survey responses and GDP growth weakens. This could be especially true for forward-looking surveys, such as those that ask firms about their expectations for output over coming months. A simple forecasting model which maps the IHS Markit/CIPS composite expectations index from the first month of a quarter onto GDP growth for that quarter has made larger errors, on average, during periods of high uncertainty (**Chart B**). One of the largest errors was in 2016 Q3, when economic uncertainty was elevated following the referendum.

Chart B Errors from a simple forecasting model can be large when uncertainty is elevated

GDP forecast errors and media references to uncertainty



Sources: IHS Markit, Nexis, ONS and Bank calculations.

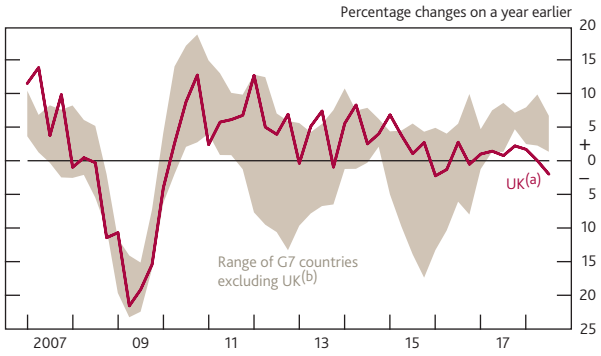
(a) Forecast errors are calculated as difference between actual quarterly GDP growth (first estimate) and a forecast for quarterly GDP growth from a simple regression using the IHS Markit/CIPS composite expectations balance (see footnote (d) on **Chart 2.2**) from the first month of the quarter. For example in Q1 the forecast uses January's index to predict Q1 GDP growth. Data are from 2000 Q1 to 2018 Q3.
(b) The number of media reports citing uncertainty in an economic context in four national broadsheet newspapers.

Uncertainty has intensified recently, so it is important to exercise caution when interpreting survey responses. Taking a range of indicators and models into account, the MPC judges that GDP growth is likely to be subdued in the near term. The nowcast for 2019 Q1, which is incorporated into the MPC's projections for growth, is 0.2%. But the uncertainty around that forecast is larger than usual.

(1) For a full description of the Bank's approach to nowcasting, see Anesti, N, Hayes, S, Moreira, A and Tasker, J (2017), 'Peering into the present: the Bank's approach to GDP nowcasting', *Bank of England Quarterly Bulletin*, 2017 Q2.

Chart 2.4 UK business investment growth has dropped below other advanced economies

G7 business investment



Sources: Eikon from Refinitiv, Japanese Cabinet Office, OECD, ONS, Oxford Economics, Statistics Canada, US Bureau of Economic Analysis and Bank calculations.

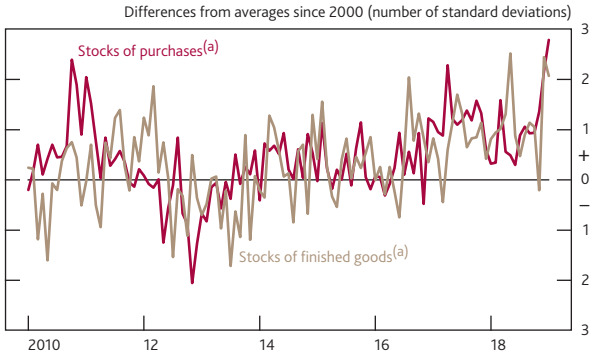
(a) Chained-volume measure.
(b) Business investment is not an internationally recognised concept. This swathe includes similar series derived from other countries' National Accounts. Private sector business investment for Italy. Business investment minus residential structures for Canada. Non-residential private investment for Japan and the US. Non-government investment minus dwellings investment for France and Germany.

Table 2.B Monitoring the MPC's key judgements

Developments anticipated in November during 2018 Q4–2019 Q2	Developments now anticipated during 2019 Q1–2019 Q3
Consumer spending	**Broadly unchanged**
• Quarterly real post-tax household income growth to average ¼%.	• Quarterly real post-tax household income growth to average ¼%.
• Quarterly consumption growth to average ¼%.	• Quarterly consumption growth to average ¼%.
Housing market	**Revised down**
• Mortgage approvals for house purchase to average around 65,000 per month.	• Mortgage approvals for house purchase to average around 65,000 per month.
• The UK house price index to increase by around ¾% per quarter, on average.	• The UK house price index to increase by around ¼% per quarter, on average.
• Housing investment growth to average ½%.	• Housing investment to fall by ½% per quarter, on average.
Business investment	**Revised down**
• Quarterly growth in business investment to average ½%.	• Business investment to fall by ½% per quarter, on average.
Trade	**Revised down slightly**
• Net trade to provide a positive contribution to quarterly GDP growth in 2019 H1.	• The contribution of net trade to quarterly GDP growth to be close to zero, on average.

Chart 2.5 Surveys suggest that stockbuilding by manufacturing companies picked up in December and January

IHS Markit/CIPS manufacturing survey



Sources: IHS Markit and Bank calculations.

(a) Net percentage of manufacturing companies reporting that stocks increased this month compared with the previous month.

Although weaker global growth (Section 1) may have reduced the demand for investment, it is unlikely to explain the marked weakness over the past year. UK business investment growth dropped below growth in other advanced economies in the year to 2018 Q3, consistent with a UK-specific factor depressing investment (**Chart 2.4**).

Other determinants of business investment have generally been supportive. Rates of return on capital have remained robust, especially in the manufacturing sector. Survey measures suggest firms are operating with limited spare capacity (Section 3) which should increase the incentive for firms to invest.

Credit conditions for corporates have become somewhat less accommodative since November (Section 1). Corporate bond spreads have widened, albeit from relatively low levels. There has been less change in the cost and availability of bank credit: lenders reported no significant changes to either in the 2018 Q4 *Credit Conditions Survey*.

Business investment is expected to have fallen further in 2018 Q4 (**Table 2.B**) and to remain weak over 2019 as Brexit-related uncertainty persists.

Stockbuilding

For some companies, preparing for Brexit may involve holding higher-than-normal levels of stocks of supplies or finished goods. This could help protect them from the effects of any temporary disruption in cross-border supply chains.

So far, there has been little evidence in the official data of materially higher stockbuilding. However, the official data on stockbuilding are volatile and only available with a lag. Some more timely surveys suggest that firms have recently been increasing their stocks of inputs and finished goods at a much faster rate than usual (**Chart 2.5**). This is consistent with the results of the latest Agents' survey on preparations for EU withdrawal (Box 4).

Increased stockbuilding appears to have been mostly financed by drawing on cash reserves so far. The *Credit Conditions Survey* reported no change in the demand for inventory finance in Q4, although lenders expected a small increase in demand in Q1. Supervisory intelligence suggests that, as yet, the banks who account for the majority of lending to corporates have not made any changes to their risk appetite for working capital finance. The Agents' survey also suggested that most firms had experienced no change in the cost or availability of working capital or trade finance in recent months (Box 4).

Increased stockbuilding is likely to be concentrated in goods sourced from the rest of the EU. As a result, it is unlikely to

Table 2.C Credit card interest rates and most mortgage interest rates have increased over 2018

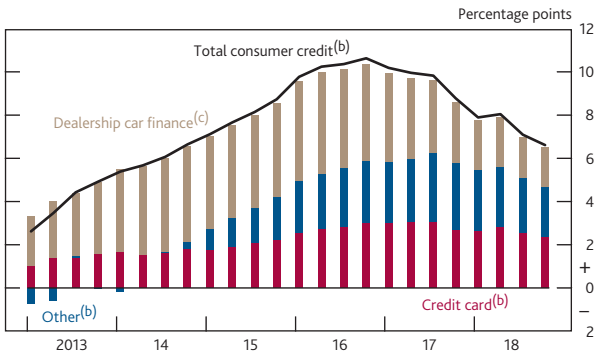
Household lending and deposit interest rates[a]

		Changes since (basis points)			
	January 2019 (per cent)	July 2018	January 2018	August 2017	January 2017
Mortgages					
Two-year variable rate, 75% LTV	1.64	12	-4	25	15
Two-year fixed rate, 60% LTV	1.61	-18	18	37	28
Two-year fixed rate, 75% LTV	1.73	0	20	30	28
Five-year fixed rate, 75% LTV	2.03	-2	5	7	-19
Two-year fixed rate, 90% LTV	2.25	-3	10	-8	-25
Consumer credit					
£10,000 personal loan	3.74	-2	-11	-5	5
Credit card	18.66	31	74	70	70
Deposits					
Instant access	0.27	6	7	13	12
Cash ISA	0.93	25	-1	58	53
One-year fixed-rate bond	0.96	9	21	10	36
One-year fixed-rate ISA	1.44	10	18	33	55
Two-year fixed-rate bond	1.24	-8	17	8	39
Two-year fixed-rate ISA	1.48	25	10	38	66

(a) The Bank's quoted rate series are weighted averages of end-month rates from a sample of banks and building societies with products meeting the specific criteria. Data are not seasonally adjusted.

Chart 2.6 Growth in consumer credit has continued to slow

Contributions to annual consumer credit growth[a]



Sources: Bank of England, ONS and Bank calculations.

(a) For a description of how growth rates are calculated using credit data see here.
(b) Sterling net lending by UK monetary financial institutions (MFIs) and other lenders to UK individuals (excludes student loans).
(c) Identified dealership car finance lending by UK MFIs and other lenders.

have an effect on GDP over the forecast period, as higher stockbuilding will be offset by higher imports.

Household spending

Consumer spending has continued to grow modestly over the past year. Consumption grew by 0.5% in Q3 (**Table 2.A**), and was 1.6% higher than a year earlier.

The resilience of consumer spending appears largely to reflect a pickup in income growth rather than lower saving. Four-quarter real income growth rose to 1.5% in 2018 Q3 as nominal pay growth picked up and the boost to import price growth from the depreciation of sterling faded.

Credit conditions for households have remained supportive of consumer spending, although there is some evidence of a modest tightening in recent quarters, particularly in the unsecured lending market. Interest rates on credit cards have increased by around 75 basis points over the past year (**Table 2.C**), and interest-free periods on credit card balance transfers have fallen. Annual consumer credit growth has slowed over the past two years, although much of the slowdown has been accounted for by car finance (**Chart 2.6**) which partly reflects the completion of a structural change in the way car purchases are financed[2] and, more recently, by weaker growth of car sales.

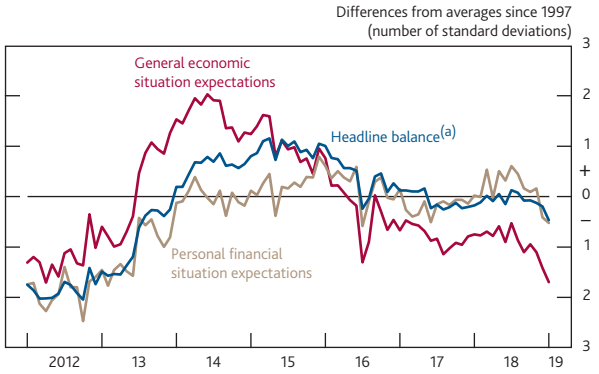
In the secured lending market, some households have recently experienced higher interest rates. Mortgagors with variable-rate mortgages will have seen their interest rate increase automatically with the increase in Bank Rate to 0.75% in August 2018. And although 70% of mortgage borrowing is at a fixed interest rate, some borrowers who came to remortgage in recent months may also have faced higher rates. The average two-year fixed-rate, 75% LTV mortgage rate was around 30 basis points higher in January 2019 than two years earlier (**Table 2.C**). The recent increase in bank funding costs could put some further upward pressure on new mortgage interest rates in the coming months (Section 1). However, mortgage rates remain low by historical standards.

Having remained resilient for much of 2018, a range of consumer spending indicators weakened towards the end of the year. Consumer confidence based on the GfK series has fallen in each of the past three months, driven by worsening household expectations about both the general economic situation and their personal financial situation (**Chart 2.7**). Expectations about the general economic situation have been subdued for some time, but December 2018 was the first time since 2017 that the series reflecting expectations about households' own financial situation had fallen below its historical average.

(2) For more detail, see the box on pages 16–17 of the November 2017 *Inflation Report*.

Chart 2.7 Households' confidence in the general economic situation and their personal financial situation has fallen

Indicators of consumer confidence

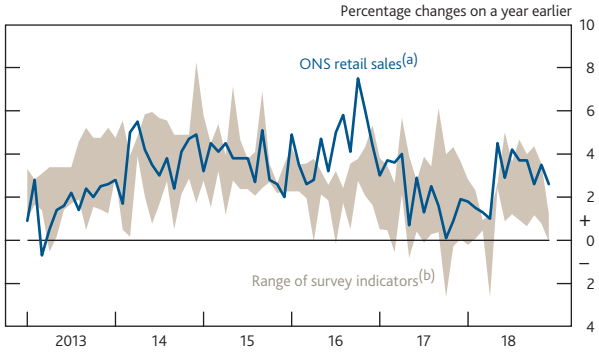


Sources: GfK (research carried out on behalf of the European Commission) and Bank calculations.

(a) Average of the net balances of respondents reporting that: their financial situation has got better over the past 12 months; their financial situation is expected to get better over the next 12 months; the general economic situation has got better over the past 12 months; the general economic situation is expected to get better over the next 12 months; and now is the right time to make major purchases, such as furniture or electrical goods.

Chart 2.8 Official retail sales data have been stronger than a range of other indicators

Retail sales volumes and survey measures of retail sales

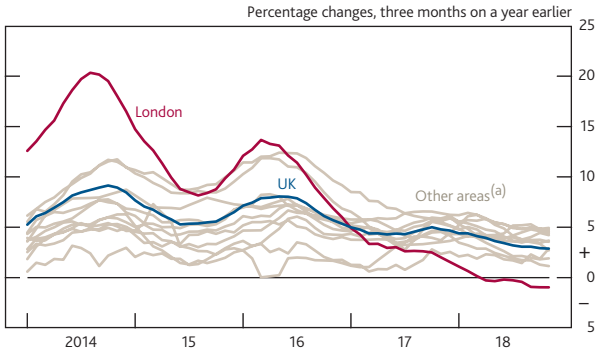


Sources: Bank of England, British Retail Consortium (BRC), CBI, ONS, Visa and Bank calculations.

(a) Chained-volume measure.
(b) Swathe includes: BRC percentage change in total sales, not seasonally adjusted; balance of respondents to the CBI distributive trades survey question 'How do your sales and orders this month compare with a year earlier?'; percentage change in Visa total consumer spending on a year ago, deflated by CPI inflation; Agents' measure of companies' reported annual growth in the value of retail sales over the past three months, monthly measure until August 2016 and six weekly thereafter. All series have been scaled to match the mean and variance of ONS retail sales volume growth since 2000 except the Visa series, which is since 2006.

Chart 2.9 House price inflation has slowed particularly sharply in London

House prices



Sources: HM Land Registry and Bank calculations.

(a) Northern Ireland is quarterly and seasonally adjusted by Bank staff.

Retail sales fell by 0.2% in Q4, although annual growth remained relatively robust at 2.9% reflecting strong growth in the middle of the year. The official retail sales data have been stronger than some indicators of retail spending lately (**Chart 2.8**). This could be because the official data have better coverage of small shops and online sales. According to the ONS, the volume of sales by small retailers grew by 4.9% in 2018, the third strongest year since records began in 1997. In contrast, sales by large retailers grew by 1.8%, below the post-crisis average rate. Online sales have also been growing strongly in recent years, and exceeded 20% of total sales for the first time in November 2018.

Other indicators of consumer demand have also weakened, although the signal they contain about the strength of demand may be limited. Private car registrations in Q4 were significantly lower than a year ago, but this market is currently distorted by supply issues stemming from a change to emissions regulations. Annual growth in household money holdings has also fallen over the past two years, although it picked up slightly in Q4. However, money growth does not normally provide much additional information about near-term consumption growth over the more timely indicators outlined above.(3)

Overall, consumption growth is expected to slow in 2018 Q4 and 2019 Q1, given the recent weakening in various indicators. Further out, consumption growth is expected gradually to recover, but to remain modest by historical standards (Section 5). Such growth is expected to be underpinned by, and broadly in line with, the recovery in real income growth. The rate of saving is projected to be broadly flat.

The housing market

In contrast to resilient consumer spending over much of 2018, activity in the housing market has been subdued. Mortgage approvals have been broadly unchanged since mid-2016. Related indicators such as property transactions and growth in secured lending have also been steady in recent quarters, at levels well below pre-crisis averages.

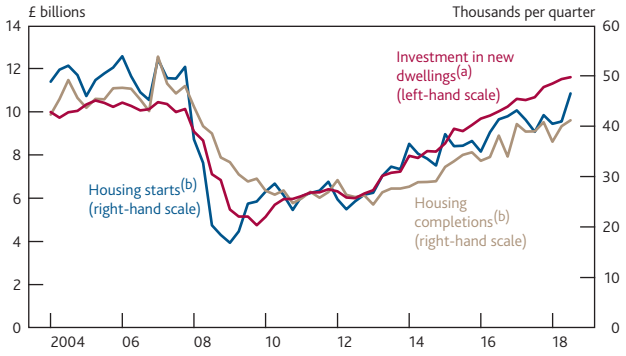
Annual UK house price inflation was 2.8% in November 2018 according to the UK house price index (**Chart 2.9**), the lowest rate of house price inflation in over five years. Other measures of house price inflation are even lower, although these are less comprehensive and tend to be more volatile than the official index.

The slowdown in house price inflation has been sharpest in London, which is the only region to have experienced an outright decline in prices over the past year (**Chart 2.9**). As explained in previous *Reports*, the London market has probably

(3) For further discussion of recent developments in broad money, see Box 3 in the August 2018 *Inflation Report*.

Chart 2.10 Spending on new builds and housing starts have increased

House building and investment in new dwellings

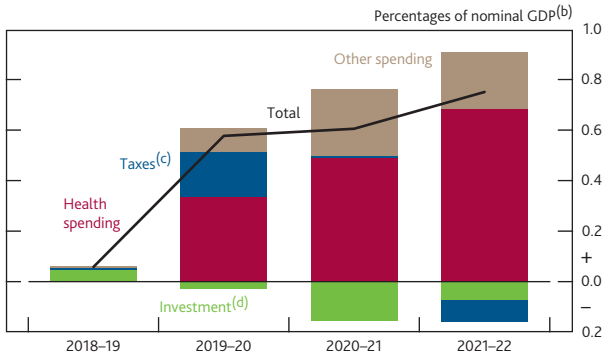


Sources: Ministry of Housing, Communities and Local Government, ONS and Bank calculations.

(a) Chained-volume measure, 2016 prices. Excludes major repairs and improvements to existing dwellings.
(b) Number of permanent dwellings started/completed by private enterprises up to 2018 Q3 for England and Northern Ireland. Data from 2011 Q2 for housing starts in Wales and from 2018 Q3 for housing starts and completions in Scotland have been grown in line with permanent dwelling starts/completions by private enterprises in England. Data are seasonally adjusted by Bank staff.

Chart 2.11 Higher government spending implies a boost to GDP over the next three years

Effect of new fiscal measures in *Budget 2018* on public sector net borrowing(a)



Sources: Office for Budget Responsibility (OBR) and Bank calculations.

(a) Bars represent the effect of Budget decisions on public sector borrowing, based on Chart 4.1 in the October 2018 *Economic and Fiscal Outlook*. Indirect policy effects are excluded.
(b) OBR forecast for nominal GDP.
(c) The net effect of tax cuts and tax rises. Tax cuts lower receipts and push up borrowing, showing up as a positive bar. Tax rises do the opposite.
(d) Total Capital Departmental Expenditure Limits (CDEL).

been disproportionately affected by regulatory and tax changes, and also by lower net migration from the EU (Section 3). London house price inflation was also materially above income growth between 2014 and early 2016, reducing affordability. The slowdown in house price inflation has been more modest in other parts of the UK so far, although surveys such as the RICS suggest a fairly widespread deterioration in market sentiment.

The contrast between resilient consumer spending and a subdued housing market in recent years could be because the latter reflects market-specific issues, such as affordability. It could also be because lower confidence in the general economic situation is relatively more important for large, hard-to-reverse purchases than for day-to-day expenditure.

One relatively strong segment of the housing market is new housebuilding. Private housing starts increased by 14% in 2018 Q3, and investment in new dwellings increased by 0.8%, having risen relatively consistently for some time (**Chart 2.10**). The market for new build houses has been supported by the Government's Help to Buy equity loan scheme, which was introduced in 2013 and recently extended in a more limited form until 2023.

Government

The MPC's projections are conditioned on the Government's latest tax and spending plans, set out in *Budget 2018*. Compared to previous plans, these imply a boost to GDP of around one third of a per cent over the MPC's three-year forecast period. That reflects increases in planned spending in every year of the forecast and a near-term tax cut (**Chart 2.11**). The increase in spending was primarily accounted for by higher health spending. Taken together with upward revisions to the forecast for tax receipts, the forecast for government borrowing was largely unchanged.

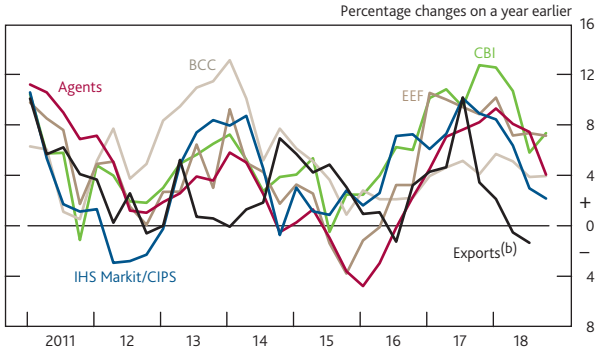
2.3 Net trade and the current account

The contribution of net trade to GDP growth during 2018 was revised down significantly in the Q3 *Quarterly National Accounts*. This was driven by lower estimates of export growth.

Export growth is now estimated to have slowed sharply over 2018. Four-quarter growth was slightly negative in Q3, having fallen from a peak of 10.2% a year earlier. Weakening export growth is likely to reflect softer global demand (Section 1). It may also suggest that the effects of the past depreciation of sterling — which should have supported export growth — have now faded. Forward-looking survey indicators of export growth have also weakened recently, having remained fairly strong at the start of 2018 (**Chart 2.12**). The CBI reports that manufacturers' optimism over export prospects fell in Q4 at the sharpest pace since 2009.

Chart 2.12 Survey indicators of export growth have weakened

UK exports and survey indicators of export growth[a]

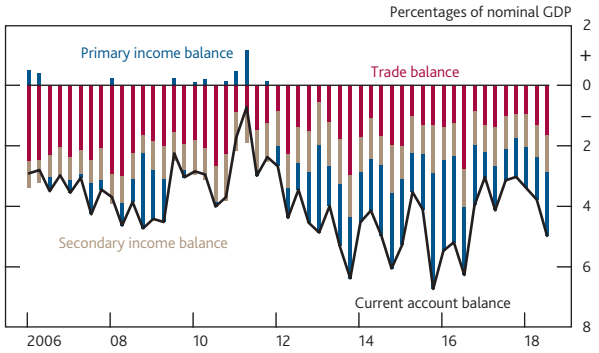


Sources: Bank of England, BCC, CBI, EEF, IHS Markit, ONS and Bank calculations.

(a) Survey measures are scaled to match the mean and variance of four-quarter export growth since 2000. Agents' measure shows manufacturing companies' reported annual growth in production for sales to overseas customers over the past three months; last available observation for each quarter. BCC measure is the net percentage balance of companies reporting that export orders and deliveries increased on the quarter; data are not seasonally adjusted. CBI measure is the average of the net percentage balances of manufacturing companies reporting that export orders and deliveries increased on the quarter, and that their present export order books are above normal volumes; the latter series is a quarterly average of monthly data. EEF measure is the average of the net percentage balances of manufacturing companies reporting that export orders increased over the past three months and were expected to increase over the next three months; data available since 2000 Q3. The IHS Markit/CIPS measure is the net percentage balance of manufacturing companies reporting that export orders increased this month compared with the previous month; quarterly average of monthly data.
(b) Chained-volume measure, excluding the impact of MTIC fraud.

Chart 2.13 The current account deficit widened to 5% in Q3

UK current account



Import growth picked up in Q3 (**Table 2.A**). Import growth is expected to pick up further in Q4 and Q1, in part because of firms increasing their holdings of stocks ahead of Brexit (Section 2.2).

Overall, net trade is projected to make a small negative contribution to GDP growth in 2019 (**Table 2.B**), given the subdued outlook for external demand and a near-term boost to imports from stockbuilding. Further out, the outlook for net trade will depend in part on how supply chains, both here and abroad, evolve in response to Brexit and any associated movements in sterling. The MPC's central projection, conditioned on a smooth adjustment to the UK's eventual trading relationship with the EU, is for net trade to make a broadly neutral contribution to growth (Section 5).

The current account deficit — which reflects the balance of nominal trade flows and other payments between the UK and rest of the world — widened to 5.0% of GDP in 2018 Q3 (**Chart 2.13**). That reflected a widening in the deficit on both the trade balance and the primary income balance — the net value of investment income received by UK residents. The UK's current account deficit has been financed by increased investment in UK assets by foreign investors in recent years, including significant investment in the UK commercial real estate sector. The risks that poses are discussed in the November 2018 *Financial Stability Report*.

Box 4
Agents' update on business conditions

The key information from Agents' contacts considered by the Monetary Policy Committee (MPC) at its February meeting is highlighted in this box.(1)

Recent developments

Annual growth in consumer sales values continued to ease in December 2018 and dipped below its average since the financial crisis.(2) Sales of consumer durables, such as cars, furniture and household appliances were particularly weak.

Growth in business services turnover eased slightly, due to slower activity in the property market and corporate transactions. But Brexit preparations boosted demand for professional advisory services and warehousing and logistics.

Growth in domestic manufacturing output remained modest in the past three months. Growth in goods export volumes eased, reflecting a marked fall in automotive exports, and weaker demand from the EU and Asia.

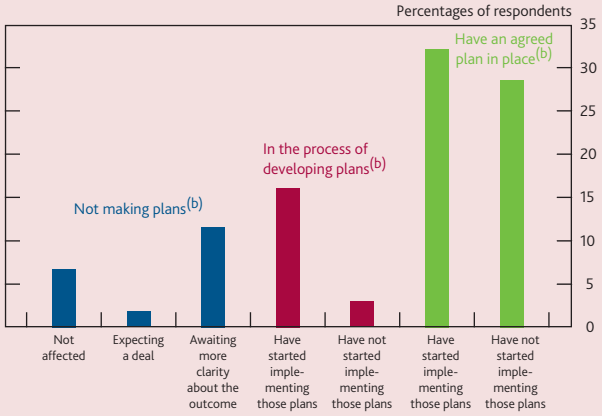
Agents' survey on preparations for EU withdrawal

The Agents surveyed around 200 business contacts about their preparations for EU withdrawal.(3) This survey followed a similar one conducted in December 2018,(4) but with some additional questions, including about contingency planning.

In the sample of companies surveyed, around half of respondents said that they had started implementing contingency plans for a 'no deal, no transition' Brexit (**Chart A**).

Chart A Companies are already implementing contingency plans

Contingency planning for a 'no deal, no transition' Brexit(a)



(a) Companies were asked 'How advanced is your contingency planning for a 'no deal and no transition' Brexit?'.
(b) The question asks about 'plans for the end of March 2019'.

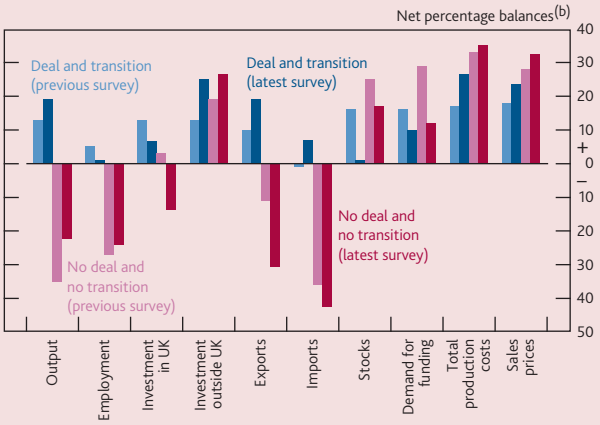
Around half of companies in the survey felt that they were not ready for a 'no deal, no transition' Brexit, even though almost three quarters of those respondents had an agreed contingency plan in place.

The other half of surveyed contacts felt that they were 'ready', and had prepared as much as they could for a 'no deal, no transition' Brexit. Of those, around a quarter were not making contingency plans — either because they did not think that they would be affected, or because they were waiting for more clarity about the outcome of a 'no deal, no transition' Brexit. The bulk of the remainder had started implementing plans that had been agreed or were being developed.

The survey showed that respondents — even those that felt ready — still expected output and employment in the UK to fall in a 'no deal, no transition' Brexit over the next 12 months (**Chart B**).

Chart B Output and employment are expected to fall in a 'no deal, no transition' Brexit

Expectations for the impact on business of Brexit(a)



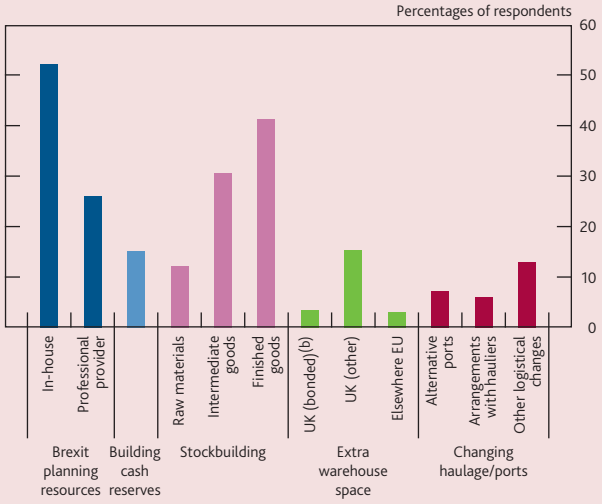
(a) Companies were asked 'Relative to the last 12 months, what is the likely impact on the following for your business over the next year in each scenario: (a) a deal and transition period and (b) no deal and no transition period?' For each relevant business factor, respondents were asked to choose between 'Fall greater than 10%'; '-10 to -2%'; 'Little change'; '+2 to +10%' and 'Rise greater than 10%'.
(b) Net percentage balances of companies reporting increases or declines in each factor, weighted by employment. Half weight was given to the ±2%–10% response and full weight was given to those that responded 'Rise/Fall greater than 10%'.

Companies were taking a range of steps to minimise risks to the provision of goods and services, and to profitability (**Chart C (i)** and **(ii)**). Around half of all respondents said that they were building inventories, with almost two thirds of manufacturers and consumer services companies reporting that they were stockbuilding. Around a fifth of companies said that they were taking extra warehouse space.

(1) A comprehensive quarterly report from the Agents on business conditions is published alongside the MPC decision in non-*Inflation Report* months. The next report will be published on 21 March 2019.
(2) References to activity and prices relate to the past three months compared with a year earlier. The Agents' scores are available here.
(3) The survey was conducted between 17 December 2018 and 25 January 2019. There were 208 responses from companies, accounting for 583,000 employees and with a combined UK turnover of £105 billion. Responses were weighted by employment and then by sector.
(4) See Agents' survey on preparations for EU withdrawal and results from the Decision Maker Panel survey.

Chart C (i) UK companies are stockbuilding to prepare for Brexit

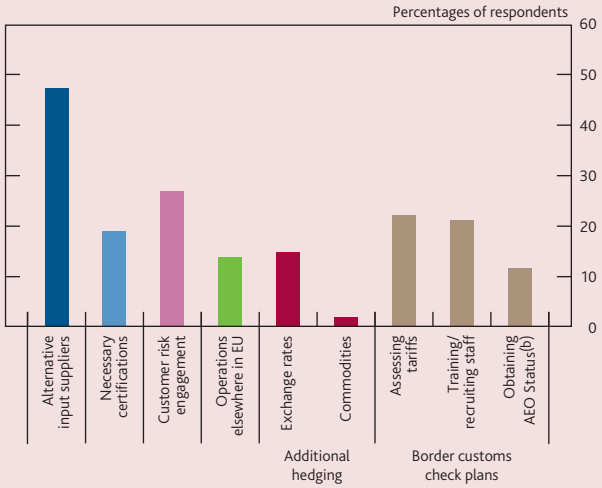
Types of contingency actions being undertaken or planned[a]



(a) Respondents were asked to select all actions that applied from a range of options. As a result, the figures are not additive.
(b) A bonded warehouse allows traders to store goods with duty or import VAT payments suspended.

Chart C (ii) UK companies are carrying out a range of measures to prepare for Brexit

Types of contingency actions being undertaken or planned[a]



(a) Respondents were asked to select all actions that applied from a range of options. As a result, the figures are not additive.
(b) Authorised Economic Operator Status is an internationally recognised quality mark that gives companies quicker access to some customs, safety and security procedures.

Around a quarter of respondents said that they were engaging with customers directly to manage risks, and around half were looking at alternative suppliers (**Chart C** (ii)). Almost a fifth were taking measures to ensure that they have the necessary certifications to sell products or services into EU markets after Brexit.

Respondents were also asked about the availability and cost of working capital or trade finance. Just under 40% of companies responded to the question, and of those that did, around 90% said that there had been no change. Around 10% of companies responding to the question observed that access to working capital or trade finance was slightly or significantly more expensive or less available, but said that this change had not been directly associated with Brexit.

Agents' survey on pay

Alongside the Brexit survey, the Agents also conducted a survey of private sector pay.(5)

Responses suggested that the average pay settlement in 2018 among survey respondents was 2.8% and was expected to increase slightly to 2.9% in 2019.

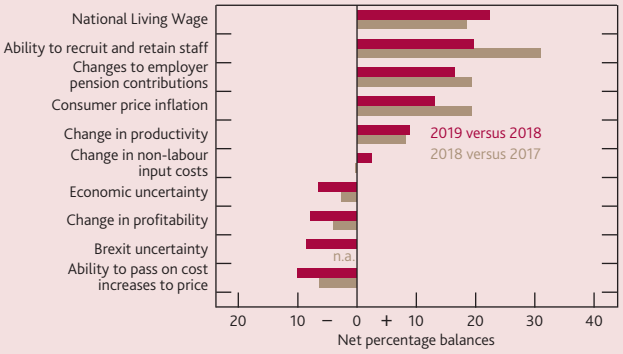
The survey also asked companies about the expected change in the growth rate of total labour costs (TLC) per employee(6) compared with the previous year. On balance, companies expected TLC growth to be higher in 2019 than 2018.

The main factors expected to push up on TLC growth this year relative to the previous year were the increase in the National Living Wage and the ability to recruit and retain staff (**Chart D**), although the latter was expected to have a smaller upward impact on the rate of growth than last year. Some contacts noted that retention was less of an issue, as uncertainty around Brexit was making employees less inclined to move jobs. In addition, some companies made significant adjustments in 2018 to address recruitment and retention issues, which they do not expect to repeat in 2019. Consumer price inflation was expected to have a smaller upward impact on the rate of TLC growth than in 2018.

The top three factors expected to drag on TLC growth were companies' ability to pass on cost increases into their prices, Brexit uncertainty and a change in profitability.

Chart D Various factors are exerting pressure on TLC growth

Factors driving the change in the rate of expected TLC growth[a]



(a) Contacts were asked 'How do you expect the following factors to affect the rate of growth in total labour costs per employee in 2019, compared with the rate of growth in 2018?'.

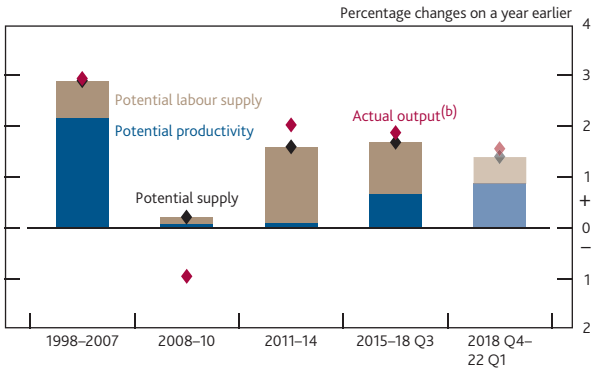
(5) The survey was conducted between 14 December 2018 and 15 January 2019. There were 378 responses from businesses covering 714,200 employees. Responses were weighted by employment and then by sector.
(6) TLC includes regular pay, overtime payments, shift premia, performance-related pay, bonuses, employer pension contributions and employee benefits. It can also be affected by changes in the mix of skills and occupations employed.

3 Supply and spare capacity

The MPC judges that supply and demand in the economy were broadly in balance in 2018 Q4. Subdued demand growth over 2019 means that a degree of spare capacity is projected to emerge in the near term, however. Following the MPC's regular reassessment of supply-side conditions, potential supply growth is projected to be a little weaker than previously anticipated. Over the forecast period as a whole, demand growth is projected to outstrip that subdued rate of potential supply growth such that a margin of excess demand builds.

Chart 3.1 The MPC expects potential supply growth to be subdued

Output and decomposition of estimated potential supply[a]

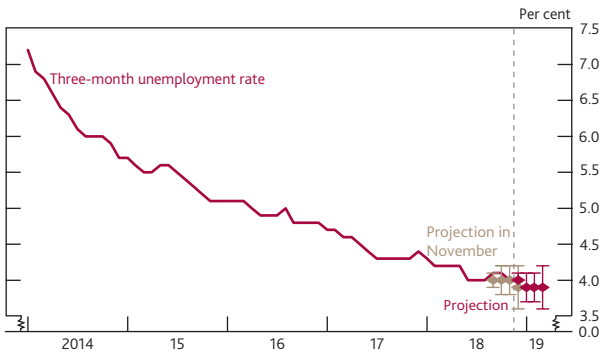


Sources: ONS and Bank calculations.

(a) Quarterly averages. Faded diamonds and bars are projections.
(b) Chained-volume measure.

Chart 3.2 The unemployment rate is expected to remain broadly flat

Unemployment rate and Bank staff's near-term projection[a]



Sources: ONS and Bank calculations.

(a) The beige diamonds show Bank staff's central projections for the headline unemployment rate for the three months to September, October, November and December 2018 at the time of the November 2018 *Report*. The red diamonds show the current staff projections for the headline unemployment rate for the three months to December 2018 and January, February and March 2019. The bands on either side of the diamonds show uncertainty around those projections based on ±1 root mean squared error of past Bank staff projections for the three-month headline unemployment rate.

The pace at which demand can grow without generating sustained inflationary pressures depends on the amount of spare capacity in the economy and the growth rate of potential supply. In turn, potential supply growth depends on structural features of the economy such as population growth and gains in productivity.

During the financial crisis, demand fell sharply, unemployment rose and a significant degree of spare capacity opened up. Potential supply growth also slowed as productivity growth stalled (**Chart 3.1**). In the years that followed, spare capacity was absorbed as demand grew faster than potential supply. The unemployment rate, for example, fell from 8% in 2013 to 4% by mid-2018 as companies increased hiring and reduced redundancies.

The MPC conducted its regular reassessment of supply-side conditions in the run-up to this *Report*. Spare capacity was judged to have been absorbed in 2018 Q4 (Section 3.1). Subdued demand growth over much of 2019 (Section 2), however, means that a degree of spare capacity is expected to emerge in the near term. The MPC judges that potential supply growth is likely to be slightly weaker than previously anticipated, at a little below 1½% in the central projection (Section 3.2).

The outlook for potential supply growth will be highly sensitive to the nature of the UK's withdrawal from the EU. As described in Box 4 of the November 2018 *Report*, reductions in openness as the UK's trading relationship with the EU changes are likely to reduce the economy's productive capacity for a period of time. While such changes in supply could be relatively gradual in the event of a smooth withdrawal, a disorderly exit could severely impair the productive capacity of UK businesses.[1]

(1) For further details, see EU withdrawal scenarios and monetary and financial stability: a response to the House of Commons Treasury Committee.

Table 3.A The labour market remains tight

Selected measures of labour demand and labour market tightness

	Quarterly averages									
	2000–07	2008–09	2010–12	2013–14	2015	2016	2017	2018 H1	2018 Q3	2018 Q4
Change in employment (thousands)[a]	70	-59	67	130	147	75	80	120	23	177
of which, employees	*55*	*-67*	*32*	*106*	*110*	*40*	*86*	*147*	*46*	*n.a.*
of which, self-employed and other[b]	*16*	*7*	*35*	*24*	*36*	*35*	*-6*	*-28*	*-23*	*n.a.*
Surveys of employment intentions[c]										
Agents[d]	0.8	-1.7	0.3	0.9	1.0	0.1	0.3	0.3	0.3	0.2
BCC[e]	19	-3	8	26	25	21	22	24	22	21
CBI[e]	3	-20	-3	17	18	17	15	14	7	15
REC[f]	58	44	56	63	64	59	63	62	61	60
Vacancies to labour force ratio[g]	2.09	1.70	1.48	1.85	2.23	2.25	2.36	2.44	2.49	2.52
Redundancies to employees ratio[h]	0.63	0.79	0.60	0.46	0.41	0.43	0.38	0.35	0.31	0.33
Surveys of recruitment difficulties[c]										
Agents[i]	1.5	-2.5	-1.1	0.4	2.0	1.3	2.0	2.6	2.7	3.3
BCC[j]	61	55	51	57	66	62	67	63	73	72
CBI, skilled[k]	27	15	16	23	34	32	32	30	30	33
CBI, other[k]	8	2	2	3	8	8	10	9	8	10

Sources: Bank of England, BCC, CBI, CBI/PwC, KPMG/REC/IHS Markit, ONS and Bank calculations.

(a) Changes relative to the previous quarter. Figure for 2018 Q4 is Bank staff's projection, based on data to November.
(b) Other comprises unpaid family workers and those on government-supported training and employment programmes classified as being in employment.
(c) Measures for the Bank's Agents (split by manufacturing and services for employment intentions), the BCC (non-services and services) and CBI (manufacturing, financial services and business/consumer/professional services; employment intentions also include distributive trades) are weighted together using employee job shares from Workforce Jobs. BCC data are not seasonally adjusted. Agents' data are the last available observation for each quarter.
(d) The scores are on a scale of -5 to +5, with positive scores indicating stronger employment intentions over the next six months relative to the previous three months.
(e) Net percentage balance of companies expecting their workforce to increase over the next three months.
(f) Quarterly average. Recruitment agencies' reports on the demand for staff placements compared with the previous month. A reading above 50 indicates growth on the previous month and below 50 indicates a decrease.
(g) Vacancies as a percentage of the workforce, calculated using rolling three-month measures. Data start in 2001 Q2. Excludes vacancies in agriculture, forestry and fishing. Figure for 2018 Q4 shows vacancies in the three months to December relative to the size of the labour force in the three months to November.
(h) Redundancies as a percentage of total LFS employees, calculated using rolling three-month measures. Figure for 2018 Q4 is for the three months to November.
(i) The scores are on a scale of -5 to +5, with positive scores indicating greater recruitment difficulties in the most recent three months relative to normal.
(j) Percentage of respondents reporting recruitment difficulties over the past three months.
(k) Net percentage of respondents expecting skilled or other labour to limit output/business over the next three months (in the manufacturing sector) or over the next 12 months (in the financial services and business/consumer/professional services sectors).

3.1 Spare capacity in the economy

The degree of spare capacity is an important determinant of inflationary pressures. When resources are underutilised — for example if many people are out of work or if companies have spare productive capacity — there tends to be scope for output to rise without generating excess inflationary pressures. But once spare capacity is absorbed, rises in demand tend to put greater upward pressure on wage growth and inflation as companies need to pay more to recruit and retain staff or invest in additional resources.

The MPC uses a range of approaches to estimate spare capacity. One 'top-down' approach is to use statistical filtering techniques to estimate spare capacity from past observations of GDP, taking into account indicators of domestic price pressures. Weakness in core services CPI inflation, one measure of domestic inflationary pressures (Section 4), suggests that there might be a small margin of spare capacity in the economy. Results from filtering techniques tend to be very sensitive to the precise modelling assumptions, however.

An alternative 'bottom-up' approach is to separately estimate the components of spare capacity within the labour market and within firms. The unemployment rate — a key component of labour market slack — was 4% in the three months to November (**Chart 3.2**). That is a little below the MPC's assessment of the 'equilibrium rate' of unemployment consistent with inflation at the target (Section 3.2).

A range of other indicators are also consistent with tight labour market conditions. Survey indicators of recruitment difficulties are above their past averages and the ratio of redundancies to employees is close to its historical low (**Table 3.A**). While most surveys of employment intentions softened a little in Q4, consistent with a slight slowing in employment growth in early 2019, labour market conditions are projected to remain tight and unemployment is expected to be broadly stable in the near term (**Chart 3.2**).

Spare capacity also appears to have been largely absorbed elsewhere in the labour market. The 'marginal attachment' ratio — the proportion of the working-age population who are not currently in work or seeking employment but report that they would like a job — has fallen sharply in recent years to a record low (**Chart 3.3**). That suggests the scope for further rises in the employment rate as such people enter the labour market is likely to be limited. In addition, the number of hours that those in employment say they would like to work, over and above those they are currently working, has fallen back in recent years and has been close to, or a little above, zero in recent quarters.

Chart 3.3 The proportion of people not currently in work or actively looking for work, but who would like a job, has fallen

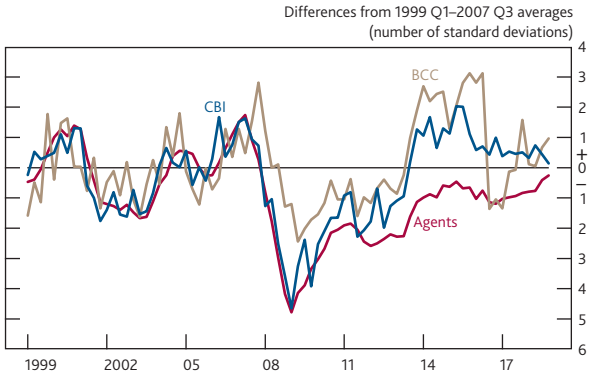
Marginal attachment ratio[a]

Sources: ONS and Bank calculations.

(a) Number of those aged 16–64 who say they are not in work or actively looking for work but would like a job, as a percentage of the 16–64 population. As reported in the LFS. Rolling three-month measure.

Chart 3.4 Agents' reports suggest that firms are operating at a little below normal capacity

Indicators of capacity pressures[a]



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

(a) Measures above zero indicate greater capacity pressures relative to past averages. 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. Agents' data are the last available observation for each quarter. BCC data are not seasonally adjusted.

Table 3.B Monitoring the MPC's key judgements

Developments anticipated in November during 2018 Q4–2019 Q2	Developments now anticipated during 2019 Q1–2019 Q3
Unemployment	**Unchanged**
• Unemployment rate to average around 4%.	• Unemployment rate to average around 4%.
Participation	**Revised up slightly**
• Participation rate to average around 63½%.	• Participation rate to average around 63¾%.
Average hours	**Broadly unchanged**
• Average weekly hours worked to remain a little over 32.	• Average weekly hours worked to remain around 32.
Productivity	**Revised down**
• Quarterly hourly productivity growth to average around ¼%.	• Cumulative growth in hourly productivity to be ¼% to ½%.

A further component of spare capacity is the extent to which companies' capital equipment, such as vehicles or computers, is being underutilised. Reports from the Agents suggest that companies are operating at a little below normal capacity, meaning that firms may have some scope to raise output with existing resources (**Chart 3.4**). Results from the CBI and BCC surveys, however, suggest that spare capacity within companies has been absorbed.

Based on the evidence from both the 'top-down' and 'bottom-up' approaches, the MPC judges that demand and supply were broadly in balance in 2018 Q4. Spare capacity is projected to emerge in early 2019 as demand growth remains subdued (Section 2). Further out, inflationary pressures are projected to build as demand growth picks up while potential supply growth remains modest (**Chart 3.1**).

3.2 Potential supply

The supply capacity of the economy is determined by the quantity of labour available and the amount of output that workers can produce. Potential supply growth has slowed sharply since before the financial crisis due to persistent weakness in productivity growth (**Table 3.C**). While that weakness has been partly offset by robust growth in labour supply, overall potential supply growth has been around half its pre-crisis rate in recent years.

Following its regular reassessment of supply-side conditions, the MPC judges that potential supply growth will remain lower than its pre-crisis average, at a little below 1½% per year on average. That is slightly slower than projected in the November *Report*.

Labour supply

Population and net migration

Population growth is a key driver of growth in labour supply (**Table 3.C**). Much of the UK's population expansion over the past decade has reflected net inward migration, which peaked at over 300,000 per year in 2015–16 (**Chart 3.5**). While net migration remains higher than over much of the past decade, it has slowed since mid-2016 and was 273,000 in the year to 2018 Q2. That slowing was more than accounted for by lower migration from the EU; net migration from outside the EU rose to its highest level in over a decade.

The MPC's forecast is conditioned on the ONS's principal population projection, published in 2017. The projection implies a further slowing in net migration over the next three years, to 189,000 in 2021 (**Chart 3.5**). There are risks around that profile, however. Net migration in the year to 2018 Q2 was somewhat higher than the ONS's principal projection, and that comparative strength could continue. But it is possible that these figures overstate the strength of net inward migration. Changes in employment by nationality from the

Table 3.C Potential supply growth has been subdued since before the financial crisis

Decomposition of estimated potential supply growth[a]

Percentage changes on a year earlier

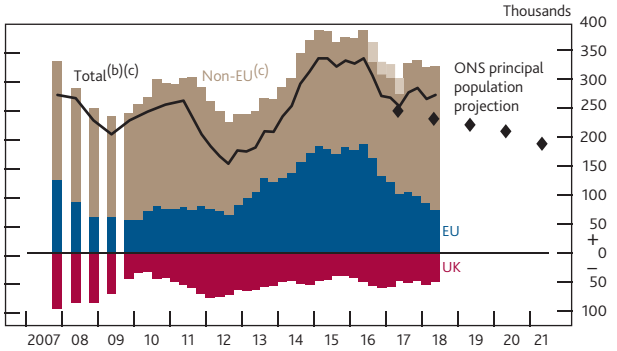
	Quarterly averages				
	1998–2007	2008–10	2011–14	2015–18 Q3	2018 Q4–22 Q1
Potential supply growth	**2.9**	**0.2**	**1.6**	**1.7**	**1.4**
of which, potential labour supply growth	0.7	0.1	1.5	1.0	0.5
of which, population	*0.7*	*0.9*	*0.7*	*0.7*	*0.5*
of which, participation	*0.1*	*-0.1*	*0.0*	*0.1*	*0.0*
of which, unemployment[b]	*0.2*	*-0.4*	*0.3*	*0.3*	*0.0*
of which, average hours	*-0.3*	*-0.3*	*0.4*	*-0.1*	*0.0*
of which, potential productivity growth	2.2	0.1	0.1	0.7	0.9
of which, capital deepening[c][d]	*1.1*	*0.7*	*0.2*	*0.5*	*0.5*
of which, total factor productivity[c]	*1.0*	*-0.6*	*-0.1*	*0.2*	*0.3*

Sources: ONS and Bank calculations.

(a) Contributions may not sum to the total due to rounding.
(b) Positive numbers indicate that a fall in the equilibrium unemployment rate has increased potential labour supply.
(c) The productivity decomposition is based on a growth-accounting framework using a constant returns to scale Cobb-Douglas production function, with the elasticity of output with respect to capital set to ⅓. Total factor productivity is a residual.
(d) Capital deepening refers to growth in capital services per person-hour. Capital includes structures, machinery, vehicles, computers, purchased software, own-account software, mineral exploration, artistic originals and R&D. Calculations are based on Oulton, N and Wallis, G (2016), 'Capital stocks and capital services: integrated and consistent estimates for the United Kingdom, 1950–2013', *Economic Modelling*.

Chart 3.5 Net migration is projected to fall from current levels

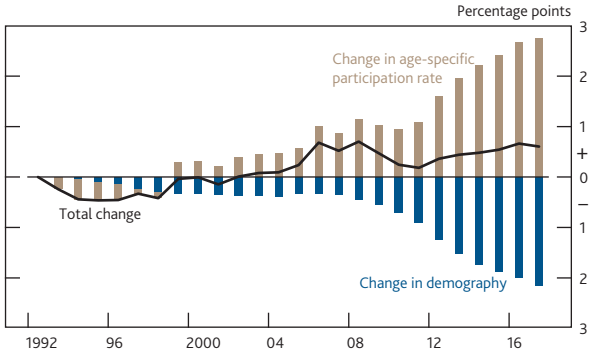
Decomposition of net inward migration by citizenship[a]



(a) Rolling four-quarter flows. Data are half-yearly to December 2009 and quarterly thereafter, unless otherwise stated. Figures by citizenship do not sum to the total prior to 2012.
(b) Data are half-yearly to December 2011 and quarterly thereafter.
(c) Includes illustrative revised trend for the inward migration of non-EU students that accounts for an unusual pattern in the International Passenger Survey (IPS), represented by the faded beige bars.

Chart 3.6 The participation rate has risen slightly in recent years

Contributions to the change in the participation rate since 1992[a]



Sources: ONS and Bank calculations.

(a) Percentage of the 16+ population. Decomposition calculated using published ONS age groupings.

Labour Force Survey (LFS) — an alternative source of data to those shown in **Chart 3.5** — suggest that the number of EU citizens employed in the UK fell by 132,000 in the year to 2018 Q3.

Labour force participation

In addition to population growth, labour supply growth also depends on structural changes in the number of people who want to work — those either in work or actively looking for a job.

The participation rate has risen slightly in recent years, as the proportion of people wanting to work has increased within certain demographic groups (the beige bars in **Chart 3.6**). Improved health and longevity, as well as rises in the state pension age, have raised the participation rates of older workers.[2] The proportion of women in or seeking work has also increased. Set against that, the rising average age of the UK population has pushed down the overall participation rate (the blue bars in **Chart 3.6**). Currently just over 10% of those aged over 65 participate in the labour market, relative to around 80% of those aged 16 to 64. These offsetting structural trends are expected to continue in coming years, such that the participation rate is projected to remain broadly stable.

Unemployment

The quantity of labour engaged in producing output will also depend on the equilibrium rate of unemployment. When unemployment falls below the equilibrium rate, wage and inflationary pressures will tend to build as companies need to pay more to recruit and retain staff.

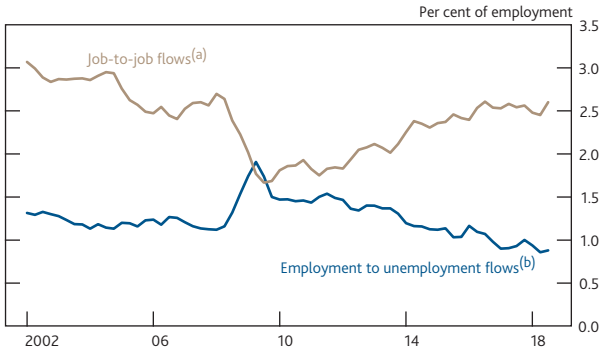
The MPC judges that the equilibrium unemployment rate has fallen slightly in the past few years. In February 2018, it was estimated at around 4¼%. As discussed in previous *Reports*, the fall in the equilibrium unemployment rate is likely to have reflected structural factors such as changes to the tax and benefit system and an increased degree of educational attainment in the workforce.

The actual unemployment rate has fallen slightly over the past year (**Chart 3.2**), to a little below the MPC's estimate of the equilibrium rate made in February 2018. The MPC judges that fall has reflected a cyclical rise in labour demand rather than a further fall in the equilibrium rate. The number of vacancies relative to the size of the workforce — a key indicator of labour demand — has risen to a historical high (**Table 3.A**). And the rate at which those already in employment are switching to new jobs — which will partly reflect the degree to which employers are competing to hire employees — has risen to close to its pre-crisis level (**Chart 3.7**). Stronger labour

(2) The effects of demographics on participation and other aspects of the economy are discussed in Saunders, M (2018), 'Some effects of demographic change on the UK economy'.

Chart 3.7 Job-to-job flows have risen while the job destruction rate has continued to fall

Flows within employment and between employment and unemployment

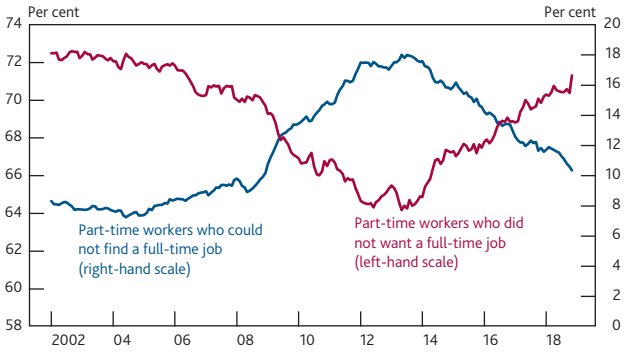


Sources: ONS and Bank calculations.

(a) Number of people who reported being in a job three months ago and report being in a job for less than three months. Ages 16 to 69. Two-quarter moving average.
(b) Number of people who reported having moved from employment to unemployment in the past three months. Ages 16 to 64. Two-quarter moving average.

Chart 3.8 The proportion of part-time workers unable to find a full-time job has fallen in recent years

People working part-time who could not find, or did not want, a full-time job, as a proportion of part-time employment(a)

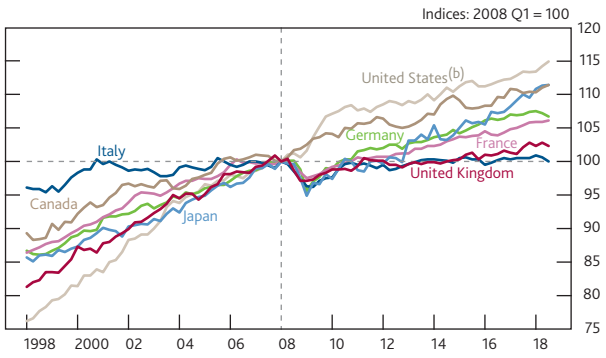


Sources: ONS and Bank calculations.

(a) Percentage of LFS part-time employment. Rolling three-month measures.

Chart 3.9 UK productivity has barely grown since the financial crisis

Hourly labour productivity in the G7(a)



Sources: Eikon from Refinitiv, Eurostat, ONS and Bank calculations.

(a) Whole economy unless otherwise stated.
(b) US non-farm output per hour.

demand may also have reduced the job destruction rate since, in a tight labour market, workers become harder to replace (**Chart 3.7**).

The MPC judges that the equilibrium unemployment rate remains at 4¼%. That judgement is consistent with the recent strengthening in wage growth (Section 4), which has been slightly above the MPC's projections in recent quarters and suggests that unemployment is close to, or below, its equilibrium.

Average hours

Besides changes in the size of the labour force, potential labour supply can be affected by changes in the number of hours people want to work. Some part-time workers, for example, may prefer to find a full-time job, while others may want to reduce their hours. These preferences can be affected by current and expected future incomes, as well as demographic factors such as age.

In the decades prior to the crisis, average hours worked fell as incomes rose, since people could maintain their level of spending while working fewer hours. During the crisis, however, the share of part-time employment rose markedly and employees reported that, on average, they wanted to work more hours. Consistent with that, the proportion of part-time workers who reported that they could not find a full-time job rose (**Chart 3.8**). Since then, hours worked have risen towards their 'desired' level as the proportion of people working part-time has fallen (Section 3.1).

The MPC judges that desired hours worked per week will remain broadly stable over the forecast horizon, reflecting two offsetting structural factors. A rising average age of the population is likely to depress desired hours worked, since older people tend to want to work shorter hours. But set against that, desired hours worked by women are expected to rise further as more women work full-time.

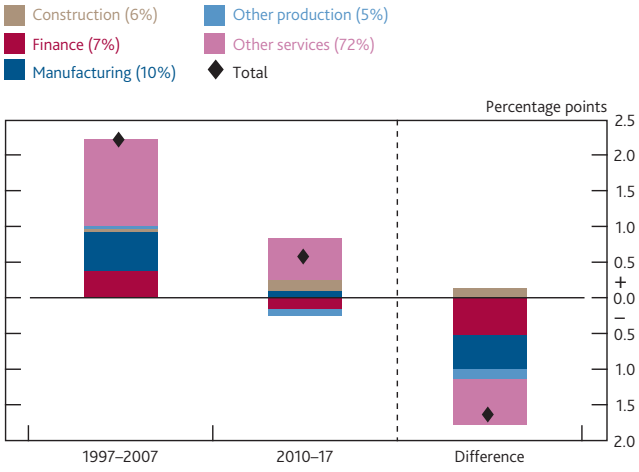
Productivity

In addition to changes in potential labour supply, potential supply growth depends on gains in productivity. The level of UK productivity per hour is only just above its pre-crisis peak (**Chart 3.9**). By contrast, productivity in many other advanced economies is now some way above its level prior to the crisis.

The openness of the UK economy and the size of its financial sector mean that global developments, such as slower world trade growth and financial sector deleveraging, are likely to have been particularly important in driving the slowdown in UK productivity growth. Based on current data, the manufacturing sector — which tends to be particularly exposed to global growth — and the financial services sector

Chart 3.10 Finance and manufacturing account for over half of the post-crisis weakness in productivity growth

Contributions to hourly labour productivity growth[a]



Sources: ONS and Bank calculations.

(a) Annual averages. Sectoral output per hour is calculated as gross value added (GVA) divided by hours worked. Figures in parentheses are weights in nominal GVA in 2017. Data revisions in the 2019 *Blue Book* may result in changes to these estimates. For further details, see 'Transformation of gross domestic product in Blue Book 2019'.

Chart 3.11 R&D expenditure has increased over the past decade

Research and development expenditure as a share of nominal output[a]

Sources: ONS and Bank calculations.

(a) Annual averages.

can account for over half of the weakness in UK productivity growth since the crisis (**Chart 3.10**).[3]

In the financial services sector, the apparent slowdown in productivity growth partly reflects unusually high measured productivity growth prior to the crisis, driven by higher leverage and risk-taking within financial firms. Mismeasurement of financial services output may also have contributed to the measured slowdown, by overemphasising the effects of higher leverage before the crisis and the effects of deleveraging since then. While financial services productivity growth could pick up relative to the period following the crisis, the pace of growth seen in the 2000s is unlikely to return.

In the manufacturing sector, part of the slowdown in productivity growth is likely to have reflected the weakness in world trade growth since the crisis. World trade growth tends to boost productivity through increasing economies of scale, competition and exposure to new ideas. Although world trade growth picked up through 2017, it has since slowed (Section 1). All else equal, any ongoing weakness will weigh on the outlook for productivity growth in the manufacturing sector.

Another way to examine the productivity growth slowdown is to use a standard growth accounting framework to split productivity growth into the amount of capital available per hour worked — 'capital deepening' — and the efficiency with which both capital and labour are used to produce output — 'total factor productivity' (**Table 3.C**). Results from this approach suggest that slower growth in capital deepening can account for a significant part of the weakness in productivity growth since before the crisis. That has reflected weak investment over much of that period. The remainder of the weakness in productivity growth has been the result of slower growth in the efficiency with which inputs are used. This may partly reflect a misallocation of capital across both companies and sectors.

There are some signs that total factor productivity growth could pick up in coming years. Research and development (R&D) expenditure — a key driver of innovation and hence productivity growth — has increased as a share of GDP over the past decade to its highest level since the early 1990s (**Chart 3.11**). The extent to which that pickup in R&D spending will boost productivity growth is uncertain, however, and depends on a number of factors including the extent of complementary investment in tangibles — for example information technology — and intangibles — for example training and management. Furthermore, new discoveries tend to take time to implement and evidence suggests it can take

(3) For further details, see Tenreyro, S (2018), 'The fall in productivity growth: causes and implications'.

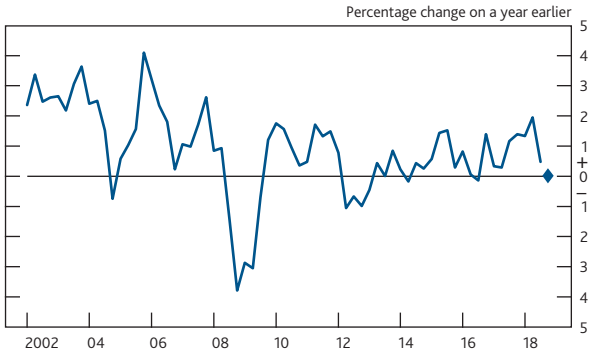
between two and six years on average to boost productivity growth within firms.(4)

While the pickup in R&D spending could boost productivity growth in coming years, many of the factors that have weighed on productivity growth over the past decade are expected to persist. Business investment growth is expected to remain weak in the near term (Section 2), which will reduce the extent of capital deepening. Changes in trading arrangements as a result of Brexit are also likely to weigh on the outlook for productivity, even under the assumption of a smooth adjustment to those new arrangements.

Overall, the MPC judges that productivity growth is likely to be slightly weaker than previously projected. That downward revision has been made in light of the unexpected weakness in productivity growth over the past year. Output per hour — which was expected to grow by 1¼% in the year to 2018 Q4 under the MPC's February 2018 projections — is now estimated to have been broadly flat (**Chart 3.12**). Productivity growth is nevertheless projected to pick up to around 1% per year by the end of the forecast period (Section 5).

Chart 3.12 Productivity growth has stalled

Output per hour(a)



Sources: ONS and Bank calculations.

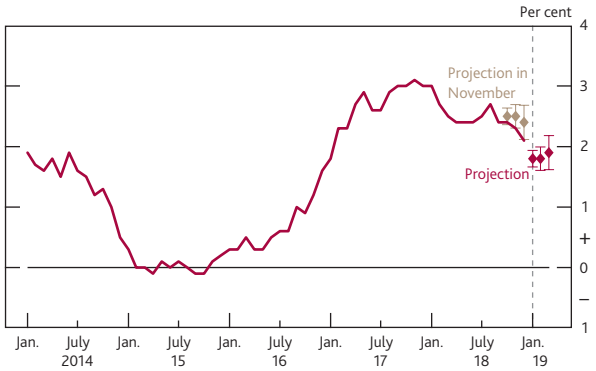
(a) Output is based on the backcast for the final estimate of GDP. The diamond shows Bank staff's projection for 2018 Q4, based on labour market data to November and estimated GDP growth for Q4.

(4) For further details, see Hall, B, Mairesse, J and Mohnen, P (2010), 'Measuring the returns to R&D', *Handbook of the Economics of Innovation*.

4 Costs and prices

CPI inflation fell to 2.1% in December. The fall over the past year has been partly due to the diminishing effects of the referendum-related sterling depreciation. CPI inflation is expected to dip temporarily below 2% in the coming months, mainly reflecting lower energy price inflation, before rising back above the target in 2020 and remaining a little above 2% as domestic inflationary pressures increase.

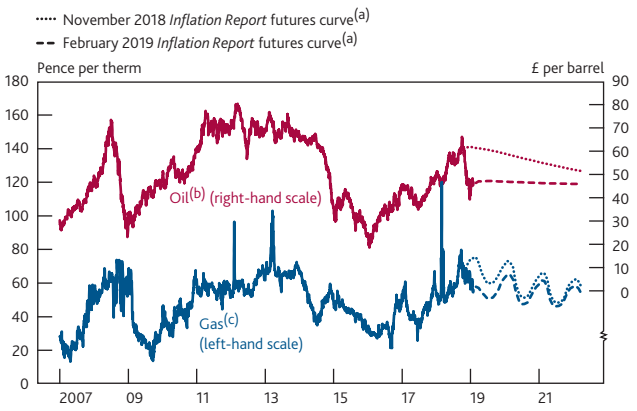
Chart 4.1 CPI inflation is expected to fall below the target
CPI inflation and Bank staff's near-term projection[(a)]



Sources: ONS and Bank calculations.

(a) The beige diamonds show Bank staff's central projection for CPI inflation in October, November and December 2018 at the time of the November 2018 *Inflation Report*. The red diamonds show the current staff projection for January, February and March 2019. 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.

Chart 4.2 Sterling wholesale energy prices have fallen since November
Sterling oil and wholesale gas prices



Sources: Bank of England, Bloomberg Finance L.P., Eikon from Refinitiv and Bank calculations.

(a) Fifteen working day averages to 24 October 2018 and 30 January 2019 respectively.
(b) US dollar Brent forward prices for delivery in 10–25 days' time converted into sterling.
(c) One-day forward price of UK natural gas.

4.1 Consumer price developments

CPI inflation was 2.1% in December 2018, having fallen from 3.1% in November 2017, partly due to the diminishing effects of the referendum-related sterling depreciation. Inflation in 2018 Q4 as a whole was 2.3%, lower than forecast in the November *Report*. That was partly because petrol prices were lower than expected, reflecting the significant fall in oil prices since November. Food price inflation and clothing and footwear price inflation were also slightly lower than expected.

Inflation is expected to fall to 1.8% in January, and to remain just below the target throughout 2019 Q1 (**Chart 4.1**). That forecast is lower than in the November *Report*, mainly reflecting the continued impact of lower petrol prices. It also includes the estimated impact of measures announced in *Budget 2018*. These measures include a freeze in the rate of fuel duty and some alcohol duties, which together reduce inflation by just under 0.1 percentage points from early 2019.

Over the forecast period as a whole, external cost pressures are expected to be lower compared with recent years (Section 4.2). Domestic cost pressures are expected to continue to strengthen (Section 4.3). Inflation expectations, which can influence wage and price-setting decisions, remain consistent with inflation returning to the target in the medium term (Section 4.4).

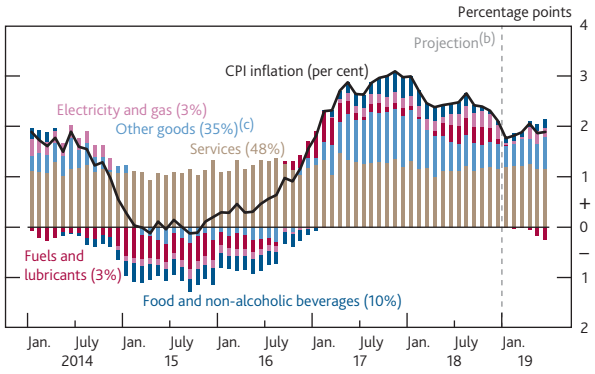
4.2 External cost pressures

Energy prices

Changes in wholesale oil and gas prices affect CPI inflation quickly through their impact on petrol prices and domestic gas and electricity bills. They can also have indirect effects on inflation, for example through their impact on production and transport costs, which take longer to feed through to consumer prices.

Chart 4.3 Lower energy prices are expected to reduce CPI inflation in the near term

Contributions to CPI inflation[a]

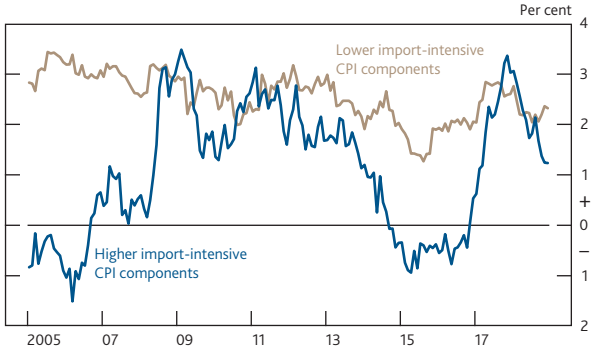


Sources: Bloomberg Finance L.P., Department for Business, Energy and Industrial Strategy, ONS and Bank calculations.

(a) Contributions to annual CPI inflation. Figures in parentheses are CPI basket weights in 2018 and may not sum to 100 due to rounding.
(b) Bank staff's projection. Fuels and lubricants estimates use Department for Business, Energy and Industrial Strategy petrol price data for January 2019 and are then based on the February 2019 *Inflation Report* sterling oil futures curve, shown in **Chart 4.2**.
(c) Difference between CPI inflation and the other contributions identified in the chart.

Chart 4.4 Inflation among import-intensive components of the CPI has fallen back recently

CPI inflation by import intensity[a]



Sources: ONS and Bank calculations.

(a) Higher import-intensive and lower import-intensive CPI components comprise the top half and bottom half respectively of CPI components by weight ordered by import intensity. Data exclude fuel and administered and regulated prices and are adjusted by Bank staff for changes in the rate of VAT, although there is uncertainty around the precise impact of those changes. Import intensities are ONS estimates of the percentage total contribution of imports to final household consumption by COICOP class, based on the *United Kingdom Input-Output Analytical Tables 2014*.

Dollar oil prices have fallen by 25% since the run-up to the November *Report* (Section 1), and sterling oil prices have fallen by a similar amount (**Chart 4.2**). As a result, fuel prices are expected to subtract 0.1 percentage points from CPI inflation in 2019 H1 (**Chart 4.3**), rather than pushing it up as projected in November. The oil futures curve — on which the MPC's forecasts are conditioned — is now broadly flat. The projected contribution from fuel prices to CPI inflation further out is therefore a little higher than in November, when the futures curve was downward sloping.

Wholesale gas prices are lower than in the run-up to the November *Report* (**Chart 4.2**), but the main near-term influence on retail gas and electricity prices as measured in the CPI is likely to be the introduction of Ofgem's price cap that affects most standard variable tariffs. As in November, that is expected to reduce CPI inflation by around 0.2 percentage points in 2019 Q1. But the price cap is now expected to be increased in April by more than previously anticipated, reflecting new information provided by Ofgem on its approach to estimating wholesale costs. That means that the projected contribution of gas and electricity prices rises in Q2 (**Chart 4.3**), pushing CPI inflation back to around the 2% target.

Non-energy import prices

The cost of non-energy imports facing UK companies and households increased substantially after sterling's referendum-related depreciation in 2016. Import price inflation has fallen back markedly since, as the effect of the depreciation has waned.

The impact of non-energy import costs can be seen in the inflation rates of the more import-intensive components of the CPI basket — those that are imported or have a higher share of imported inputs. These have fallen since their peak in late 2017 as the impact of higher import price inflation has eased (**Chart 4.4**).

4.3 Domestic cost pressures

Developments in labour costs

Wage growth has continued to strengthen since the November *Report* amid tight conditions in the labour market (Section 3). Annual growth in whole-economy regular pay — which excludes the volatile bonus component — averaged 1.5% between 2010 and 2014. But pay growth has since been strengthening, averaging 2.8% in 2018 H1 and 3.2% in 2018 Q3. Regular pay is expected to have grown by 3.3% in 2018 Q4 (**Table 4.B**), which would be the strongest annual rate of growth since 2008. According to the Bank's database, median pay settlements rose to 3% in 2018, up from 2% a year ago and 1% two years ago. Some survey indicators of private sector pay growth have also strengthened in recent

Table 4.A Monitoring the MPC's key judgements

Developments anticipated in November during 2018 Q4–2019 Q2	Developments now anticipated during 2019 Q1–2019 Q3
Household energy prices	**Revised up**
• Electricity and gas prices to rise in line with announced price rises in 2018 Q4, before declining in line with Ofgem's domestic energy price cap at the start of 2019.	• Electricity and gas prices to contribute around ¼ percentage point to CPI inflation in 2019 Q2, as Ofgem's energy price cap is raised.
Import prices	**Broadly unchanged**
• Non-fuel import prices to rise by around 1% in the year to 2019 Q2.	• Non-fuel import prices to rise by just over ¾% in the year to 2019 Q3.
Wage and unit labour costs	**Revised up**
• Four-quarter growth in whole-economy AWE regular pay to average round 3¼%.	• Four-quarter growth in whole-economy AWE regular pay to average around 3¼%.
• Four-quarter growth in whole-economy unit labour costs to average around 1¾%.	• Four-quarter growth in whole-economy unit labour costs to average around 3¼%.
• Four-quarter growth in whole-economy unit wage costs to average around 1¾%; growth in private sector regular pay based unit wage costs to average around 2¼%.	• Four-quarter growth in whole-economy unit wage costs to average just over 3%; growth in private sector regular pay based unit wage costs to average around 3¼%.
Inflation expectations	**Unchanged**
• Indicators of medium-term inflation expectations to continue to be broadly consistent with the 2% target.	• Indicators of medium-term inflation expectations to continue to be broadly consistent with the 2% target.

Table 4.B Pay growth has continued to strengthen

Indicators of pay growth

	Quarterly averages				2018			
	2010–14	2015	2016	2017	Q1	Q2	Q3	Q4
Average weekly earnings growth (per cent)[a]								
Whole-economy total pay	1.6	2.4	2.4	2.3	2.6	2.4	3.1	3.5
Private sector total pay	1.7	2.8	2.6	2.5	2.9	2.3	3.2	3.6
Whole-economy regular pay[b]	1.5	2.3	2.4	2.1	2.9	2.7	3.2	3.3
Private sector regular pay[b]	1.5	2.7	2.6	2.3	3.0	2.8	3.3	3.4
Survey indicators of pay growth								
CBI[c]	1.7	2.3	2.2	2.5	2.6	2.4	2.5	2.6
Agents[d]	1.4	2.0	1.9	1.9	2.1	2.3	2.5	2.5
CIPD[e]	1.6	1.8	1.4	1.5	2.0	2.0	2.0	n.a.
Survey indicators of pay growth for new recruits								
REC[f]	55.0	61.9	57.1	59.8	61.0	61.8	62.2	63.1

Sources: Bank of England, CBI, Chartered Institute of Personnel and Development (CIPD), KPMG/REC/IHS Markit, ONS and Bank calculations.

(a) Three-month average growth on the same period a year earlier. Figures for 2018 Q4 are Bank staff's projections, based on data to November.
(b) Total pay excluding bonuses and arrears of pay.
(c) Measure of expected pay for the year ahead. Produced by weighting together responses for manufacturing, distributive trades, business/consumer/professional services and financial services using employee job shares from Workforce Jobs.
(d) Quarterly averages 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 and 5 represent rapidly falling and rapidly rising costs respectively, with zero representing no change.
(e) Pay increase intentions excluding bonuses over the coming year. Data only available since 2012.
(f) Quarterly averages for the pay of permanent and temporary new placements weighted together using LFS employee job shares. A reading above 50 indicates growth on the previous month and below 50 indicates a decrease.

quarters (**Table 4.B**). Results from the Bank's Agents' annual pay survey are consistent with an increase in pay growth in 2019 (Box 4).

The extent to which the cost of labour affects companies' production costs per unit of output depends on how it is growing relative to productivity. Measures of unit labour costs (ULCs) have picked up in recent quarters. Private sector unit wage costs (UWCs) based on the average weekly earnings (AWE) measure of regular pay exclude volatile components such as bonuses and non-wage costs and are also less prone to revision (see the November 2018 *Inflation Report* for a discussion). That measure rose by 2.1% in 2018 Q3, and monthly data suggest it picked up further to 2.8% in Q4 (**Chart 4.5**). This is high relative to its post-crisis average growth rate, but probably close to its target-consistent pace. Whole-economy ULCs show a similar picture of rising labour cost pressures. ULC growth on this broader measure was 2.3% in the year to 2018 Q3, and monthly data suggest the growth rate picked up further to 3.1% in Q4.

The composition of the workforce can affect average wage growth if jobs are created or removed in particular occupations, industries, or for certain qualifications. Changes in the composition of the workforce are estimated to have boosted average wage growth by just over ½ percentage point in the year to 2018 Q3, according to Bank staff calculations using Labour Force Survey data (**Chart 4.6**). If these were to unwind, then wage growth could fall back somewhat in the near term. However, these compositional effects should in principle affect measured wage and productivity growth in a similar way, so they should have less of an effect on ULC and UWC growth.

Growth of private sector UWCs is projected to rise a little further in the near term, supported by continued pay growth.

Other measures of domestically generated inflation

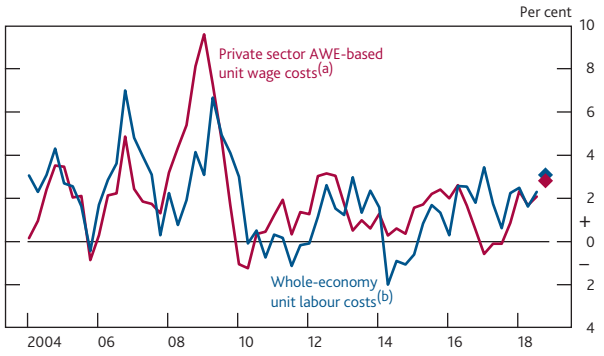
In addition to the different indicators of unit labour and wage costs, there are a number of other measures linked to the concept of domestically generated inflation (DGI). As explained in previous *Reports*, there are advantages and disadvantages of each measure and none perfectly captures the concept of DGI.

Most indicators of DGI rose over 2016 and 2017 (**Chart 4.7**). That is consistent with a gradual building of domestic inflationary pressures over that period, although some of the increase in those indicators was due to higher commodity prices and the effects of the referendum-related sterling depreciation.

By contrast, core services CPI inflation has fallen since mid-2016. Despite rising slightly in the past few months, it remains some way below its pre-crisis average of 3½%. As

Chart 4.5 Unit labour cost growth has strengthened in recent years

Four-quarter unit labour and unit wage cost growth

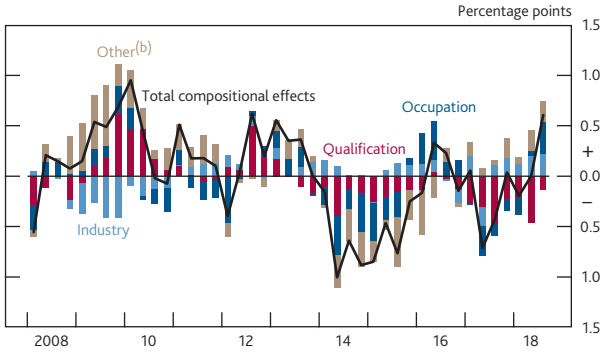


Sources: ONS and Bank calculations.

(a) Private sector AWE regular pay divided by private sector productivity per head, based on the backcast of the final estimate of private sector output. The diamond shows Bank staff's projection for 2018 Q4.
(b) Whole-economy labour costs divided by real GDP, based on the backcast of the final estimate of GDP. The diamond shows Bank staff's projection for 2018 Q4.

Chart 4.6 Compositional effects are estimated to have boosted wage growth in 2018 Q3

Estimates of the contribution of employment characteristics to four-quarter wage growth(a)

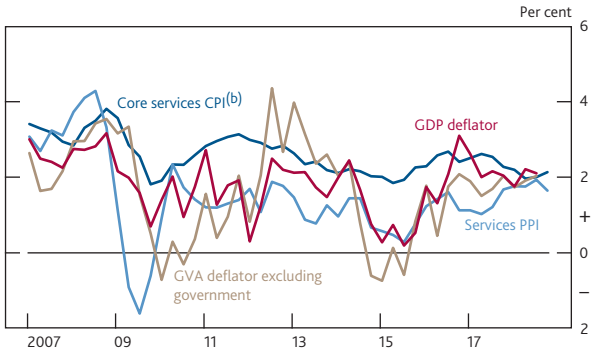


Sources: Labour Force Survey and Bank calculations.

(a) Estimates are shown relative to their averages over 1995 Q1–2010 Q4. Estimates of the effect of individual and job characteristics are derived from a regression of these characteristics on levels of pay using Labour Force Survey data. The estimate of the total compositional effect is obtained by combining these estimates with changes in the composition of the labour force.
(b) Other includes age, tenure, gender, region of residence, whether working full-time and whether in public sector employment.

Chart 4.7 Most measures of domestically generated inflation have picked up since 2016

Measures of domestically generated inflation(a)



Sources: ONS and Bank calculations.

(a) All data are quarterly except core services CPI which are quarterly averages of monthly data. Data for core services CPI and services PPI are to 2018 Q4; data for the GVA and GDP deflators are to 2018 Q3.
(b) Excludes airfares, package holidays, education and VAT; where Bank staff have adjusted for the rate of VAT there is uncertainty around the precise impact of those changes.

discussed in previous *Reports*, some of the weakness in core services inflation can be explained by lower rents inflation. This partly reflects declining rents paid for social housing, as well as a sharp fall in rents inflation in London. Nonetheless, even excluding rents, core services CPI inflation paints a more muted picture of domestic inflationary pressures (**Chart 4.8**).

The combination of higher production cost growth and a fall in price inflation suggests that the margins of companies producing consumer goods and services have been squeezed. Margins are difficult to measure, but intelligence from the Bank's Agents provides corroborative evidence of a recent decline. Contacts reported increasing competitive pressures across a number of different industries and in particular that the growth of online retailing has exerted pressure on the margins of bricks and mortar retailers.

Looking ahead, there may be conflicting pressures on margins. If competitive pressures continue, margins could remain compressed. In aggregate, however, margins tend to be procyclical, and given that some excess demand is expected to build over the forecast (Section 5), they would be expected to increase.(1)

4.4 Inflation expectations

Inflation expectations can influence CPI inflation through wage and price-setting behaviour. The MPC monitors a range of indicators — derived from financial market prices and surveys of households, companies and professional forecasters — to assess whether inflation expectations remain consistent with the target.

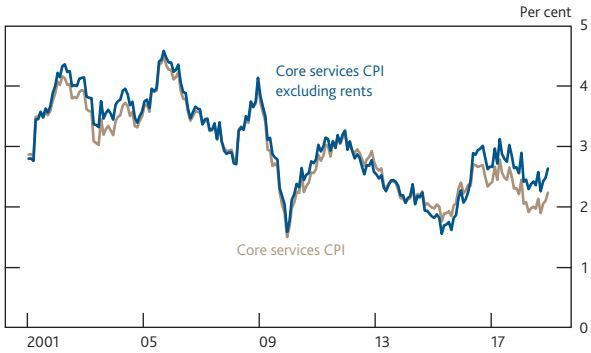
Indicators of inflation expectations derived from financial market prices increased in 2018 H2 (**Table 4.C**). UK five-year inflation swaps five years ahead rose by around 20 basis points, in contrast to dollar and euro equivalents. Market contacts attributed this in part to an increase in demand for inflation protection in the face of Brexit-related uncertainty. This indicator fell back somewhat in January. Market intelligence suggests that was in response to the publication of a House of Lords Economic Affairs Committee report, which made recommendations that would be expected to lower measured RPI inflation if adopted. Despite the recent decline, UK financial market indicators of inflation expectations appear a little elevated.

Other indicators of inflation expectations have generally remained stable (**Table 4.C**). The projections of professional forecasters remain close to the 2% target. Moves in short-term and longer-term measures of households'

(1) For more details, see Macallan, C and Parker, M (2008), 'How do mark-ups vary with demand?', *Bank of England Quarterly Bulletin*, 2008 Q2.

Chart 4.8 Consumer services inflation has fallen, even if rents are excluded

Core services CPI inflation, including and excluding rents[a]



Sources: ONS and Bank calculations.

(a) Core services CPI is defined in footnote (b) of **Chart 4.7**.

Table 4.C Indicators of inflation expectations[a]

Per cent

	Quarterly averages								
	2010 to 2014	2015	2016	2017	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1[b]
One year ahead inflation expectations									
Households[c]									
Bank/GfK/TNS[d]	3.4	2.0	2.2	2.9	2.9	2.9	3.0	3.2	n.a.
Barclays Basix	3.0	1.5	1.9	2.4	2.5	2.4	2.5	2.6	n.a.
YouGov/Citigroup	2.7	1.3	1.8	2.6	2.4	2.5	2.7	2.7	2.6
Companies[e]	1.7	0.4	1.6	2.4	3.7	2.3	2.4	2.0	n.a.
Financial markets[f]	2.9	2.5	2.8	3.4	3.0	3.1	3.2	3.4	3.5
Two to three year ahead expectations									
Households[c]									
Bank/GfK/TNS[d]	3.0	2.3	2.3	2.8	2.9	2.9	2.9	2.8	n.a.
Barclays Basix	3.3	1.9	2.3	2.9	3.0	2.9	3.0	3.0	n.a.
Companies[e]	n.a.	0.7	1.4	2.1	3.7	2.5	2.4	1.9	n.a.
Professional forecasters[g]	2.1	2.1	2.1	2.1	2.0	1.9	2.0	1.8	2.0
Financial markets[f]	3.0	3.0	3.0	3.3	3.3	3.3	3.4	3.6	3.6
Five to ten year ahead expectations									
Households[c]									
Bank/GfK/TNS[d]	3.3	2.8	3.1	3.4	3.4	3.6	3.6	3.5	n.a.
Barclays Basix	3.8	3.1	3.4	4.0	4.1	4.0	3.9	4.1	n.a.
YouGov/Citigroup	3.3	2.7	2.7	3.1	3.1	3.2	3.3	3.2	3.0
Financial markets[f]	3.4	3.3	3.2	3.4	3.4	3.4	3.4	3.5	3.5
Memo: CPI inflation	2.9	0.0	0.7	2.7	2.7	2.4	2.5	2.3	n.a.

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

(a) Data are not seasonally adjusted.
(b) Financial markets data are averages to 30 January 2019. YouGov/Citigroup data are for January 2019.
(c) The household surveys ask about expected changes in prices but do not reference a specific price index. The measures are based on the median estimated price change.
(d) In 2016 Q1, the survey provider changed from GfK to TNS.
(e) CBI data for the distributive trade sector. Companies are asked about the expected percentage price change over the coming 12 months and the following 12 months in the markets in which they compete.
(f) Instantaneous RPI inflation one and three years ahead and five-year RPI inflation five years ahead, implied by swaps.
(g) Bank's survey of external forecasters, inflation rate three years ahead.

expectations were generally small. Companies' inflation expectations fell back to around 2% in Q4.

Overall, the MPC judges that inflation expectations remain anchored, and that indicators of medium-term inflation expectations continue to be consistent with inflation close to the 2% target. The MPC will continue to monitor measures of expectations closely.

5 Prospects for inflation

UK GDP growth appears to have slowed, and is expected to remain subdued over much of 2019, reflecting both weakening global growth and the intensification of Brexit uncertainties. The impact of those uncertainties is projected to wane gradually, consistent with the MPC's assumption of a smooth withdrawal of the UK from the EU. Conditioned on paths for interest and exchange rates that are somewhat more stimulative than in November, UK GDP growth begins to pick up later this year and is expected to be a little stronger in the medium term than was projected three months ago. Although it remains modest by historical standards, demand growth exceeds potential supply growth on average over the forecast. As a result, excess demand builds over the second half of the forecast period, raising domestic inflationary pressures. In the near term, inflation is expected to fall to slightly below the MPC's 2% target, largely reflecting the sharp fall in oil prices which has occurred since November. As that effect unwinds, CPI inflation rises above 2%, and remains a little above the target for the rest of the forecast period.

UK growth appears to have softened in 2018 Q4. Quarterly GDP growth is expected to have slowed to 0.3%, from 0.6% in Q3. That slowing partly reflects the fading impact of temporary factors which boosted growth in Q3. Softer UK GDP growth also appears to reflect the impact of weaker global growth (Key Judgement 1). In addition, Brexit uncertainties have risen over the past three months and may be having a greater impact on the economy than was expected in November.

UK growth is projected to remain subdued in 2019, as those factors continue to dampen activity, with world growth remaining modest and Brexit uncertainties remaining elevated. The near-term outlook is more uncertain than usual at present, though. Shifting expectations about Brexit in financial markets and among businesses and households could lead to greater-than-usual short-term volatility in UK data, which may therefore provide less of a signal about the underlying path of the economy over the medium term.

As in previous *Reports*, the MPC's projections are conditioned on a smooth adjustment to the average of a range of possible outcomes for the United Kingdom's eventual trading relationship with the European Union. Consistent with that conditioning assumption, the current heightened degree of uncertainty is assumed to subside over the forecast period, boosting growth (Key Judgement 2).

The MPC's projections are also conditioned on a range of UK asset prices. Over the past few months, market expectations for the path of Bank Rate have fallen. That path currently implies a gradual rise in Bank Rate to around 1.1% by the end

Table 5.A Conditioning path for Bank Rate implied by forward market interest rates[a]

Per cent

	2019				2020				2021				2022
	Q1[b]	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
February	0.7	0.7	0.8	0.9	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.1
November	0.8	0.9	0.9	1.0	1.1	1.1	1.2	1.2	1.3	1.3	1.4	1.4	

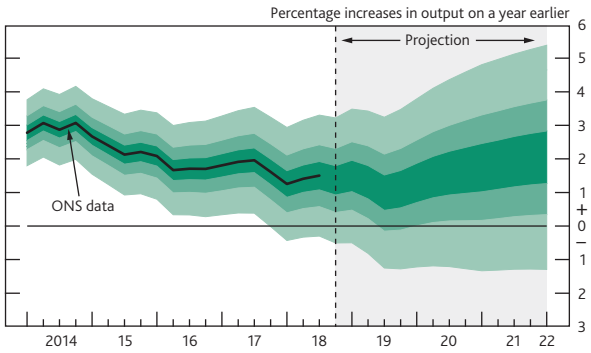
(a) The data are 15 working day averages of one-day forward rates to 30 January 2019 and 24 October 2018 respectively. The curve is based on overnight index swap rates.
(b) February figure for 2019 Q1 is an average of realised overnight rates to 30 January 2019, and forward rates thereafter.

Table 5.B Forecast summary[a][b]

	Projections			
	2019 Q1	2020 Q1	2021 Q1	2022 Q1
GDP[c]	1.5 (1.8)	1.3 (1.7)	1.7 (1.7)	2.0
CPI inflation[d]	1.8 (2.2)	2.3 (2.4)	2.1 (2.1)	2.1
LFS unemployment rate	3.9 (3.9)	4.1 (3.9)	4.1 (3.9)	3.8
Excess supply/Excess demand[e]	0 (0)	-¼ (+¼)	+¼ (+¼)	+¾
Bank Rate[f]	0.7 (0.8)	0.9 (1.1)	1.0 (1.3)	1.1

(a) Modal projections for GDP, CPI inflation, LFS unemployment and excess supply/excess demand. Figures in parentheses show the corresponding projections in the November 2018 *Inflation Report*. Projections were only available to 2021 Q4 in November.
(b) The February projections have been conditioned on the Term Funding Scheme and the prices of a broad range of assets, which embody market expectations of the future stocks of purchased gilts and corporate bonds. See the conditioning assumptions document available from the 'Download the chart slides and data' link at www.bankofengland.co.uk/inflation-report/2019/february-2019 for more information about the changes made to the description of the conditioning assumptions since the November 2018 *Report*.
(c) Four-quarter growth in real GDP. The growth rates reported in the table exclude the backcast for GDP. Including the backcast 2019 Q1 growth is 1.6%, 2020 Q1 growth is 1.3%, 2021 Q1 growth is 1.7% and 2022 Q1 growth is 2.0%. This compares to 1.8% in 2019 Q1, 1.7% in 2020 Q1 and 1.7% in 2021 Q1 in the November 2018 *Inflation Report*.
(d) Four-quarter inflation rate.
(e) Per cent of potential GDP. A negative figure implies output is below potential and a positive figure that it is above.
(f) Per cent. The path for Bank Rate implied by forward market interest rates. The curves are based on overnight index swap rates.

Chart 5.1 GDP projection based on market interest rate expectations, other policy measures as announced



The fan chart depicts the probability of various outcomes for GDP growth. It has been conditioned on the assumptions in **Table 5.B** footnote (b). To the left of the vertical dashed line, the distribution reflects uncertainty around revisions to the data over the past. To aid comparability with the official data, it does not include the backcast for expected revisions, which is available from the 'Download the chart slides and data' link at www.bankofengland.co.uk/inflation-report/2019/february-2019. To the right of the vertical line, the distribution 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 outturns 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.

of the forecast period, around 25 basis points lower than at the time of the November 2018 *Report* (**Table 5.A**).(1) At the same time, UK equity prices are a little lower and corporate bond spreads higher. There have been similar developments in financial conditions in other advanced economies, which have occurred alongside the weaker outlook for global growth. The sterling exchange rate has been volatile, largely reflecting Brexit news, but starts the projection a little lower than in November.

The MPC's projections under those conditioning assumptions are summarised in **Table 5.B**. Four-quarter UK GDP growth is projected to decline in 2019, before rising to 2% by the end of the forecast period (**Chart 5.1**). That is lower than in the November *Report* in the near term, reflecting the impact of heightened uncertainty, weaker global GDP growth and tighter financial and credit conditions. Further out, UK GDP growth picks up as uncertainty wanes and as the stimulus from looser fiscal policy and lower paths for interest and exchange rates more than offsets the impact of lower global activity and tighter financial conditions. In the medium term, growth is higher than in the November *Report*. Over the forecast as a whole, growth remains modest by historical standards.

Following its regular reassessment of supply-side conditions, the MPC judges that demand and supply were broadly in balance in 2018 Q4. A small margin of spare capacity is projected to emerge during 2019, as demand growth remains weak. Further out, excess demand builds as demand growth recovers and exceeds potential supply growth (Key Judgement 3). Potential supply growth is projected to remain subdued relative to pre-crisis norms, and is a little weaker than forecast in November, due to slightly lower underlying productivity growth.

CPI inflation was close to the MPC's 2% target at the end of 2018. It is projected to fall a little below the target temporarily over much of 2019, largely reflecting the impact of lower oil prices, then to rise back above 2% as that impact unwinds. Sterling's past depreciation continues to put some upward pressure on inflation, although that effect wanes over the forecast period. In contrast, rising excess demand leads to a continued firming of domestic inflationary pressures (Key Judgement 4). The balance of these effects means that inflation is projected to remain a little above the target in the second and third years of the forecast period (**Chart 5.2**).

(1) Unless otherwise stated, the projections shown in this section are conditioned on: Bank Rate following a path implied by market yields; the Term Funding Scheme; 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 Autumn Statement 2018; commodity prices following market paths; the sterling exchange rate remaining broadly flat; and the prevailing prices of a broad range of other assets. The asset prices that the forecast is conditioned on embody market expectations of the future stocks of purchased gilts and corporate bonds. See the conditioning assumptions document available from the 'Download the chart slides and data' link at www.bankofengland.co.uk/inflation-report/2019/february-2019 for more information about the changes made to the description of the conditioning assumptions since the November 2018 *Report*.

Chart 5.2 CPI inflation projection based on market interest rate expectations, other policy measures as announced

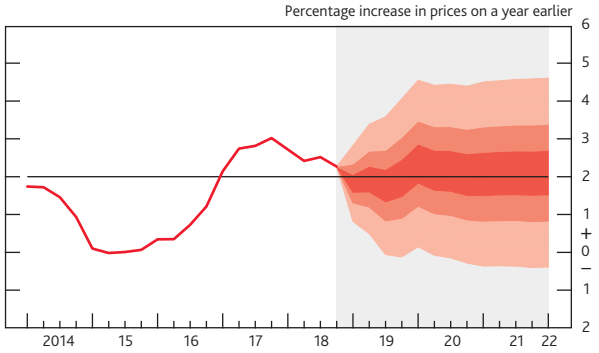
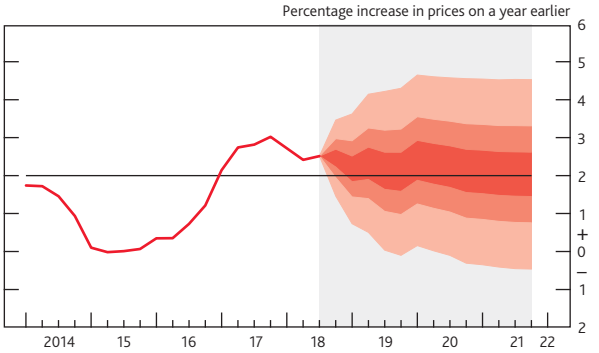


Chart 5.3 CPI inflation projection in November based on market interest rate expectations, other policy measures as announced



Charts 5.2 and **5.3** depict the probability of various outcomes for CPI inflation in the future. They have been conditioned on the assumptions in **Table 5.B** footnote (b). If economic circumstances identical to today's were to prevail on 100 occasions, the MPC's best collective judgement is that inflation in any particular quarter would lie within the darkest central band on only 30 of those occasions. The fan charts are constructed so that outturns of inflation are also expected to lie within each pair of the lighter red areas on 30 occasions. In any particular quarter of the forecast period, inflation is therefore expected to lie somewhere within the fans on 90 out of 100 occasions. And on the remaining 10 out of 100 occasions inflation can fall anywhere outside the red area of the fan chart. Over the forecast period, this has been depicted by the light grey background. See the box on pages 48–49 of the May 2002 *Inflation Report* for a fuller description of the fan chart and what it represents.

At its meeting ending on 6 February 2019, the MPC voted to maintain Bank Rate at 0.75%, to maintain the stock of sterling non-financial investment-grade corporate bond purchases, financed by the issuance of central bank reserves, at £10 billion and to maintain the stock of UK government bond purchases, financed by the issuance of central bank reserves, at £435 billion. The factors behind that decision are set out in the Monetary Policy Summary on page i of this *Report*, and in more detail in the Minutes of the meeting.(2) The remainder of this section sets out the MPC's projections, and the risks around them, in more detail.

5.1 The MPC's key judgements and risks

Key Judgement 1: global GDP growth weakens further and settles at close to its potential rate

Four-quarter global GDP growth has slowed over the past year, to a greater extent than was expected in the November *Report*. Growth is expected to dip below trend in coming quarters, before rising to around potential rates.

The slowing in global growth has been associated with weaker world trade growth (Section 1). That has fallen since 2017, in part reflecting weaker demand growth in China, as well as the impact of higher tariffs on trade between the US and China more recently.

Slower global growth also reflects the impact of the past tightening in financial conditions. Global financial conditions tightened through 2018, from highly accommodative levels. That tightening partly reflected the withdrawal of monetary stimulus by the US Federal Reserve over the past few years, which also led to falls in risky asset prices in many emerging economies. In advanced economies, equity prices fell sharply at the end of 2018, and corporate bond spreads widened, before recovering in early 2019.

(2) The Minutes are available at www.bankofengland.co.uk/monetary-policy-summary-and-minutes/2019/february-2019.

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

The Committee's projections are underpinned by four key judgements. Risks surround all of these, and the MPC will monitor a broad range of variables to assess 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 2019 Q1 to 2019 Q3 if judgements evolve as expected
1: global GDP growth weakens further and settles at close to its potential rate	• Quarterly euro-area GDP growth to average ¼%. • Quarterly US GDP growth to average ½%. • Indicators of activity consistent with four-quarter PPP-weighted emerging market economy growth of around 4¼%; within that, GDP growth in China to average around 6%. • The contribution of net trade to quarterly UK GDP growth to be close to zero, on average.
2: UK domestic demand growth is soft over much of 2019, due in part to elevated Brexit uncertainties, before picking up	• Business investment to fall by ½% per quarter, on average. • Quarterly real post-tax household income growth to average ¼%. • Quarterly consumption growth to average ¼%. • Mortgage spreads to widen a little. • Mortgage approvals for house purchase to average around 65,000 per month. • The UK house price index to increase by around ¼% per quarter, on average. • Housing investment to fall by ½% per quarter, on average.
3: potential supply continues to grow at subdued rates and excess demand emerges over the forecast	• Unemployment rate to average around 4%. • Participation rate to average around 63¾%. • Average weekly hours worked to remain around 32. • Cumulative growth in hourly labour productivity to be ¼% to ½%.
4: CPI inflation is supported by strengthening domestic inflation, although it falls slightly below the target temporarily due to lower energy prices	• Non-fuel import prices to rise by just over ¾% in the year to 2019 Q3. • Electricity and gas prices to contribute around ¼ percentage point to CPI inflation in 2019 Q2, as Ofgem's energy price cap is raised. • Commodity prices and sterling ERI to evolve in line with the conditioning assumptions set out in this *Report*. • Four-quarter growth in whole-economy AWE regular pay to average around 3¼%. • Four-quarter growth in whole-economy unit labour costs to average around 3¼%. • Four-quarter growth in whole-economy unit wage costs to average just over 3%; growth in private sector regular pay based unit wage costs to average around 3¼%. • Indicators of medium-term inflation expectations to continue to be broadly consistent with the 2% target.

While those factors weigh on global GDP growth over the forecast, activity is projected to be supported by more accommodative monetary policy than was expected three months ago. Since November, financial market expectations for the future paths of policy rates have adjusted downwards, particularly in the US. Sharp falls in the oil price over the past few months will also boost GDP. As a result, quarterly global GDP growth is expected to pick up over 2019 and settle at similar rates to those projected in November.

In the euro area, quarterly GDP growth averaged 0.2% in 2018 H2, down from an average of 0.4% in 2018 H1 and substantially lower than the average of 0.7% over 2017. Only part of the recent slowdown is judged to reflect the impact of temporary factors, including bottlenecks in car production, and GDP growth is expected to recover somewhat during 2019. But the recovery is slow, and GDP is judged likely to

Table 5.D MPC key judgements[a][b]

Key Judgement 1: global GDP growth weakens further and settles at close to its potential rate

	Average 1998–2007	Projections 2018	2019	2020	2021
World GDP (UK-weighted)[c]	3	2½ (2¾)	2 (2¼)	2 (2)	2 (2)
World GDP (PPP-weighted)[d]	4	3½ (3¾)	3¼ (3½)	3¼ (3¼)	3½ (3½)
Euro-area GDP[e]	2¼	1¾ (2)	1 (1½)	1½ (1½)	1½ (1½)
US GDP[f]	3	2¾ (3)	2¼ (2¾)	1¾ (1¾)	1¾ (1¾)
Net trade contribution to UK GDP growth[g]	-¼	-¼ (¼)	-½ (¼)	0 (¼)	0 (0)

Key Judgement 2: UK domestic demand growth is soft over much of 2019, due in part to elevated Brexit uncertainties, before picking up

	Average 1998–2007	Projections 2018	2019	2020	2021
Business investment contribution to GDP growth[h]	¼	0 (0)	-¼ (¼)	¼ (½)	½ (½)
Business investment to GDP ratio[i]	9¾	9¼ (9½)	9 (9½)	9 (9¾)	9¼ (10)
Household consumption contribution to GDP growth[j]	2¼	1 (1)	1 (¾)	¾ (¾)	1 (1)
Credit spreads[k]	¾[l]	1½ (1½)	1½ (1½)	1½ (1½)	1½ (1½)
Household saving ratio[m]	8½	4½ (4)	4¾ (4)	4½ (3¾)	4½ (3¾)

Key Judgement 3: potential supply continues to grow at subdued rates and excess demand emerges over the forecast

	Average 1998–2007	Projections 2018	2019	2020	2021
Productivity[n]	2¼	1 (1)	¼ (1)	1 (1¼)	1 (1)
Participation rate[o]	63	63¾ (63½)	63¾ (63½)	63¾ (63½)	63¾ (63½)
Average hours[p]	32¼	32 (32)	32 (32)	32¼ (32)	32¼ (32)

Key Judgement 4: CPI inflation is supported by strengthening domestic inflation, although it falls slightly below the target temporarily due to lower energy prices

	Average 1998–2007	Projections 2018	2019	2020	2021
UK import prices[q]	¼	3 (3¼)	-¼ (1)	½ (0)	¼ (0)
Dollar oil prices[r]	39	68 (81)	61 (78)	61 (74)	61 (70)
Unit labour costs[s]	2¾	3 (1¾)	2½ (2¼)	2 (2¼)	2½ (2½)
Unit wage costs[t]	2½	2¾ (1½)	2¼ (2¼)	2 (2¼)	2½ (2½)
Private sector regular pay based unit wage costs[u]	1¾	2¾ (2½)	3 (2½)	2¼ (2¾)	2½ (2¾)

Sources: Bank of England, BDRC Continental *SME Finance Monitor*, Bloomberg Finance L.P., British Household Panel Survey, Department for Business, Energy and Industrial Strategy, Eurostat, ICE/BoAML Global Research (used with permission), 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 annual average growth rates unless otherwise stated. Figures in parentheses show the corresponding projections in the November 2018 *Inflation Report*. Calculations for back data based on ONS data are shown using ONS series identifiers.
(c) Chained-volume measure. Constructed using real GDP growth rates of 180 countries weighted according to their shares in UK exports.
(d) Chained-volume measure. Constructed using real GDP growth rates of 181 countries weighted according to their shares in world GDP using the IMF's purchasing power parity (PPP) weights.
(e) Chained-volume measure. Figure for 2018 is the outturn.
(f) Chained-volume measure.
(g) Chained-volume measure. Exports less imports.
(h) Chained-volume measure.
(i) Annual average. Chained-volume business investment as a percentage of GDP.
(j) Chained-volume measure. Includes non-profit institutions serving households.
(k) 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. Figure for 2018 is the outturn.
(l) 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.
(m) Annual average. Percentage of total available household resources.
(n) GDP per hour worked.
(o) Level in Q4. Percentage of the 16+ population.
(p) Level in Q4. Average weekly hours worked, in main job and second job.
(q) Four-quarter inflation rate in Q4 excluding fuel and the impact of MTIC fraud.
(r) Average level in Q4. Dollars per barrel. Projection based on monthly Brent futures prices. Figure for 2018 is the outturn.
(s) 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.
(t) Four-quarter growth in whole-economy unit wage costs in Q4. Whole-economy wage costs divided by GDP at market prices, based on the mode of the MPC's GDP backcast. Total wage costs are wages and salaries excluding non-wage costs and the labour share multiplied by mixed income.
(u) Four-quarter growth in private sector regular pay based unit wage costs in Q4. Private sector wage costs divided by private sector output at market prices, based on the mode of the MPC's backcast. Private sector wage costs are average weekly earnings (excluding bonuses) multiplied by private sector employment.

remain lower than had been projected in November throughout the forecast period.

US GDP growth is expected to have slowed to 0.5% in 2018 Q4 from 0.8% in Q3, weaker than had been expected in November. GDP growth is expected to slow further in 2019 Q1, in part reflecting the recent partial federal government shutdown, although that effect is assumed to unwind in Q2. While four-quarter US growth is weaker in the near term than had been projected in November, it is broadly similar further out, as drags from lower equity prices, wider corporate bond spreads and trade tensions are broadly offset by a boost from the lower oil price and the substantial fall in the expected path for policy rates.

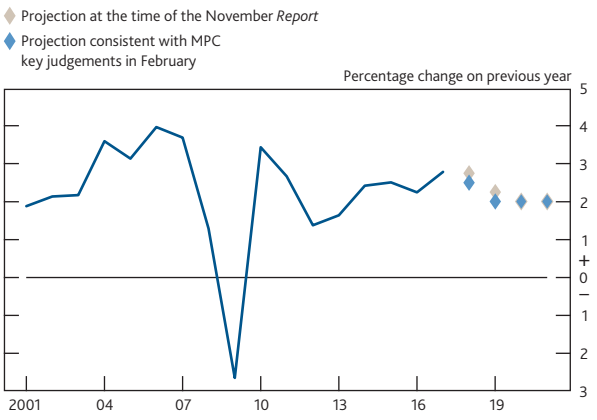
GDP growth in China slowed over 2018. Official estimates indicate that four-quarter real GDP growth declined to 6.4% in Q4 from 6.5% in Q3 and 6.8% in Q1. That is likely to reflect in part the impact of past policies to stabilise the financial system which are weighing on credit growth and investment. GDP growth is expected to decline a little further over the forecast period, reflecting the effect of tariffs on trade with the US and reduced business confidence, partially offset by recent stimulus measures taken by the Chinese authorities.

Activity in other emerging economies weakened over much of 2018 as financial conditions tightened. Conditions appear to have stabilised over the past few months, however, and quarterly GDP growth is expected to pick up slightly over the forecast period, broadly as projected at the time of the November *Report*.

Taking all these factors together, global growth — based on PPP weights — is projected to slow from 3½% in 2018 to 3¼% in 2019 and 2020, before recovering a little to 3½% in 2021 (**Table 5.D**). Weighted by UK export shares, growth is expected to slow from 2½% in 2018 to 2% a year through the forecast period (**Chart 5.4**). Those projections are a little lower in the near term than three months ago. The MPC judges that risks are balanced, as some previously identified downside risks have crystallised.

The deterioration in the global outlook will weigh on UK GDP growth through trade channels, as demand for UK exports weakens. Net trade is projected to provide less support to UK growth over the forecast than three months ago. It has been weaker than might have been expected over the past few years given the strength of world growth over much of that period and sterling's depreciation, and the MPC judges that some weakness is likely to persist. Export growth is also lower reflecting the softer near-term outlook for global activity. Nonetheless, global GDP growth remains somewhat stronger than in the UK and that supports net trade. As a result, net trade makes a broadly neutral contribution to UK GDP growth over the second half of the forecast period.

Chart 5.4 World GDP (UK-weighted)[a]



Sources: IMF *WEO* and Bank calculations.

(a) Calendar-year growth rates. Chained-volume measure. Constructed using real GDP growth rates of 180 countries weighted according to their shares in UK exports.

Global developments will also affect UK activity through their impact on the financial conditions facing households and companies. As in other advanced economies, UK equity prices are slightly lower than they were at the time of the November *Report*, corporate bond spreads are wider, and bank funding costs are higher. Those developments may partly reflect the impact of changing expectations around the nature of the UK's withdrawal from the EU, as well as global developments. The expected path for UK policy rates has declined alongside those in the US and euro area, and acts to offset the impact of lower equity prices, higher bond spreads and tighter credit conditions, however.

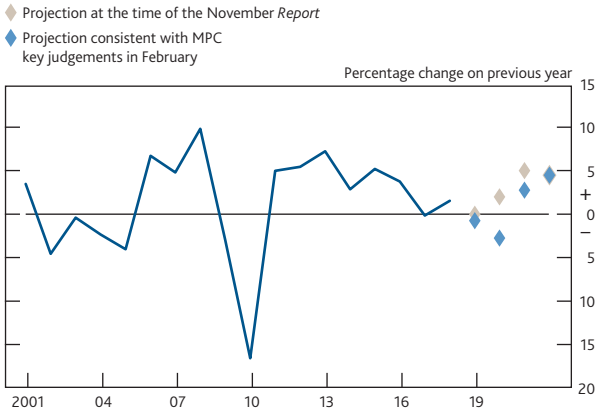
Key Judgement 2: UK domestic demand growth is soft over much of 2019, due in part to elevated Brexit uncertainties, before picking up

UK GDP growth appears to have slowed in 2018 Q4, and is expected to remain subdued over much of 2019, at lower rates than were projected in November. In part, weaker activity is judged to reflect the impact of softer global demand (Key Judgement 1). It is also likely to reflect the effect of heightened uncertainty around the UK's withdrawal from the EU, which has intensified since November. Uncertainty appears to have weighed on business investment, which has been low recently compared with past expansions. Contacts of the Bank's Agents report that uncertainty is the biggest headwind to investment spending. Moreover, recent business investment growth has been lower in the UK than in other advanced economies. Uncertainty may also be dampening housing activity. Having remained resilient for much of 2018, consumer spending may have weakened a little towards the end of the year (Section 2).

The impact of uncertainty about Brexit is assumed to wane gradually over the forecast period. The MPC expects bank funding costs to remain elevated for a period, in part reflecting continuing Brexit uncertainties. That will exert upward pressure on borrowing costs and weigh on spending relative to November. Continued competition between lenders in the mortgage market is, however, expected to dampen this pressure.

Four-quarter UK GDP growth is expected to rise to 2% by the end of the forecast period. That is higher than was projected in the November *Report*, in part reflecting the impact of fiscal policy. The MPC judges that the loosening of fiscal policy in *Budget 2018* — in particular, through higher health spending — boosts activity, and raises GDP over the forecast period by around ⅓%, relative to November. The forecast is also conditioned on a lower expected path for Bank Rate and slightly lower sterling exchange rate, both of which will support GDP growth. Demand growth is also boosted as Brexit uncertainties dissipate, consistent with the MPC's conditioning assumption of a smooth adjustment to the UK's new trading relationship with the EU.

Chart 5.5 Business investment[a]



Sources: ONS and Bank calculations.

(a) Calendar-year growth rates. Chained-volume measure. Business investment data based on GAN8. Investment data take account of the transfer of nuclear reactors from the public corporation sector to central government in 2005 Q2.

Table 5.E Indicative projections consistent with the MPC's modal projections[a]

	Average 1998–2007	Projections			
		2018	2019	2020	2021
Annual average growth rate					
Household consumption[b]	3½	1½ (1½)	1¼ (1¼)	1 (1¼)	1½ (1½)
Business investment[c]	2½	-¾ (0)	-2¾ (2)	2¾ (5)	4½ (4½)
Housing investment[d]	3¼	1¾ (1¼)	-½ (1¼)	¼ (¼)	2 (½)
Exports[e]	4½	0 (1¾)	1 (2½)	1¼ (1¼)	1¼ (1¼)
Imports[e]	6	¾ (¾)	2½ (1¼)	1 (¾)	1¼ (1¼)
Real post-tax household income[f]	3¼	1¾ (1)	1¾ (1)	¾ (¾)	1¾ (1¾)
Four-quarter growth rate in Q4					
Employment	1	1¼ (1)	¼ (½)	½ (½)	¾ (½)
Average weekly earnings[g]	4¼	3½ (2¾)	3 (3¼)	3¼ (3½)	3¾ (3¾)

(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 in parentheses show the corresponding projections in the November 2018 *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) Whole-economy total pay.

The projected pickup in demand is driven by a recovery in business investment. Business investment fell for the third consecutive quarter in 2018 Q3 and is expected to have declined further over the turn of the year. The outlook for business investment over the first half of the forecast has been revised down in response to the intensification of Brexit uncertainties (**Chart 5.5**). Investment growth recovers further out, buoyed by otherwise supportive conditions, including a relatively high rate of return on capital and the low cost of finance.

Consumption is projected to grow modestly by historical standards over the forecast period. Consumption growth over 2018 appears to have been broadly in line with household real income growth, albeit at below pre-crisis average rates. Consumption growth slows in the near term (**Table 5.E**), partly reflecting the impact of elevated uncertainty, before increasing gradually over the rest of the forecast period.

The outlook for demand will depend significantly on how households, companies and financial markets respond to developments in Brexit negotiations. In particular, changes in the exchange rate, uncertainty and financial conditions could have a substantial effect on the forecast (Box 5). In the near term, the forecast is more uncertain than usual, as it is likely that the impact of Brexit uncertainties could cause UK economic data to be more volatile than normal. For example, some households and companies may defer spending on major items. Alternatively, some companies have reported building up a higher level of stocks of supplies or finished goods to help minimise the potential effects of any disruption in cross-border supply chains in response to Brexit (see Box 4). That could affect quarterly GDP estimates, but is unlikely to have a persistent impact on the dynamics of the economy.

Key Judgement 3: potential supply continues to grow at subdued rates and excess demand emerges over the forecast

In the run-up to this *Report*, the MPC completed its regular reassessment of UK supply-side conditions (Section 3).

The MPC judges that demand and supply were broadly in balance in 2018 Q4. Most indicators suggest that the labour market is currently tight and survey measures of capacity utilisation within companies suggest that there is limited scope to increase output with existing resources. The expected slowing in demand means that a small degree of spare capacity is projected to emerge in early 2019. Towards the end of the year, however, demand growth is projected to pick up to exceed potential supply growth and excess demand emerges over the forecast period.

The MPC judges that potential supply growth will remain much lower than its pre-crisis pace at a little below 1½%, on average. On average over the forecast period, potential supply

growth is slightly lower than was projected in the November *Report*, as the MPC judges that some of the factors that have weighed on productivity recently will be more persistent than previously anticipated.

Labour supply growth is likely to be modest over the forecast period, driven by population growth. Population growth is projected to slow from recent rates, partly reflecting an expected decline in net inward migration in line with the ONS projections on which the MPC's forecasts are conditioned.

Potential productivity continues to grow at subdued rates. Four-quarter potential productivity growth is projected to rise gradually towards 1%. The improvement in productivity growth over the forecast largely reflects an assumed increase in the efficiency with which capital and labour are used to produce output — total factor productivity growth — which could be boosted by higher research and development (R&D) expenditure over recent years.

There are risks to the outlook for productivity. On the upside, productivity growth is assumed to remain substantially below pre-crisis average rates. It could pick up closer to historical rates, perhaps as the recent pickup in R&D spending raises productivity by more than expected. On the downside, productivity growth has been lower than expected since the financial crisis and may again fail to pick up. Changes in trading arrangements as a result of Brexit are also likely to affect the outlook for productivity.

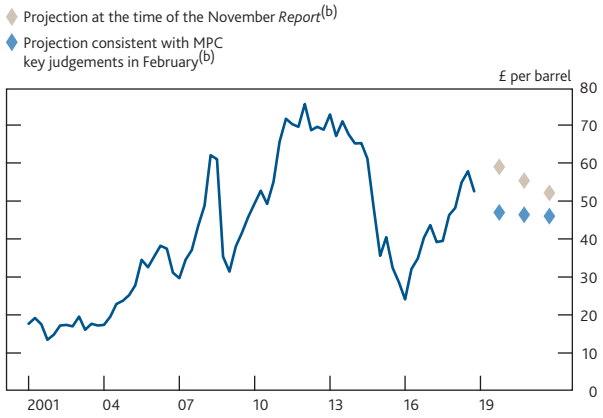
Key Judgement 4: CPI inflation is supported by strengthening domestic inflation, although it falls slightly below the target temporarily due to lower energy prices

CPI inflation was 2.3% in 2018 Q4, 0.2 percentage points lower both than in Q3 and the rate expected in the November *Report*. The lower-than-expected outturn for inflation was partly accounted for by fuel prices, reflecting the substantial fall in oil prices that has occurred over the past few months: the sterling oil price is down by 25% since the November *Report*. Based on the oil futures curve on which the MPC's forecast is conditioned (**Chart 5.6**), petrol prices will continue to exert downward pressure on CPI inflation over the coming year, and CPI inflation is expected to fall slightly below the 2% target over much of 2019.

CPI inflation is projected subsequently to rise above 2% as the impact of lower oil prices dissipates. In part, above-target inflation reflects an elevated, but waning, contribution from import prices. Higher imported costs resulting from the past depreciation of sterling are still being passed through to consumer prices.

While the contribution of import prices wanes, it is offset by domestic inflationary pressures, which have risen over the past

Chart 5.6 Sterling oil price[a]



Sources: Bank of England, Bloomberg Finance L.P., Eikon from Refinitiv and Bank calculations.

(a) US dollar Brent forward prices for delivery in 10–25 days' time converted into sterling.
(b) Fifteen working day averages to 24 October 2018 and 30 January 2019 respectively.

Table 5.F Q4 CPI inflation

	Mode	Median	Mean
2019 Q4	2.0 (2.1)	2.0 (2.1)	2.0 (2.1)
2020 Q4	2.1 (2.1)	2.1 (2.1)	2.1 (2.1)
2021 Q4	2.1 (2.0)	2.1 (2.0)	2.1 (2.0)

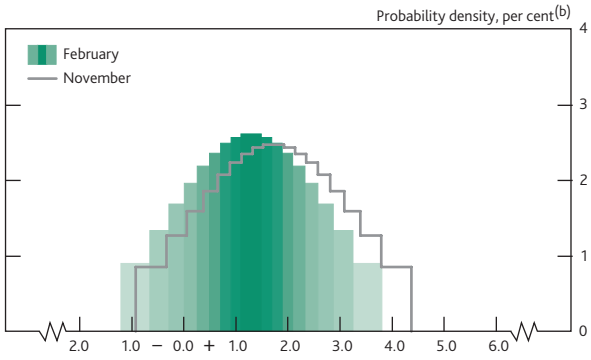
The table shows projections for Q4 four-quarter CPI inflation. The figures in parentheses show the corresponding projections in the November 2018 *Inflation Report*. The projections have been conditioned on the assumptions in **Table 5.B** footnote (b).

Table 5.G Annual average GDP growth rates of modal, median and mean paths[a]

	Mode	Median	Mean
2019	1.2 (1.7)	1.2 (1.7)	1.2 (1.7)
2020	1.5 (1.7)	1.5 (1.7)	1.5 (1.7)
2021	1.9 (1.7)	1.9 (1.7)	1.9 (1.7)

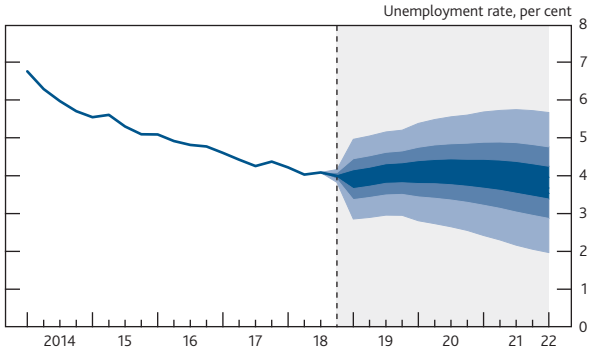
(a) The table shows the projections for annual average GDP growth rates of modal, median and mean projections for four-quarter growth of real GDP implied by the fan chart. The figures in parentheses show the corresponding projections in the November 2018 *Inflation Report* excluding the backcast. The projections have been conditioned on the assumptions in **Table 5.B** footnote (b).

Chart 5.7 Projected probabilities of GDP growth in 2020 Q1 (central 90% of the distribution)(a)



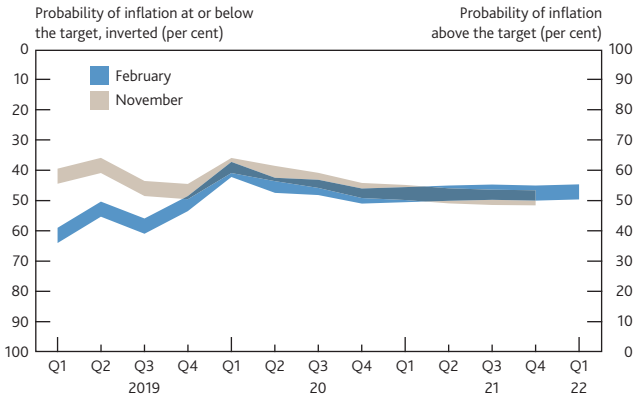
(a) **Chart 5.7** represents the cross-section of the GDP growth fan chart in 2020 Q1 for the market interest rate projection. The grey outline represents the corresponding cross-section of the November 2018 *Inflation Report* fan chart for the market interest rate projection. The projections have been conditioned on the assumptions in **Table 5.B** footnote (b). The coloured bands in **Chart 5.7** have a similar interpretation to those on the fan charts. Like the fan charts, they portray the central 90% of the probability distribution.
(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 5.8 Unemployment projection based on market interest rate expectations, other policy measures as announced



The fan chart depicts the probability of various outcomes for LFS unemployment. It has been conditioned on the assumptions in **Table 5.B** footnote (b). The coloured bands have the same interpretation as in **Chart 5.1**, and portray 90% of the probability distribution. The calibration of this fan chart takes account of the likely path dependency of the economy, where, for example, it is judged that shocks to unemployment in one quarter will continue to have some effect on unemployment in successive quarters. The fan begins in 2018 Q4, a quarter earlier than the fan for CPI inflation. That is because Q4 is a staff projection for the unemployment rate, based in part on data for October and November. The unemployment rate was 4.0% in the three months to November, and is projected to be 4.0% in Q4 as a whole. 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 5.9 Inflation probabilities relative to the target



The February and November 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.

few years as slack has been eroded and are expected to strengthen further as excess demand builds. Since the November *Report*, wage growth has continued to increase, reflecting the tight labour market. In conjunction with weak productivity growth, higher wage growth has pushed up growth in unit labour costs, which has been stronger than was expected in November. Over the forecast period, higher unit labour costs are passed through into CPI inflation. That is projected to be accompanied by some rebuild in companies' margins, which appear to have been squeezed over the past as production costs have risen by more than consumer prices. There is a risk that any desired rebuild in margins is constrained by competitive pressures.

Conditional on market interest rates, CPI inflation is projected to be slightly above the target in the second and third years of the forecast period (**Table 5.F**).

5.2 The projections for demand, unemployment and inflation

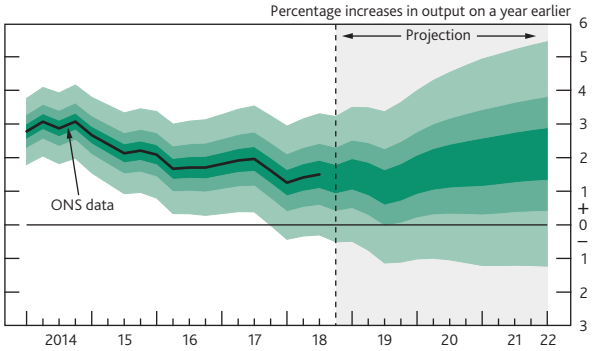
Based on the judgements above and conditioned on the market path for Bank Rate, as well as an assumption of a smooth withdrawal from the EU, the MPC projects four-quarter GDP growth to fall during 2019, before picking up to close to 2% in 2021 (**Table 5.G**). Demand growth is weaker than the November forecast in the near term (**Chart 5.7**), but the projection is somewhat higher further out. Demand and business investment growth are boosted as Brexit uncertainties are assumed to subside. Fiscal policy loosening supports demand relative to the November forecast. Consumption growth is projected to be modest relative to historical rates. The risks around the projection are balanced, as in November.

The economy's supply capacity is judged likely to grow at a subdued pace — of just under 1½% per year on average — over the forecast period. That is slightly slower than projected in November, and excess demand builds to a somewhat greater extent.

The unemployment rate rises a little in 2019, as demand growth weakens, before falling back as growth recovers (**Chart 5.8**).

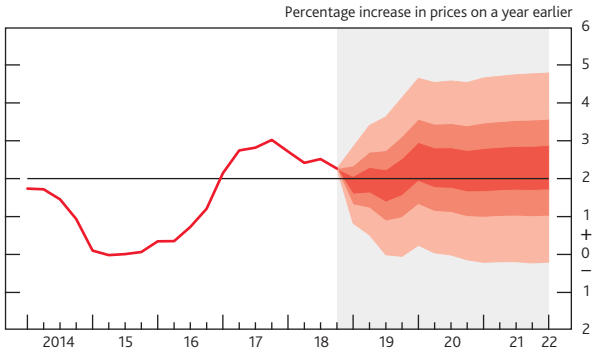
CPI inflation has declined, and is projected to fall below the MPC's 2% target over much of 2019, partly reflecting a decrease in petrol prices. CPI inflation is then judged likely to rise above the target as domestic inflationary pressures build (**Chart 5.9**). It is projected to be a little higher than in November over much of the third year of the forecast period, reflecting the greater degree of excess demand. The risks around the inflation projection remain balanced.

Chart 5.10 GDP projection based on constant nominal interest rates at 0.75%, other policy measures as announced



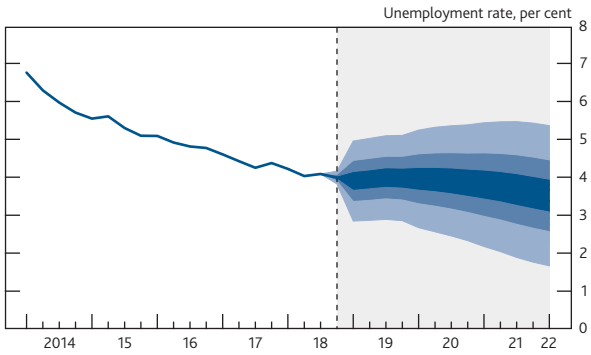
See footnote to **Chart 5.1**.

Chart 5.11 CPI inflation projection based on constant nominal interest rates at 0.75%, other policy measures as announced



See footnote to **Chart 5.2**.

Chart 5.12 Unemployment rate projection based on constant nominal interest rates at 0.75%, other policy measures as announced



See footnote to **Chart 5.8**.

Charts 5.10, **5.11** and **5.12** show the MPC's projections under the alternative constant rate assumption. That assumption is that Bank Rate remains at 0.75% throughout the three years of the forecast period, before rising towards the market path over the subsequent three years. Under that path, GDP growth is slightly stronger. Unemployment falls to 3½%. Inflation ends the forecast period a little further above the target at 2.3%.

Box 5
Some sensitivities of the economy to uncertainties around the nature of the UK's withdrawal from the EU

As set out in the November 2018 *Report*, the outlook for growth, employment and inflation depends significantly on the nature of EU withdrawal.(1) Changes in expectations about the eventual Brexit outcome, and the uncertainties around those expectations, will affect the economy. This box explores the sensitivity of GDP and inflation to some of those channels.

The outcome of the Brexit negotiations is unknown at present, and that uncertainty is affecting the economic outlook. This effect comes through two main channels. First, changes in people's expectations about the likelihood of different potential eventual outcomes — both for the form of new trading arrangements and the transition to them — can affect asset prices and the spending decisions of households and companies. Second, changes in the amount of uncertainty itself can affect demand in the economy. When uncertainty is elevated, companies have an incentive to postpone some investment projects until the outlook becomes clearer, for example. Households too might defer some spending, particularly on major purchases. Greater uncertainty also tends to push up risk premia on sterling assets, as investors are likely to require additional compensation to cover the associated greater range of possible outcomes. That weighs on the prices of financial assets such as corporate bonds, equities and bank funding instruments, leading to a tightening in financial conditions.

The MPC's projections are currently conditioned on the assumption of a smooth adjustment to the average of a range of possible outcomes for the United Kingdom's eventual trading relationship with the European Union. They are also conditioned on a range of asset prices.

Even under the assumption of a smooth adjustment, the economy can behave very differently depending on what households, firms and financial markets expect about the nature of the eventual trading relationship and the transition to it. When greater clarity emerges about the nature of EU withdrawal, the MPC expects uncertainty to diminish and asset prices — particularly the exchange rate — to adjust. Those developments will affect the MPC's projections for GDP and inflation. This box sets out the sensitivity of the MPC's projections to movements in first, the exchange rate and second, measures of uncertainty and financial conditions.

Exchange rate

The sterling exchange rate has depreciated by around 17% since its pre-referendum peak. Over that period, it has been sensitive to news about the UK's likely future economic trading relationship with the EU.

As explained in Box 4 in the November 2018 *Report*, the exchange rate may adjust when greater clarity emerges about the nature of EU withdrawal. If it becomes clear that there will be a smooth transition to a relationship that is judged to have a relatively small long-term economic impact, the exchange rate is likely to appreciate. In contrast, if there is an expectation that the long-term economic impact of the new relationship would be large, sterling could depreciate.

There is considerable uncertainty about the likely magnitude of those changes. To illustrate the sensitivity of the MPC's projections to changes in the exchange rate, **Table 1** shows how the projections for growth and inflation would differ if sterling appreciated or depreciated by 5%, all else equal. These are mechanical projections where the only change to the forecast inputs is the exchange rate path. No allowance is made for movements in other aspects of the forecast that are also likely to be affected by the driver of the exchange rate move. For example, if sterling appreciated in response to a reduced perceived probability of a 'no deal' Brexit, other asset prices might be expected to rise and uncertainty to fall.

Table 1 GDP growth and inflation sensitivities to different exchange rate paths, holding everything else, including monetary policy, constant(a)

Per cent

	Annual GDP growth			CPI inflation		
	2019	2020	2021	2019 Q4	2020 Q4	2021 Q4
5% depreciation	1.3	1.8	2.0	2.3	2.5	2.4
February 2019 modal projection	1.2	1.5	1.9	2.0	2.1	2.1
5% appreciation	1.1	1.2	1.8	1.7	1.7	1.8

(a) Modal projections for annual average GDP growth, excluding the backcast, and four-quarter CPI inflation rate.

Table 1 shows that a change in the exchange rate of this magnitude can have a substantial impact on the projections for GDP and CPI inflation.

Uncertainty and financial conditions

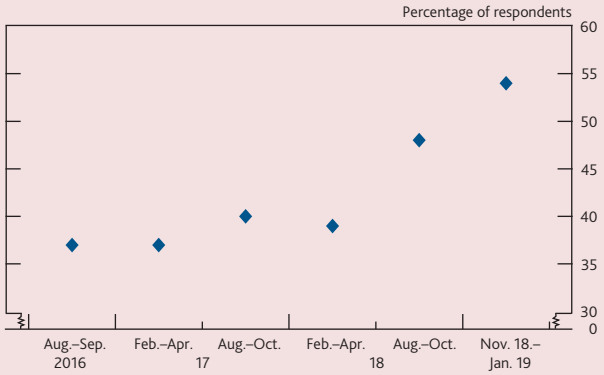
A range of evidence suggests that uncertainty has been elevated since the EU referendum, and that it has intensified over the past three months. For example, responses to the *Deloitte CFO Survey* suggest that the proportion of companies rating the level of financial and economic uncertainty facing their business as high or very high picked up further in 2018 Q4. Results from the Bank's Decision Maker Panel (DMP) Survey suggest that the proportion of firms for which Brexit was in their top three sources of uncertainty increased further in the three months to January 2019 (**Chart A**). Consumer

(1) See Box 4 in the November 2018 *Inflation Report*.

confidence about the general economic situation has been subdued since 2016 and households' expectations about their own financial situation have deteriorated over the past few months (Section 2). Moreover, risk premia on UK financial assets have been elevated since the referendum. For instance, estimates of equity risk premia for UK-focused companies remain materially above their pre-referendum averages.

Chart A Brexit uncertainties have risen in recent months

DMP Survey: percentage of firms reporting that Brexit is in their top three sources of uncertainty(a)



Sources: DMP Survey and Bank calculations.

(a) Question: 'How much has the result of the EU referendum affected the level of uncertainty affecting your business?'. Results show the percentage of respondents that place the EU referendum in their top three sources during the survey period.

Heightened uncertainty is projected to wane gradually in the MPC's central projection. Depending on how Brexit negotiations evolve, however, uncertainty could be higher or lower. **Table 2** illustrates how different paths for uncertainty and financial conditions could affect the MPC's forecasts for GDP growth and CPI inflation. For the purposes of this exercise, a shock has been applied to uncertainty, bank funding spreads, corporate bond spreads and equity prices. Measures of those are each one standard deviation of their historical series higher or lower than in the February central projection over the entire forecast period.(2) In the first row of the table, uncertainty is persistently lower and financial conditions are looser, with bank funding spreads lower, corporate bond spreads narrower and equity prices higher. In the final row, uncertainty is persistently higher and financial conditions are tighter. As above, no allowance is made for movements in other aspects of the forecast that might also be affected by the underlying shock.

Table 2 shows that substantial shocks to uncertainty and associated changes in financial conditions can have a significant effect on the MPC's projections.

Table 2 GDP growth and inflation sensitivities to different assumptions about uncertainty and financial conditions, holding everything else, including monetary policy, constant(a)

Per cent

	Annual GDP growth			CPI inflation		
	2019	2020	2021	2019 Q4	2020 Q4	2021 Q4
Lower uncertainty and looser financial conditions	1.6	2.2	2.3	2.1	2.4	2.5
February 2019 modal projection	1.2	1.5	1.9	2.0	2.1	2.1
Higher uncertainty and tighter financial conditions	0.8	0.8	1.5	1.9	1.8	1.7

(a) Modal projections for annual average GDP growth, excluding the backcast, and four-quarter CPI inflation rate.

Conclusion

As the MPC has communicated, the implications of Brexit developments for the appropriate path of monetary policy will depend on the balance of their effects on demand, supply and the exchange rate. It is likely that the exchange rate, uncertainty and financial conditions will remain particularly sensitive to Brexit developments in the months ahead. For example, if a deal and transition period were to be agreed in the near future, sterling could appreciate, which would exert downward pressure on the MPC's forecasts for GDP and CPI inflation. It is also likely that uncertainty would wane more quickly, however, which would serve to boost GDP and CPI inflation. If the probability attached to a smooth transition was perceived to have fallen, that could lead to a sterling depreciation as well as a further intensification of uncertainty. The direction of the combined impact of any changes in those variables on the MPC's projections for output and inflation cannot be determined in advance.

The monetary policy response to changes in the uncertainties around the nature of the UK's withdrawal from the EU is therefore not automatic and could be in either direction. Under all circumstances, the MPC will respond to any material change in the outlook to bring inflation sustainably back to the 2% target over time while — consistent with its remit — supporting jobs and activity.

(2) Based on past data for the principal component of uncertainty indicators shown in the box on pages 14–15 of the May 2016 *Inflation Report*; bank all-in wholesale funding spreads; sterling investment-grade and sub-investment grade non-financial corporate bond yields; changes in FTSE All-Share equity prices; and the equity risk premium.

Box 6
Other forecasters' expectations

This box reports the results of the Bank's most recent survey of external forecasters, carried out in January.[1] On average, respondents expected four-quarter GDP growth to remain broadly stable over the next three years (**Table 1**). In 2022 Q1, that is somewhat lower than the February *Inflation Report* forecast. On average, external forecasters expected the unemployment rate to pick up over the next three years.

Table 1 Averages of other forecasters' central projections[a]

	2020 Q1	2021 Q1	2022 Q1
CPI inflation[b]	2.0	2.0	2.0
GDP growth[c]	1.5	1.7	1.7
LFS unemployment rate	4.2	4.5	4.6
Bank Rate (per cent)	1.1	1.4	1.6
Stock of purchased gilts (£ billions)[d]	435	429	414
Stock of purchased corporate bonds (£ billions)[d]	10	10	10
Sterling ERI	80.5	79.7	79.8

Source: Projections of outside forecasters as of 25 January 2019.

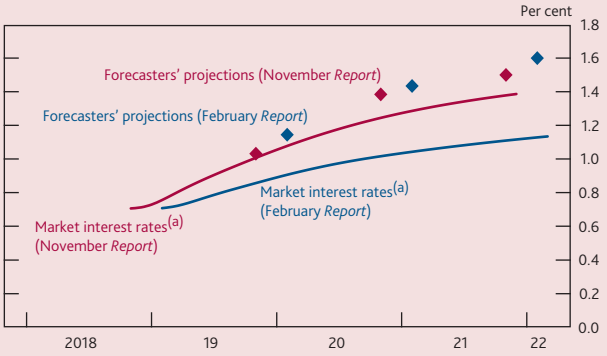
(a) For 2020 Q1, there were 20 forecasts for CPI inflation, 19 for GDP growth and for Bank Rate, 16 for the unemployment rate, 12 for the stock of gilt purchases, 10 for the stock of corporate bond purchases and 11 for sterling ERI. For 2021 Q1, there were 16 forecasts for CPI inflation, 14 for GDP growth, 13 for the unemployment rate, 15 for Bank Rate, 9 for the stock of gilt purchases, 7 for the stock of corporate bond purchases and 10 for sterling ERI. For 2022 Q1, there were 15 forecasts for CPI inflation, 14 for GDP growth, 13 for the unemployment rate, 15 for Bank Rate, 9 for the stock of gilt purchases, 7 for the stock of corporate bond purchases and 10 for sterling ERI.
(b) Twelve-month rate.
(c) Four-quarter percentage change.
(d) Original purchase value. Purchased via the creation of central bank reserves.

A higher expected path for Bank Rate could explain some of the weakness in external forecasters' projections relative to the February *Report* forecast. External forecasters' central expectations for Bank Rate were, on average, little changed compared with three months ago (**Chart A**). But the fall in the market-implied path for Bank Rate since the November *Report* (Section 1) has meant that forecasters' expectations are now further above the market-implied path for Bank Rate upon which the February *Report* forecast is conditioned. As in recent surveys, almost all forecasters expected the current stock of gilt and corporate bond purchases to remain broadly stable over the next three years.

External forecasters' expectations for inflation have ticked up slightly since November, on average, and inflation is now expected to be at the target across all three years of the forecast. In addition to their central case, forecasters also report the distribution of probabilities that they place upon different inflation outcomes. Relative to November, forecasters placed a greater probability on inflation being at or above the target in three years' time (**Chart B**).

Chart A Expectations of Bank Rate are little changed, unlike market interest rates which have fallen

Market interest rates and averages of forecasters' central projections of Bank Rate

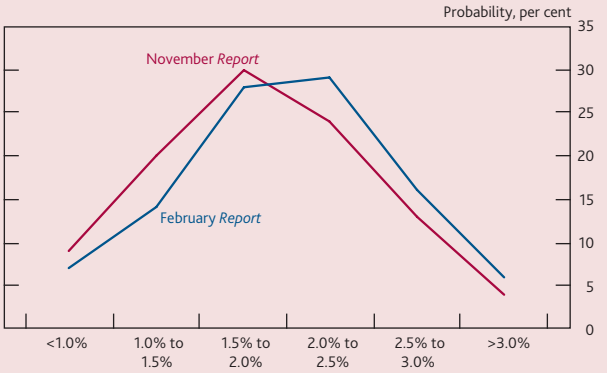


Sources: Bloomberg Finance L.P., projections of outside forecasters provided for *Inflation Reports* in November 2018 and February 2019 and Bank calculations.

(a) Estimated using instantaneous forward overnight index swap rates in the 15 working days to 24 October 2018 and 30 January 2019 respectively.

Chart B Forecasters are placing a greater probability on inflation being at or above the target in three years' time

Average of forecasters' probability distributions for CPI inflation in three years' time[a]



Sources: Projections of outside forecasters provided for *Inflation Reports* in November 2018 and February 2019.

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

(1) For detailed distributions, see 'Other forecasters' expectations'.

Glossary and other information

Glossary of selected data and instruments

AWE – average weekly earnings.
CPI – consumer prices index.
CPI inflation – inflation measured by the consumer prices index.
DGI – domestically generated inflation.
DMP – Decision Maker Panel.
ERI – exchange rate index.
GDP – gross domestic product.
LFS – Labour Force Survey.
PMI – purchasing managers' index.
PPI – producer price index.
RPI – retail prices index.
RPI inflation – inflation measured by the retail prices index.
ULC – unit labour cost.
UWC – unit wage cost.

Abbreviations

BCC – British Chambers of Commerce.
BRC – British Retail Consortium.
CBI – Confederation of British Industry.
CFO – chief financial officer.
CIPD – Chartered Institute of Personnel and Development.
CIPS – Chartered Institute of Purchasing and Supply.
COICOP – Classification of Individual Consumption by Purpose.
ECB – European Central Bank.
EME – emerging market economy.
EU – European Union.
FOMC – Federal Open Market Committee.
FTSE – Financial Times Stock Exchange.
G7 – Canada, France, Germany, Italy, Japan, the United Kingdom and the United States.
GfK – Gesellschaft für Konsumforschung, Great Britain Ltd.
GVA – gross value added.
ICE/BoAML – Intercontinental Exchange/Bank of America Merrill Lynch.
IMF – International Monetary Fund.
ISA – individual savings account.
LTV – loan to value.
MFI – monetary financial institution.
MPC – Monetary Policy Committee.
MSCI – Morgan Stanley Capital International Inc.
MTIC – missing trader intra-community.
NPISH – non-profit institutions serving households.
OBR – Office for Budget Responsibility.
OECD – Organisation for Economic Co-operation and Development.
Ofgem – Office of Gas and Electricity Markets.
ONS – Office for National Statistics.
PPP – purchasing power parity.
PwC – PricewaterhouseCoopers.
R&D – research and development.
REC – Recruitment and Employment Confederation.
RICS – Royal Institution of Chartered Surveyors.
S&P – Standard & Poor's.
SMEs – small and medium-sized enterprises.
TFS – Term Funding Scheme.
TLC – total labour costs.
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.